At Minnesota Power, Advanced Data Analytics Drives Continuous Process Improvement

Minnesota Power has been serving customers since 1906. An operating division of Duluth, Minnesota-based ALLETE, Minnesota Power is committed to transforming its customers’ energy landscape through innovative and sustainable solutions. Nowhere is this commitment more evident than in the way that the company pursues continuous process improvement.

The company generates, transmits, and distributes electricity across a 26,000 square-mile region of northern Minnesota.

A Mandate for Proactive Maintenance

The culture at Minnesota Power puts a premium on proactive continuous improvement and reliability. Not to say that there’s no place for reactive management; engineers manage over 9,000 assets at the company’s Boswell coal plant alone, so unexpected problems remain a fact of life. Still, Minnesota Power has clearly articulated the drive to spend more time performing proactive work – with the aid of performance monitoring – and less time reacting to alarms.

Fortunately, Minnesota Power has embraced an asset management solution involving Atonix Digital™ Monitoring & Diagnostics (M&D) and Black & Veatch Remote Monitoring services. M&D, a SaaS product built on Atonix Digital’s ASSET360 data analytics platform, applies industrial IoT and advanced pattern recognition (APR) technologies to help organizations simplify and improve asset management. Black & Veatch – a global engineering, procurement, and construction company – uses ASSET360 to deliver its Remote Monitoring services, supporting engineering and operations teams by closely monitoring their assets around the clock and informing them of emerging issues before critical failures occur.

“ASSET360 helps us track all that. It provides us with a report card to show our stakeholders how effectively our systems reduce our mercury, NOx, and CO emissions.”

Steve Otto, Senior Engineer

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The asset management solution has helped further the company’s transformational efforts. “When an issue comes up in ASSET360, we follow up on it,” explains Steve Otto, Senior Engineer at Minnesota Power. “And it’s helped us to justify many of our enhancements.” The earlier an issue is detected, the sooner it can be analyzed and resolved before costs add up significantly. An issue unchecked can incur tens of thousands of dollars in cost per month. Examples of issues identified with the help of ASSET360 alerts include heat rate issues (such as a bypassed flow caused by a valve leak), instrumentation issues, and combustion optimization.

These and other remediation projects triggered by M&D alerts enabled over $2 million in savings at the Boswell plant in 2017.

**Benefits Beyond Cost Control**

But the advantages of advanced data analytics are not limited to cost savings. They also help Minnesota Power track progress on its *EnergyForward* strategy, which calls for transitioning its energy mix to two-thirds renewable energy and renewable-enabling natural gas, and one-third environmentally compliant baseload coal.

To this end, Atonix Digital Monitoring & Diagnostics has been recording emissions improvements resulting from modifications made to actuators by Minnesota Power engineers in Fall of 2015, and verified that the modifications’ impact to operations was minimal.

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**Effective Communication the Ultimate Goal**

Not surprisingly for a company that values planning, programs, and projects, Minnesota Power considers effective communications a cornerstone for success.

“That might be the biggest challenge,” Otto reflects. “Getting everybody on the same page.”

For Minnesota Power, overcoming that challenge means striking a balance between completeness and conciseness in reporting. But where some may find the goal elusive, Otto puts his faith in continuous process improvement. Indeed, continuous improvement is the very spirit that drives Atonix Digital’s intensive development of ASSET360’s functionality and user experience. This development relies heavily on close collaboration between Atonix Digital product managers and customers like Minnesota Power to ensure that all products in the ASSET360 portfolio continue to meet the industry’s fast-evolving needs.

“It’s capabilities like these where Atonix is continually improving,” says Otto, “with the scorecards, the historian point models, and the traceability...these enhancements improve their analyses and broaden everyone’s knowledge across our operations teams.”

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