



Assessment of Anthraquinone (AQ) Wood Pole Treatment						
Objective	A small-scale pilot study has indicated that AQ has the potential to diminish wood pole impacts from woodpeckers. This study aims to investigate how treaters could combine AQ with existing pole treatments. The research would subsequently plan to fill knowledge gaps regarding the engineering and environmental characteristics of AQ when applied to treated wood poles and its compatibility with preservative treatment processes and performance.					
Value	Woodpeckers cause severe damage to utility poles resulting in significant annual economic losses to utility companies. This project plans to subject poles and sample materials treated with AQ to a multitude of tests to understand mechanical performance, environmental implications, and potential health risks. The outcome of the research could enable utilities to develop specifications, inspection programs, environmental programs, and end-of-life plans for various types of treated pole.					
Schedule	60 months	Price	\$150k, SDF qualifies			
Contact	Steven Dulin; (980) 867-8183; <u>sdulin@epri.com</u> Product ID: 3002030295 <u>Click here for two-page summary of project</u>			Announced		

Distribution Asset Inspection and Maintenance Maturity Assessment

Objective	The objective of this project is to work with project participants to further develop asset inspection and maintenance maturity models to create and apply an assessment framework that would enable utilities to assess their existing capabilities relative to those needed to achieve future goals and relative to industry peers.				
Value	Member companies can leverage the assessments of their asset inspection and maintenance programs to compare with industry leading practices, identify areas for improvement, and inform practices to help achieve corporate objectives related to reliability, cost, risk, and safety.				
Schedule	12 months	Price	\$15k, SDF qualifies		
Contact	Krys Ford; <u>(</u> 610) 790-7487; <u>kford@epri.com</u> Product ID: 3002030241 Click here for two-page summary of project			Announced	





Improving Grid Safety and Resilience to Mitigate Ignition Incident and Fire Risks

Objective	The objective of this project is to extend EPRI's R&D on wildfire resilience by evaluating ignition reduction technologies, hardening of distribution assets and components, sensing and situational awareness systems, and fire protection technologies.				
Value	Benefits include new system hardening strategies and designs that reduce live downed conductor incidents, documentation of vegetation management methods that decrease line contacts and fire risk, increased understanding of the longevity of covered conductor designs, new strategies that reduce downed conductor incidents and enable enhanced public safety, increased understanding of the role of remote sensing and GIS tools to evaluate vegetation stress, fuel load, and fire risk near utility assets, and enhanced public and worker safety.				
Schedule	24 months	Price	>75,000 GWh annual distribution or 15,000 MW peak transmission, \$90k. All others, \$50k. SDF qualifies		
Contact	Doug Dorr; (407) 968-3010; <u>ddorr@epri.com</u> Product ID: 3002026177 Click here for two-page summary of document			Ending	

Evaluating Remote Inspection Technologies for Underground Structures



This project is aimed at providing the industry with information to: 1) understand and compare the technologies that can be leveraged to remotely ascertain conditions in UG structures, including technology for creating a visual capture of the UG distribution system, 2) explore how the information captured by different technologies can be applied and the potential benefits and limitations associated with each approach and 3) understand the potential to remove workers from hazards while still performing necessary inspection and assessment activities.



Results may assist utility decision makers in selecting appropriate remote inspection technologies and best leveraging those technologies to manage assets and improve safety through avoided UG structure entries.



24 months



\$90k, SDF qualifies

Beginning





Contact

Josh Perkel; (407) 968-3010; <u>jperkel@epri.com</u> Product ID: 3002028228 Click here for two-page summary of document

Impact of Electrification on Distribution Assets



EPRI plans to apply different loading scenarios to equipment while monitoring operational characteristics, including typical loading on today's system, loads that include electric vehicles, and expected future load profiles



Utility benefits could include reduced risk of asset failure, greater awareness of emerging technology, reduced costs, and increased ability to comply with potential future regulations.

