



Key deliverables now available

The following is a small selection of items recently published by EPRI. To view complete lists of your company-funded research reports, updates, software, training announcements, and other program deliverables, log in at www.epri.com and look under My Research Areas.

[Interim Guidance on Chemical Cleaning of Supercritical Units \(1017476\)](#)

This report provides comprehensive interim guidance for assessing and chemically cleaning supercritical units for both feedwater corrosion product deposits and high-temperature oxides formed *in situ* on the low-alloy ferritic tubing of supercritical steam generators. The growth dynamics of *in situ*-grown oxides are also detailed, as well as methodologies for determining the most appropriate time to chemically clean supercritical units based on *in situ*-grown oxide thickness, deposit loading, tube operating temperatures, and tubing metallurgy. Further guidance is provided for proper selection of cleaning solvents and cleaning processes for the effective and efficient removal of deposits and *in situ*-grown oxides.

[Concepts to Enable Advancement of Distributed Resources \(1020432\)](#)

In managing the load response of distributed resources, replacement of the command-and-control approach with an inform-and-motivate approach allows the customer and the power grid to achieve fully transparent, extensible, and scalable interoperability. The emerging smart grid system offers key elements that can provide “smartness” in end-use devices as well as in the grid itself. This white paper offers an update to traditional control-based thinking to present an approach that facilitates the independent development and integration of intelligent end-use products. The concept enables a device manufacturer to design its product or system to be qualified as a virtual end node that is able to participate in any larger smart grid system without risk of obsolescence.

[Fossil Maintenance Basis Optimization: Challenges and Strategies \(1020505\)](#)

The maintenance basis optimization (MBO) process seeks to identify the preventive maintenance task strategies that are most effective at minimizing risk from premature failure of components or systems. EPRI staff recently assisted several member companies in developing a corporate MBO strategy to be implemented on a fleetwide basis at fossil generating stations. This report describes the process challenges that were encountered during the implementation of the MBO process and explains the strategies taken to overcome them. The report contains a

significant collection of human performance information, including techniques and practices, related to an effective preventive maintenance program.

[Aging Management Program Development Guidance for Power Cable Systems in Nuclear Power Plants \(1020804 and 1020805\)](#)

Concern over the reliability of low- and medium-voltage power cable systems at nuclear plants has been increasing for the past 5–10 years as it has become clear that adverse environmental or service conditions could lead to degradation of cable insulation systems over time. The Nuclear Regulatory Commission and plant managers are concerned that multiple cable circuits could fail, causing adverse safety consequences and/or plant shutdowns. These guides provide a consistent methodology for the industry to follow in developing aging management programs for low-voltage (1020804) and medium-voltage (1020805) cable circuits, including cable condition assessment and implementation of corrective actions.

[Welding and Repair Technology Center: Repair Welding Handbook \(1021074\)](#)

During the life of a power plant, it often becomes necessary to perform weld repairs of various materials in order to continue safe operation. EPRI has done a great deal of work in this area, helping utilities choose appropriate repair techniques according to the materials involved and the damage mechanism that makes the repair necessary. Drawing from this previous work, the welding repair handbook offers weld repair techniques and documented lessons learned for a wide variety of repair methods that have been proven effective. By compiling this information in a single resource, the handbook provides utilities with a reference that can serve as a convenient and comprehensive decision-making tool.

[Engineering and Economic Evaluation of Central-Station Solar Photovoltaic Power Plants \(1021320\)](#)

This report presents information gathered and analyzed by engineers and specialists on the design, materials, and recent advances in state-of-the-art solar photovoltaic components for utility-scale applications. The components of interest include the solar panels, mounting systems, inverters, and other electronic equipment required to interface with the electricity grid. An engineering and economic evaluation was performed of conceptual 10-MW central-station photovoltaic power plants for 22 combinations of technologies in four U.S. locations. The evaluation estimated annual energy capture, total capital requirements, operation and maintenance costs, and the cumulative probability distribution of the current-dollar levelized cost of electricity.