Minnesota Power Saves $2 Million Annually With Prometheus APM

Company

🏢 Minnesota Power

📍 Duluth, MN

🏭 Power Generation

Challenges

- A need to transform operations from reactive to proactive

- A need to control emissions and optimize reagent usage while meeting customers' requests for increased unit flexibility

Results

- $2 million in cumulative annual savings

- Early issue detection through Prometheus APM Advanced Pattern Recognition (APR) capabilities

- Quantitative tracking of emission reduction measures

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ABOUT MINNESOTA POWER

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 Prometheus APM Digital Monitoring & Diagnostics (M&D) and Black & Veatch Remote Monitoring services. M&D, a SaaS product built on Prometheus Group's Prometheus APM 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 Prometheus APM 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.

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"Prometheus APM helps us track everything. 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, Minnesota Power

The asset management solution has helped further the company's transformational efforts. "When an issue comes up in Prometheus APM, 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 Prometheus APM 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 Energy Forward 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, Prometheus APM 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.

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, "is 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 Prometheus Group's intensive
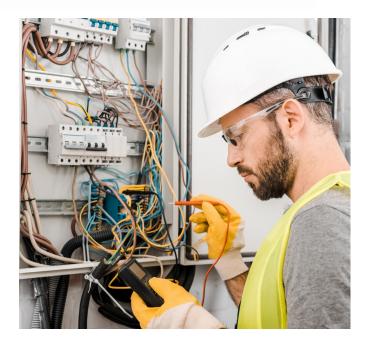
development of Prometheus APM's functionality and user experience. This development relies heavily on close collaboration between Prometheus Group product managers and customers like Minnesota Power to ensure that Prometheus APM continues to meet the industry's fast-evolving needs.

> *"It's capabilities like these where Prometheus APM 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."*
>
> - Steve Otto | Senior Engineer, Minnesota Power

Learn more about how Prometheus Group can help your organization today

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About Prometheus Group

Prometheus Group is a leading global provider of comprehensive and intuitive enterprise asset management software solutions that work within ERP systems and span the full work management life cycle for both maintenance and operations. Developed jointly with end users, Prometheus software enhances the customer experience for planning, scheduling, and executing work for both routine maintenance and shutdowns and turnarounds, all while protecting the workforce with safety solutions and electronic permit to work. Our straight-forward functionality, graphical visualization, and simple processes enable customers to increase productivity, reduce costs, and improve reporting. For more information, please visit www.prometheusgroup.com.