Schedule	36 months	Price	\$100k, SDF qualifies	
Contact	Joe Potvin; (413) 329-3048; jpo Product ID: 3002031158 <u>Click here for two-page summa</u>	Beginning		

Vehicle Impacts on Utility Poles

Objective	The objective of this project is to better understand how different pole materials respond during a motor vehicle collision. The project will also test commercially available barrier options for protecting poles from vehicle collisions to assess their effect on pole performance.					
Value	The information generated by this project may help utilities better understand the risks associated with using different pole materials and identify options to mitigate those risks.					
Schedule	20 months	Price	\$45k, SDF qualifies			
Contact	Steven Dulin; (980) 867-8183; <u>sdulin@epri.com</u> Product ID: 3002025812 <u>Click here for two-page summary of document</u>			Ending		



Overhead Distribution Structure Testing

Objective	The objective of full-scale overhead distribution structure testing is to collect performance data for a member, such as failure modes and fallen branch capture rates, and identify approaches to increase structural strength and reduce restoration time and frequency.					
Value	Because utilities provide the test materials and designs to be tested, engineers can directly apply the test results to improve structure resiliency through enhancements to construction standards or component selection.					
Schedule	3-6 months, depending on test requirements	Price	Varies based on test requirements, SDF qualifies			
Contact	Steven Dulin; (980) 867-8183; <u>sdulin@epri.com</u> <u>Click here to learn more</u>			Ongoing		

Distribution Solid-State Transformers: Applications and Laboratory Evaluation



In 2023, EPRI evaluated a novel solid-state transformer (SST) design that could replace existing oil-filled distribution transformers while also having voltage regulation capabilities. This project intends to continue exploration of potential applications and challenges of using solid-state transformers on the distribution grid through lab testing of device performance for different use cases and applications.



Participant benefits include understanding how SSTs perform for specific applications, the development of specifications to consider when purchasing devices, and accelerating the evolution of SSTs







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Jason Anderson; (704) 595-2857; janderson@epri.com Product ID: 3002030242 Click here for two-page summary of project

Conductor Burndowns and Wildfire Mitigation when Using Compact Single-Phase Reclosers



The purpose of this project is to understand the impacts of using single-phase reclosers on downstream taps and its implications for downed conductors and wildfire ignitions



Benefits from this project include increased reliability and safety by reducing the likelihood of energized downed conductors and wildfire ignitions. Benefits also include an increased understanding of the impact on conductor burndown when using compact single-phase reclosers and how to reduce the likelihood of wildfire ignitions due to reclosing attempts.





\$85,000 for companies with distribution throughput greater than 30,000 GWh, \$65,000 for all other, SDF qualifies



Contact

Schedule

Jason Anderson; (704) 595-2857; janderson@epri.com Product ID: 3002029148

Click here for two-page summary of project

Sensing to Detect Faults and Downed Conductors on

Ungrounded Delta Systems



The objective of this project is to evaluate the efficacy of different sensing solutions to detect faults on ungrounded delta circuits through testing of different field scenarios and conditions in a laboratory environment.



The public benefits from this project include the ability to detect energized downed conductors more easily on an ungrounded delta system which may pose a public safety hazard. Participant benefits include increased reliability of their 5-kV ungrounded delta systems by being able to detect downed conductors and line to ground faults



12 months



\$70k + \$20k optional task **SDF** Qualifies







Contact

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Alternative Technologies for Recloser Backup Power



Utilities are expanding the use of reclosers as part of distribution grid modernization efforts. Experience has shown that battery maintenance represents the largest O&M expense related to recloser management. As such, these expanded deployments may increase O&M spending related to battery maintenance. The objective of this project is to investigate the suitability of alternative energy storage technologies to provide recloser backup power.



This project plans to document current backup power practices, explore and evaluate new battery alternatives, understand the environmental effects on battery life, investigate new approaches to battery health monitoring, and assist utilities with long term monitoring and evaluation of new energy storage technologies. This research may help utilities reduce O&M expenses through more cost-effective maintenance for control backup power systems and by reducing the number of battery replacements.





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\$30k + \$15k optional task, SDF qualifies

Underway



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Drone Dock Lab Testing and Utility Applications



EPRI intends to install and operate Docks at the EPRI Transmission and Distribution Laboratory in Lenox, MA. Lenox is a high voltage, outdoor laboratory with transmission, distribution, substation, and other outdoor environments. EPRI's test plan is designed to evaluate the feasibility of using Docks for multiple utility applications. This project will recreate testing scenarios specific to key utility applications that may be suited for this technology..

