

104 Fossil Maintenance Applications Center (FMAC)

Program Overview

Program Description

The Fossil Maintenance Applications Center (FMAC) provides practical information for improving fossil plant maintenance-related operations and maintenance (O&M) processes, reliability, and cost through collaboration with participating organizations. Information is disseminated via maintenance guides, technical newsletters, hands-on workshops, user groups, Internet resources, and a toll-free technical support hotline. FMAC works to resolve maintenance, equipment, and reliability problems using solutions that are shared within communities of interest.

Industry Needs and Issues Addressed

- Chronic equipment problems in the more than 1,500 fossil units more than 30 years old
- New maintenance challenges created by the addition of equipment to upgrade the performance and improve the emissions of existing plants
- The need to reduce maintenance-related O&M costs for aging equipment while improving equipment reliability
- Diminishing collective experience and knowledge, and an urgent need to develop new maintenance and engineering staff as the workforce retires
- Training and knowledge needed to develop new staff is not always readily available from vendors or equipment suppliers

Impact

- Improved reliability through guidelines that present the most current technology-based preventive and condition-based maintenance solutions
- Faster solutions to day-to-day maintenance issues following proven techniques and access to hotline support
- Strategies to resolve urgent problems using guidelines developed according to member priorities
- Improved staff knowledge and competence through training that addresses industry-wide needs
- Better maintenance practices and reduced human error through the use of clear, easy-to-read guidelines, complete with precautions and tips for error avoidance

Key Accomplishments

- Produced 93 maintenance applications guides and eight webcasts.
- Supported seven component/issue user and interest groups that aid members' staff development efforts
- Organized four workshops per year, directly related to components targeted for the highest impact in improving reliability
- Delivered technology improvements on current reliability problem areas via a webcast series
- Provided annual electronic library CDs with information on past and current products for members who participate for three or more years
- Handled more than 100 hotline calls from members needing help to resolve plant problems, providing solutions or linking them to other members with similar experience

Current Year Objectives

- Member-selected component application guideline developed each year as guided by member priorities.
- Three to four component and process guideline transfers from the nuclear sector, applicable to fossil stations based on selections by FMAC members

- Seven user and interest groups sessions
- Three to four training workshops conducted annually
- Collective industry knowledge and field-proven techniques to solve day-to-day maintenance issues
- Two “FMAC Memo” newsletters that contain technical articles on maintenance-related topics, project updates, and a list of scheduled workshops and meetings
- Webcast training opportunities, as prioritized by members, on a variety of topics related to maintenance. Full audio copies of webcasts are recorded and placed on the FMAC website for access at any time.
- Transfer of nuclear maintenance application guides to FMAC, based on member priorities
- Hotline support for members’ technical needs

Industry Involvement

- Estimated 2009 funding: \$1.4M

Program Technical Lead

Ray Chambers, 704-595-2080, rchambers@epri.com

Summary of Projects

Project Number	Project Title	Value
P104.001	Fossil Maintenance Applications Center	Technical maintenance guidelines address plant maintenance, including equipment, systems, and processes. A typical equipment guide will include equipment descriptions, failure modes, application information, troubleshooting, preventive maintenance tasks and basis, and training material for maintenance, operations, and engineering.

Project Descriptions

P104.001 Fossil Maintenance Applications Center (100846)

Issue

Aging generation facilities face rising costs as more equipment becomes obsolete and equipment suppliers focus on upgrades instead of repair options. Power stations also are losing experienced maintenance and engineering plant staff, and have limited resources to develop new maintenance and engineering staffs. As a result, some stations have experienced serious day-to-day maintenance issues, and most are installing new equipment to upgrade performance or control emissions, creating additional maintenance challenges.

Description

Technical maintenance guidelines will address component or equipment maintenance. A typical equipment guide will include equipment descriptions, failure modes, application information, troubleshooting, preventive and condition-based maintenance tasks, operator inspection tasks, and any special considerations for each component. The guides also provide basic knowledge about the components to help stations develop a solid training basis for the staff. The Preventive Maintenance Basis Database (PMBD) is supported by FMAC. Information used to create the guide documents is applied to the PMBD to maximize overall reliability based on failure risk.

