

Ameren Improves Reliability at Four Plants

Ameren has developed cost-effective ways to improve performance and reliability at four fossil power plants by implementing EPRI's Plant Maintenance Optimization (PMO) and Plant Reliability Optimization (PRO). The programs were initiated at the utility's Labadie, Meramec, Rush Island, and Sioux coal-fired plants from 2001 to 2004. Since the initial implementation, Ameren has maintained the integrity of these processes and has applied continuous improvement methods by their own efforts and by their involvement in the EPRI PRO Users Group.

Achieving Additional Generation Through Improved Plant Performance

Like many U.S. utilities, Ameren has not built any new baseload generation for some time. As a result, the company's existing plants are being pushed to produce more power when needed. To achieve additional generation, these plants are seeking to improve performance and reliability.

For Ameren, performance includes financial performance, not just reliability. Plant managers are required to maintain or increase earnings by reducing costs while they are increasing reliability. When new programs are implemented to improve maintenance activities, the programs must be cost-effective.

Maintenance and Reliability Optimization Tools

EPRI's Maintenance Management and Technology Program has developed several tools to assist utilities in improving fossil plant performance and reliability. Plant Maintenance Optimization (PMO) is an overall process to improve an organization's maintenance business. Optimizing maintenance includes improving the four major maintenance processes: Work Identification, Work Control, Work Execution, and Work Closeout. It also involves improving an organization's maintenance management and the business culture, people skills and the workforce culture, and the effective application of technology to automate and improve maintenance effectiveness.

EPRI's Plant Reliability Optimization (PRO) is a methodology to achieve the optimum balance of preventive maintenance, proactive maintenance, and condition-directed maintenance activities, with limited corrective maintenance. The goal of PRO is to maintain a low equivalent forced outage rate (EFOR) and high equivalent availability, low cost per kilowatt-hour, and high utilization of limited resources by proper work planning and scheduling of activities. EPRI's PRO Users Group provides a forum for utilities to share information on PRO programs and practices, identify ways to further develop the PRO process, and recommend solution paths.



Rush Island Power Plant

*Ameren — A 2009 Technology
Transfer Award Recipient*

"PMO has been a key factor in allowing AmerenUE to control our O & M cost while maintaining a high level of equivalent availability"

David L. Strubberg, P. E., PMP
Plant Manager, Rush Island
Ameren

Plant Reliability Optimization at Ameren

Ameren worked with EPRI to initiate a PMO program, which over time, based on changing needs, evolved into a PRO program. The process involved initial workshops, interviews, and assessments to identify issues faced at Ameren plants; development of detailed task plans, schedules, and resource requirements; analysis of current-state processes and technologies; design of future-state PRO process flows and performance indicators; coaching in Preventive Maintenance Basis, Condition-Based Maintenance, and Work Week Management; and self-assessment and corrective action programs. The process also involved deployment of Preventive Maintenance (PM) Basis software, which helps establish credible maintenance recommendations and their supporting basis from expert elicitation. The impact of the programs is continually communicated back to the stakeholders through documented, measureable results.

In addition, Ameren committed itself to long-term continuous improvement by its leadership and active participation in the PRO Users Group.

Measureable Results: Increased Equivalent Availability

Ameren has experienced gains in reliability and in overall cost-effectiveness due to the utility's commitment to improving maintenance and reliability processes, better application of condition-monitoring technologies, and diligence in maintaining the processes in a living program.

One of the goals of Ameren's PRO program was to increase equivalent availability (EA) at its fossil plants. From 2002 to 2005, EA increased from 80 to 91%. The measure has since leveled off at 89%, which illustrates the importance of maintaining commitment to continuous improvement

Related EPRI Work

Consolidated Plant Maintenance Optimization Guideline for Fossil Power Plants. EPRI, Palo Alto, CA: 2003. 1014377.

Plant Maintenance Optimization Assessment Guideline. EPRI, Palo Alto, CA: 2000. 1000321.

2008 FMAC Library: Fossil Maintenance Applications Library. EPRI, Palo Alto, CA: 2009. 1019387.

Preventive Maintenance Basis Database Software. Version 2.0. EPRI, Palo Alto, CA: 2007. 1014971.

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com)

CONTACTS

Steve Hesler, Program Manager
Operations & Maintenance
704.595.2680, shesler@epri.com