Program Level Supplemental Projects

Population Assessment of Overhead Transmission Assets

Objective	EPRI has developed a guide to population assessment by applying specific testing techniques that provide understanding the condition of aged in-service assets. Understanding the condition of assets aids in developing risk-based inspection methods to increase resiliency and safety of the overhead transmission system while decreasing inspection, maintenance, and failure response costs. Assets that may be included in this evaluation are: insulators, surge arresters, conductors, shield wires, connectors, and line hardware.			
Value	Key benefits of the project will include the following aspects: • Develop population assessment techniques and practices • Understanding of the health of transmission line components at or near-end of service life • Utilities can optimize inspection schedules, utilize resources efficiently, and replace transmission line components prior to a public safety risk event in which the conductor falls to the ground after component failure			
Schedule	5-12 months	*Price*	Scope Dependent	Beginning
Contact	Rachel Moore, (704) 595-2095, ramoore@epri.com			

OVERHEAD TRANSMISSION (P35) SUPPLEMENTAL PROJECTS

EPRI U for Transmission

Objective	The objective of this project is to provide high-quality, foundational technical training for engineers, as well as a system of record for both the utility and the individual.			
Value	Key benefits of the project will include the following aspects: • High-quality training material to better meet the needs of utilities by providing instruction on a variety of transmission-related topics • Professional development hours granted upon completion of the training will help engineers meet requirements for their certifications and career advancement			
Schedule	Annual membership	*Price*	$5k-$35k, SDF qualifies	Underway
Contact	Robert Haromszeki, (650) 855-1050, rharomszeki@epri.com			

Line Design Supplemental Projects

Design and Installation of Vibrated Steel Caissons: Phase 2

Objective	Full scale testing on different vibrated caissons will be conducted at a number of sites. Utilities will be able to nominate specific sites used for vibrated caisson testing. The results will be used to develop software to analyze and optimize vibrated steel caissons.			
Value	Greater accuracy and optimization for vibratory pile capacity analysis, evaluate the analytical models developed in Phase 1 using full scale testing, assess both compression and overturning capacity of vibrated caissons in full scale tests, develop software based on analytical models, and adjusted based on the results of testing.			
Schedule	24 months	*Price*	$60k per year, SDF qualifies	Underway
Contact	David Folk, (704) 595-2482, dfolk@epri.com			

Mitigating Vibration on Steel-Pole Davit Arms

Objective	Compile software to enable the design and optimization of steel pole davit arms, that assesses the risk to vortex induced vibration and produces designs that are not prone to excitation while meeting structural design objectives as efficiently as possible. This project has moved into phase 2.			
Value	This project seeks to enable utilities to; understand when vortex induced vibration may become a risk, effectively mitigate against resonant vibration on davit arms, use a predictive design tool to assess vortex induced vibration, and define appropriate fabrication practices.			
Schedule	12 months	*Price*	$55k	Underway
Contact	Jean-Pierre Marais, (704) 595-2495, jmarais@epri.com			

Line Rating Supplemental Projects

Guidance for DLR Equipment Specification and Assessment

Objective	This project intends to develop a specification guidance document for the different types of DLR technology available. The objective is to provide a technical basis for technology selection and performance validation.			
Value	Understand how to compare technologies that operate using different methods and select the appropriate technology based on utility specific needs. Participants will learn how to validate accuracy and life-cycle performance with laboratory and field testing.			
Schedule	18 months (may extend to expand scope)	*Price*	$40k per utility	Beginning
Contact	Justin Bell, (413) 445-3712, jbell@epri.com			

Transmission Rating Risk Assessment

Objective	This project develops a range of ratings with differing levels of risk and capacity gain, which may include real-time, forecast, seasonal and/or emergency ratings. Utility specific guidance is developed to help select the optimal rating strategy.			
Value	Ratings will have a technical basis using risk informed decision making, allowing utilities to better balance demand for power with the safe, reliable, and efficient operation of assets. Results are tailored to maintain clearances and asset life among other factors.			
Schedule	9-18 months depending on scope	*Price*	Varies with scope, typically ranges from $100-250k	Beginning
Contact	Justin Bell, (413) 445-3712, jbell@epri.com			

Conductor-Connector System Supplemental Projects

Evaluation of High Emissivity Coated Conductors

Objective	The key objectives of this project are to; identify and develop high emissivity coated conductor specification tests that need to be included in a specification and document the performance of a coating on a conductor.			
Value	Key benefits of the project will include the following aspects: • Provide guidance on specifying high emissivity coated conductors and evaluate their long-term performance and durability • Participating utilities will gain a better understanding of the existing high emissivity coated conductor technologies currently available • Deploying high emissivity coated conductors could result in increased line ratings and improved line performance and reliability			
Schedule	24 months	*Price*	$40K, SDF qualifies	Underway
Contact	Gary Sibilant, (704) 595-2598, gsibilant@epri.com			

Evaluation of ACSS Manufacturing Processes

Objective	Manufacturers have claimed additional benefits of batch annealing over bobbin annealing aluminum strands including less sag, better self-dampening, and tighter aluminum stranding. This project aims to evaluate these claims by performing a series of mechanical tests on ACSS conductors of the same geometry but produced using the two different annealing techniques.			
Value	Key benefits of the project will include the following aspects: • Utilities will be better equipped to specify the conductor to best meet the utilities' needs • Utilities may utilize the data obtained to refine their tensioning calculations to obtain more accurate conductor sag heights			
Schedule	2 years	*Price*	$50k, SDF qualifies	Underway
Contact	Rachel Moore, (704) 595-2095, ramoore@epri.com			

