

# **Overhead Transmission**

GLANCE

Program 35

#### **Research Value**

- Enhance safety for utility workers and the public
- Extend asset life
- Improve specifications and designs for new assets
- Improve inspection and assessment capabilities
- Improve electric system resiliency and reliability

#### **Member Benefits**

- Offer guidance on managing aging structures and line components
- Provide knowledge of new inspection technologies and how these technologies work in the field
- Improve lightning performance and grounding reliability
- Design resilient transmission lines
- Provide guidance on improved live working procedures
- Deliver knowledge of increased transmission line capacity options and techniques
- Provide knowledge to improve components specifications
- Offer access to industry references on inspection and assessment, transmission line design, increased power flow and lightning and grounding

Overhead transmission owners and operators make investments in their systems to improve reliability and resiliency, reduce operation and maintenance costs, extend asset life, and improve safety.

The EPRI overhead transmission team performs industry leading R&D that enables and informs overhead transmission owners and operators to design and manage their transmission network effectively. This R&D focuses on transmission line assets across their entire life cycle from specification to removal. The research program offers a portfolio of tools and information focused on components (such as conductors, insulators, switches, connectors, and structures) and system issues such as lightning and grounding, live working, line design, high-voltage direct current lines, and transmission capacity.

Research addresses asset-specific performance and industry issues to help increase the reliability of the system while managing costs. The overhead transmission team collaborates with overhead transmission engineers, line designers, maintenance staff, expert researchers, and technology specialists to solve near-term issues, and identify and prioritize research to tackle mid-term and long-term challenges.

> EPRI Technical Contact RACHEL MOORE, Senior Team Lead 704.595.2095, ramoore@epri.com

### **Research Highlights**

	<ul> <li>Corrosion</li> <li>Optimizes the selection and application of conductors for severe service environment.</li> <li>Develops structure fleet management practices for population assessment.</li> <li>Develops atmospheric and subgrade corrosivity maps.</li> </ul>
	<ul> <li>Conductors and Connectors</li> <li>Evaluates inspection techniques and technologies for Carbon Fiber Core Conductors.</li> <li>Determines the safe design tension for ACSS conductors.</li> </ul>
Peak and average ampacity begin to the second seco	<ul> <li>Line Ratings and Increased Transmission Capacity</li> <li>Helps in identifying the effects of climate on transmission ratings.</li> <li>Determines the considerations for real time ratings and circuit components.</li> <li>Improves transmission line ratings methodologies.</li> </ul>
Inout Data	<ul> <li>Lightning and Grounding</li> <li>Evaluates alternative grounding materials for overhead lines.</li> <li>Improves shield wire performance by conducting studies and analysis.</li> </ul>
	<ul> <li>Line Design</li> <li>Conducts studies on the optimal foundation selection for transmission structures.</li> <li>Develops software tools to help improve line engineer productivity.</li> <li>Researches advanced line design and emergency restoration,</li> </ul>
	<ul> <li>Insulators</li> <li>Provide technical information for developing more effective specifications and improving the long-term performance of composite components.</li> <li>Performs accelerated aging tests of polymer insulators.</li> </ul>

## **Supplemental Projects**

Opportunities for program members beyond the annual research portfolio include:

- Risk Management for Increased Transmission Capacity (3002011286)
- Fleet Management Approach to Structure and Foundation Corrosion Management (3002007574)
- Evaluation of High Emissivity Coated Conductors (3002019820)
- Testing of Porcelain/Glass Suspension Insulators to Assess an Aging Population (3002017157)

