



## HEAF Workshop

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# High Energy Arc Fault (HEAF) Operating Experience

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- Two events at Duke Energy indicate the current guidance on HEAF Zone of Influence (ZOI) overstates the impact on targets in the ZOI
  - Both events the damage to Structures Systems and Components was limited to the associated cabinet/ enclosure
  - Close proximity cables (both thermoplastic and thermoset) showed evidence of heat damage but did not fail (remained functional) or catch fire as predicted.
  - In Harris event nearby cable tray was degraded but functional

# HEAF Operating Experience – Harris Event

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- Harris HEAF did involve Aluminum
- ZOI of damage was less than predicted by current guidance
  - Event was an HEAF connected to generator
  - Cables within 1.5 feet from center of HEAF were not faulted as predicted (6 inches from enclosure)
  - Sprinklers in vicinity of HEAF were activated by event
    - Water flowed after the HEAF event was completed
    - Fault duration was estimated at 100ms
  - Interior of bus cubicle was consumed by the fire

# HEAF Operating Experience – Robinson Event

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- Robinson HEAF did not involve Aluminum but is of interest to this topic because:
  - ZOI of damage was less than predicted by current guidance
  - Long duration event as protective relaying did not stop the event
  - Cable within 3-6 inches were not faulted as predicted
  - SSCs within 3 feet of faulted cabinet were not faulted as predicted
  - Horizontal splatter of hot debris was evident for some distance where the HEAF event melted a hole in the cabinet
  - Interior of cubicle was consumed by the fire

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# Questions?