



# FUNDAMENTALS OF ARC FLASH SAFETY, CALCULATIONS, AND REGULATIONS FOR UTILITIES COURSE

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## OVERVIEW

Arc flashes release energy hotter than the surface of the sun, spray molten metal, and create sound blasts as loud as a gun. Each year, thousands of arc flash incidents occur, resulting in burn injuries, hospitalizations, and fatalities.

Arc flashes occur when a flashover of electric current leaves its intended path and travels through the air from one conductor to another or to ground, according to the Occupational Safety and Health Administration (OSHA).

This session will help participants to understand the current rules and regulations that require the employer to assess the workplace to determine which employees are exposed to hazards from flames or electric arcs. As a result of participating in this course, participants will be able to choose a method of calculating incident heat energy that reasonably predicts the incident energy to which the employee would be exposed. Participants will be able to conduct the required arc flash assessment required of electric utilities.

By drawing from personal experience, the instructor will answer important questions regarding arc flash hazard assessment, including, but not limited to:

- > **What regulations require arc flash assessment?**
- > **What methods are available to perform arc flash hazard analysis?**
- > **Single-phase or three-phase?**
- > **Are all my employees exposed?**
- > **What type of work exposes an employee to the possibility of arc flash?**
- > **Should I use the table method or calculation method?**
- > **After the assessment, what clothing is required?**
- > **What information am I required to give my contractors?**



## LEARNING OUTCOMES

- > Explain the arc flash hazard potential
- > Explain the regulatory requirements
- > Define which regulation applies to your company
- > Define arc flash assessment methods
- > Discuss how to make estimates over multiple system areas
- > Explain how to choose between the table method and the calculation method of arc flash hazards assessment
- > Explain how to identify those employees who may as a result of the work they perform be exposed and how to determine the probability that an arc will occur
- > Discuss how to select a reasonable distance from the arc to the employee
- > Discuss how to select a reasonable arc gap
- > Identify when to use single phase vs three phase calculations
- > Discuss how to reduce arc flash clothing costs
- > Explain arc flash clothing layering

## WHO SHOULD ATTEND

- > Plant, facility, and electrical engineers
- > Consulting, utility and industrial engineers responsible for arc hazard analysis in the selection of protective equipment and clothing
- > Utility engineers with responsibilities for NESC compliance
- > Safety officers and program managers
- > Utility engineers needing in depth understanding of arc hazard assessment and analysis

## ABOUT MIKE BAHR



Mike Bahr has been a safety professional in the electrical industry for over 30 years. After being injured in an electrical accident in 1985, Mike has dedicated his career to the safety profession and has specialized in arc flash safety. Mike has developed and presented an extensive body of arc flash training worldwide and is a former principal member of the NFPA 70E committee (Electrical Safety Related

Work Practices). Mike also served as the principal investigator for the development of the Department of Energy (DOE) electrical safety program. Mike has been married to his wife, Sandy, for 39 years and is the father of 1 daughter and 3 sons, and he has 4 granddaughters.

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