Value

- Guidelines provide updated information on critical fossil plant equipment.
- Guidelines are in standard formats and include the most current technology-based solutions in preventive and condition-based maintenance.
- Subsections in the guidelines provide basic and advanced knowledge to strengthen or provide staff training.
- Information is provided in a clear, consistent, easy-to-read manner, with precautions and advice to reduce human error.

How to Apply Results

More than 90 maintenance applications guides are currently available for members to distribute internally throughout their systems. A CD (electronic library) is an annual compilation of past and current guideline documents. These guides function as reference material for job planning, equipment troubleshooting, and component performance monitoring. Members can use FMAC webcasts of technology improvements on current reliability issues for plant-specific training, either for new hires or continuous improvement. FMAC supports seven component/issue user and interest groups and four workshops per year, focused on fossil components that can have the highest impact on improving the reliability of plant equipment. Hotline calls help members resolve plant problems by providing solution suggestions or linking them to other members with similar experience.

2009 Products

Product Title & Description	Planned Completion Date	Product Type
<p>Technical Guides on component topics selected by members annually: Member-selected technical maintenance guidelines address topics related to plant maintenance, including plant equipment, systems, and processes. Technical guides on component topics are selected by members annually. Current backlog topics include SCRs, maintenance of instrumentation calibration equipment, maintenance of transformer bushings, maintenance of isophase busses, and maintenance guidelines for coal piping.</p>	12/31/2009	Technical Report
<p>Workshops on topics of need identified by members annually: FMAC will support four workshops per year on the components with the highest impact on improving reliability. Typical topics include pump maintenance, breaker maintenance, lifting and rigging, motor maintenance, and transformers and switchyards.</p>	12/31/2009	Workshop, Training, or Conference
<p>7 Equipment User Groups: FMAC hosts component/issue user and interest groups in seven focus areas to allow members to communicate and establish working relationships to share and collaborate on resolutions. Subjects include pulverizers, pumps, circuit breakers (all types), motors, relief valves, transformers and switchyards, and hoisting, rigging and cranes.</p>	12/31/2009	Technical Resource
<p>Web casts supporting FMAC annual work and technology transfer: Information delivered via webcast that addresses technology improvements to resolve current reliability problems.</p>	12/31/2009	Technical Resource

Product Title & Description	Planned Completion Date	Product Type
Hotline Support for member questions and requests: The hotline call system helps members resolve plant problems by providing solution suggestions or linking them to other stations with similar experience.	12/31/2009	Technical Resource
Plant Maintenance Basis Database Module Updates: New guidelines are developed each year for various equipment. These might require the development of additional tasks or modification of existing tasks for the PMBD. FMAC sponsors these updates to ensure that the database always is accurate and consistent with the center's guideline knowledge base.	12/31/2009	Technical Resource

Future Year Products

Product Title & Description	Planned Completion Date	Product Type
Technical Guides: Technical Guides: Member-selected technical maintenance guidelines that address topics related to plant maintenance, including plant equipment, systems, and processes.	2010	Technical Report
Workshops: Workshops: FMAC will support four workshops per year on components with the highest impact on improving reliability.	2010	Workshop, Training, or Conference
Equipment User Group: Equipment User Groups: FMAC hosts component/issue user and interest groups in seven focus areas for development of member staffs.	2010	Technical Resource
Webcasts: Webcasts: Information is delivered via webcast on technology improvements to resolve current reliability problems.	2010	Technical Resource
Hotline Support: Hotline: The hotline call system helps members resolve plant problems by providing solution suggestions or linking them to other members with similar experience.	2010	Technical Resource
Technical Guides	2011	Technical Report
Workshops	2011	Workshop, Training, or Conference
Equipment User Group	2011	Technical Resource
Webcasts	2011	Technical Resource
Hotline Support	2011	Technical Resource