

Arc Flash Studies

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Update on Arc Flash Studies

- Low-Voltage Arc Flash Studies
- Regulatory Requirement, Policies, and Standards
- Methodology
- Results (Example of Label)
- Funding Mechanism
- Questions
- Contact Information

Low-Voltage Arc Flash Studies

- An initial arc flash exposure analysis is required for all work on low-voltage equipment that requires working on, or in close proximity to, energized parts. Western Area Power Administration (WAPA) uses EasyPower to conduct the arc flash hazard analysis.
- The arc flash hazard assessment shall be performed by a qualified and trained engineer. The analysis shall determine the level of exposure in calories per cm² at a distance of 18 inches.
- This may include work in energized panels or on rack-type breaker installations (basically this includes any work on equipment energized through the station service transformer)

Regulatory Requirements, Policies, and Standards

- OSHA 1910.269(I)(8), states, in part, to assess the workplace for electric-arc hazards and estimate the available heat energy
- NFPA 70E-2017, states, in part, that incident energy analysis shall be updated when changes occur, as well as reviewed for accuracy at intervals not to exceed five years
- NFPA 70-2017 (NEC), Article 110.16, identifies the requirement for labeling
- Department of Energy and WAPA Standards identify and document requirements to address arc hazards
 - WAPA's Power System Maintenance Manual – documents the requirement to update studies and keep them current
 - WAPA's Power System Safety Manual – documents the personal protective equipment requirements as well as compliance with the Power System Maintenance Manual

Methodology

- WAPA personnel will visit each site, identify equipment, and perform the studies on the AC and DC Low Voltage Systems (50 – 600 Volts)
- The analysis will cover, but is not limited to, distribution circuits, switchgear, panel boards, battery chargers, DC panels, Battery system, and protection and controls equipment
- The studies will be completed and modeled in EasyPower and the field information will be recorded in official drawings
- Labels will then be printed and taken to each site and placed on the equipment included in the study

Results (Example of Label)



Arc Flash and Shock Hazard Appropriate PPE Required

2' - 0"	Flash Hazard Boundary
2.3	cal/cm ² Flash Hazard at 18 Inches
#1	PPE Level
	FR shirt and FR pants or FR coverall

0.48	kV Shock Hazard when cover is removed
3' - 6"	Limited Approach
1' - 0"	Restricted Approach - Class 00 Voltage Gloves
0' - 1"	Prohibited Approach - Class 00 Voltage Gloves

Equipment Name: PNL-3 (Fed by: BL-2)

[Date of Study]

Funding Mechanism

- OM&R exhibits for specific substations for each customer are scheduled to be revised this year to include study costs
- Funding agreements will be produced for each customer, if the OM&R exhibit for that specific substation is not scheduled to be revised this year

Questions



Contact Information

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