TS Carbon Core Conductor Evaluation

Objective	This project intends to evaluate the long-term performance of the TS Carbon Core conductor. Accelerated thermal-mechanical aging tests are to be performed. Short term tests such as bending, radial crush and tensile strength are also planned on being performed. The short- and long-term testing is expected to provide a better understanding of the conductor's real-world performance.			
Value	Key benefits of the project will include the following aspects: • Improved understanding of the conductor's long-term performance • Knowledge of how the connectors (splices and dead ends) perform. • A better understanding of the real-world performance of the conductor (bending, radial crush, etc.)			
Schedule	3 Years	*Price*	$40k, SDF qualifies	Beginning
Contact	Gary Sibilant, (704) 595-2598, gsibilant@epri.com			

Corrosion Supplemental Projects

Fleet Management Approach to Structure and Foundation Corrosion Management

Objective	The objective is to provide a tool by which a utility may identify structures experiencing degradation due to corrosion and extend the service life of those structures.			
Value	Key benefits of the project will include the following aspects: • Reduced O&M costs by screening systems for structures requiring maintenance. • Optimize structural designs for increased corrosion resistance. • Increased structure service life through improved corrosion control methods. • Reduced risk by identification of structures at risk.			
Schedule	3 years	*Price*	Scope dependent	**Beginning**
Contact	Neal Murray, (704) 595-2624, nmurray@epri.com			

OVERHEAD TRANSMISSION (P35) SUPPLEMENTAL PROJECTS

OPGW and Shield Wire Corrosion Due to Bird Mutes

Objective	The objective of this project is to evaluate the corrosion mechanisms of bird mutes on different types of OPGW and shield wires. EPRI is collaborating with the Carolina Raptor Center to exposed test samples directly to vulture mutes. Test samples are also aged in the lab using synthetic bird mutes.			
Value	Key benefits of the project will include the following aspects: • Evaluate if a specific material is more resistant to bird mutes than others. • Estimate a degradation rate which a utility can then use to approximate time to failure and replacement schedule. • Test bird mute protection systems for efficacy and durability.			
Schedule	12 months	*Price*	$40k	Beginning
Contact	Fabien Besnard, (704) 595-2966, fbesnard@epri.com			

Assessing Conductor Fleet Corrosion Using Robotic Inspection Technology

Objective	The goal of this project is to use an inspection technology on a large sample of spans (with different locations, ages, conductor types) across fundings utilities to assess conductor corrosion health in the field and evaluate the parameters impacting the overall conductor corrosion such as environmental factors and design variables.			
Value	Key benefits of the project will include the following aspects: • This is a collaborative project that increases in value as more utilities participate. • Understand conductor degradation in the field based on locations and types to allow utilities to optimize their inspection program. • Trend conductor aging to schedule for replacement more accurately.			
Schedule	18 months	*Price*	$90k	Beginning
Contact	Fabien Besnard, (704) 595-2966, fbesnard@epri.com			

OVERHEAD TRANSMISSION (P35) SUPPLEMENTAL PROJECTS

Effects of Corrosion on Transmission Line Structures due to Pipelines and Railroads in the Rights of Way

Objective	The objective of this project is to establish and refine thresholds in the interaction model to allow screening of service territories for severe conditions due to stray currents and prioritize those locations. The voltage of these stray currents are often less than 15-volts and the impact, while severe to the structure, is often ignored.			
Value	The categorization of metrics for stray current corrosion by severity allows screening of a service territory for "at-risk" structures. This converts maintenance operations from being reactive in nature to being proactive, resulting in reduced corrosion damage and lessens the probability for outages or injury.			
Schedule	4 years	*Price*	$55k, SDF qualifies	Underway
Contact	Evan Hess, (980) 495-7439, ehess@epri.com			

Corrosion Impact Study: Cellular Equipment on Utility Structures

Objective	Field inspection and assessment of cellular equipment attached to transmission line structures for corrosion risk. Cellular service providers are an alternate stream of income for transmission line operators. Research has confirmed that cellular equipment will introduce circulating currents that increase corrosion severity on transmission line structures and improperly installed cellular equipment will also result in risk to the general public and utility personnel.			
Value	Key benefits of the project will include the following. • Condition assessment of T-line structure with cellular equipment • Increase service life of T-line structure through corrosion control guidance. • Better understanding of impact of third-party equipment • Reduced liability to the utility			
Schedule	4 years	*Price*	$55k, SDF qualifies	Beginning
Contact	Evan Hess, (980) 495-7439, ehess@epri.com			

OVERHEAD TRANSMISSION (P35) SUPPLEMENTAL PROJECTS

Concrete Inspection Technologies

Objective	Emerging concrete inspection technologies may provide novel methods for the inspection and assessment of concrete foundations and structures. This study will evaluate these technologies for their accuracy, reliability, and ease of implementation. This supplemental will conclude with a workshop featuring demonstrations of the equipment and an understanding of the best performing technologies.			
Value	Key benefits of the project will include the following. • Evaluation of new and emerging concrete inspection technologies. • Hands on technical transfer of new learning to engineers, managers, and field crews.			
Schedule	4 years	*Price*	$40k, SDF qualifies Multi-funder	Beginning
Contact	Neal Murray, (704) 595-2624, nmurray@epri.com			