Value

Benefits include first-hand experience with next-generation UAS solutions for substation and distribution applications, increased awareness of near-,mid-, and long term inspection potential, functional specifications for automated inspection systems, and test reports and data for emerging inspection technologies, specifically addressing applications in substations and distribution environments



Grid Modernization Strategic Roadmapping



Developing a strategy for grid modernization is complicated. Investments are significant and must be sequenced over several years to add new capabilities. EPRI has developed a structured methodology and a set of tools to help utilities navigate this process. Through this project, EPRI will apply this approach with utilities to help them develop a detailed strategic roadmap, or review an existing roadmap, to help the utility accomplish desired objectives.



A utility may save time and money by leveraging EPRI's experience with other utilities, its industry expertise, and its world-class subject matter experts to develop a strategic roadmap that meets its specific needs. Each participant will receive a company-specific report documenting the results of the grid modernization roadmap development or assessment.



12-18 months

DISTRIBUTION SYSTEMS (P180) SUPPLEMENTAL PROJECTS

Price

Public for Purchase, SDF





Sched	⊞G	15 months	Pric	\$50k, SDF qualifies			
ct	~ >	Alex Bologna; (980) 495-7428; <u>abologna@epri.com</u>			Beginnii	ng	
onta		Product ID: 3002022789	a; (980) 495-7428; <u>abologna@epri.com</u> 3002022789 or two-page summary of project				
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Wildfire Impacts on Pole Materials

This research project would seek answers to the following research questions, including, what are the test conditions needed to simulate potential wildfire exposure scenarios, what would a potential test fixture include to simulate those wildfire conditions, and how do different pole materials perform when loaded vertically (simulating weight) and horizontally (simulating wind, line angles) and exposed to different wildfire conditions



Objective

Utility benefits may include improved infrastructure resistance to wildfire damage, reducing outage duration and costs. Utilities may also be able to better optimize postwildfire inspection processes, potentially reducing O&M expenses







Retrofitting Overhead Structures for Resilience



This project evaluates products used to improve the resilience of existing overhead lines, expanding on previous EPRI work and including strength testing in various conditions. It aims to answer questions about the effectiveness of these products compared to traditional methods and their performance under different environmental conditions. The research seeks to guide the appropriate use of these products, potentially increasing reliability, reducing outage durations, and extending asset life cost-effectively.



Utility benefits may include an increased understanding of options, and associated risks, intended to improve the resilience of overhead lines.





Schedule	20 months	Price	\$75,000, SDF qualifies				
Contact	Steven Dulin; (980) 867-8183; Product ID: 3002031931	sdulin@e	epri.com	Announced			
Risk Evo Retentio	Risk Evaluation of Next-Generation Manhole Covers and Retention Systems						
Objective	Utilities frequently experience Manhole Events, and the growth of electrification is expected to worsen the gas buildup causing these events. Despite suggested mitigation strategies, most covers remain unchanged, posing risks to public safety and utility infrastructure. Research at the EPRI Manhole Test Facility aims to provide data on how mitigation strategies would perform in various scenarios						
Value	This research aims to enhance public safety by assessing the risks of different restrained cover and frame systems, especially in densely populated areas. By understanding these hazards, utilities can choose safer designs, benefiting both the public and the structures themselves.						
Schedule	36 months	Price	\$150,000, SDF qualifies				
Contact	Alex Bologna; (704) 591-9007; Product ID: 3002031932	<u>abologna</u>	@epri.com	Announced			

Evaluating AI-Enhanced Distribution Asset Inspection Methods						
Objective	This research aims to generate new learning in application and capabilities of automated inspection. The objective is to use imaging, video, and LiDAR acquisition systems for data collection. Then, use AI-enabled software tools to identify defective assets, clearance issues, and third-party attachments.					
Value	These technologies could increase a utility's ability to reduce costs and more effectively manage overhead distribution assets which could improve reliability for end-users and the public.					
Schedule	TBD	Price	\$TBD, SDF qualifies	Announced		





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