

# AT A GLANCE



## Distribution Safety and Work Practices

Program 180.004

### Research Value

- Reduce hazards to workers from arc flash
- Reduce hazards to workers from contact to energized conductors
- Better use protective cover-up and other insulation techniques
- Improve PPE selection and inspection approaches
- Improve public and worker safety through leading approaches for downed-conductor detection

For more information

scan the QR code or visit  
[distribution.epri.com/safety](https://distribution.epri.com/safety).



Since electricity distribution can introduce hazards for public and utility workers, utilities put in place many risk-reducing procedures and processes. Improvements are always possible; new practices, protective approaches, equipment, tools, and technologies must be assessed carefully to evaluate the impact on worker and public safety. The goal of this research is to evaluate risks, protective approaches, and protective equipment. New technologies to improve safety are also considered. Key research areas include grounding and personnel protection, arc flash, and downed conductors.

The operation of distribution circuits exposes workers and the public to hazards, including contact to energized objects (shock), arc flash from a system fault (burns), and step-and-touch voltages. This project aims to focus on these risks, with research on:

- Grounding and personnel protection
- Arc flash analysis and protection
- Detection and reduction of live downed conductors
- Manhole events
- Evaluation and use of protective equipment
- Technologies to improve worker safety
- Work methods and other practices impacting worker safety

### EPRI Technical Contact

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## Research Highlights



### SIF Workshop on Underground Safety

Key focus areas include lockout and tagout, manhole entry procedures, cable cutting, dealing with live-front equipment, cable identification, and other hazards. Hazards include arc flash, contact in live-front equipment, equipment failures, gases, and traffic.



### SIF Workshop on Overhead Safety

Key focus areas include use of coverup, practices for gloving, practices for hotsticks, and technologies for worker protection. Hazards include contact, arc flash, step and touch voltages, induction, traffic, and falls.



### Downed-Conductor Prevention and Detection

EPRI has investigated and evaluated various approaches to downed conductor detection, including electrical measurement, high-speed signal processing, and methods based on advanced metering infrastructure (AMI). In 2024, plans are to test technologies acquired in 2023 under various scenarios.



### Arc Flash

Arc flash is a hazard to workers, and an effective worker-protection program involves many facets that touch on work methods, personnel protective equipment, system protection, and analysis. For 2024, EPRI plans to continue to evaluate ratings and selection of arc-rated FR clothing.



### Overhead Line Worker Practices: Proximity Awareness and 3D Mapping

EPRI intends to research human and machine collaborative field processes to reduce unintended wire strikes and worker electrocution. Advancements in 3D mapping technologies combined with other sensing modalities may support proximity-based tracking, alarming, or even collision avoidance. EPRI intends to experiment with these systems in lab environments in 2024.



### Technologies to Improve Utility Truck Safety

Bucket trucks and derricks are used every day in utilities. Each year, there are serious injuries related to the use of these machines due to falls, collisions, pinching, and tipping accidents. In this project, EPRI proposes to experiment with technologies that may reduce these accidents.

For more information, contact:

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