

# **Industry Participation to Support Resolution of pre-GI 018 (Aluminum HEAF)**

NRR/Division of Risk Assessment  
RES/Division of Risk Analysis

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# Overview

- Industry engagement
  - Benefits from industry participation in the technical evaluation
  - Drawbacks from technical evaluation performed by staff
- Some details of the technical evaluation
- Preliminary factors developed by staff to prioritize pilot plants
- Final remarks

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# Industry Engagement in GI

- Continued industry participation is requested and strongly desired
- Collaborate to perform technical evaluation necessary for GI
  - Full industry participation is ideal
  - Pilot plants probably more practical
- Technical evaluation needed for plants with fire PRAs, and for those plants without PRAs whose licensing basis is deterministic
  - Viable pilot plants needed to cover both cases of technical evaluation
  - Staff aware from risk analyses performed by EPRI that many plants having a fire PRA will not pose a significant risk increase
- Mutual benefits for industry and the NRC from continued collaboration

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# Benefits of Industry Participation

- Industry fire PRA models are more refined and representative - lead to better estimates of risk increase
  - Greater satisfaction by both NRC and industry with respect to results
- Timely resolution of issue
  - Pilots much better positioned to gather detailed information about their plant
  - Resources to perform assessments distributed within industry
- Pilots can play a role in identifying measures to mitigate HEAF should AI HEAF be significant, and corresponding credit e.g.
  - Additional mitigation features not credited in the PRA
  - Potential plant improvements
- With respect to timeliness, remaining plants in the fleet with significant exposure to AI HEAF will know sooner and be able to take measures sooner

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# Drawbacks of Analysis Performed by Staff

- Likely analysis will be more conservative
- Industry collaboration needed regardless
  - Staff will still need to engage industry to collect information, e.g.
    - Spatial information,
    - Cable raceway database information,
    - Information to update NRC SPAR models, etc.
- Staff will identify measures to address AI HEAF should issue be important, and will establish the credit for these measures

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# Details of Industry Participation for Plants with a Fire PRA

- Assessment phase
  - Industry will evaluate the risk increase from AI HEAF over existing HEAF treatment with NRC/EPRI MOU model
- If progress to Regulatory Office Implementation (ROI) phase
  - Industry will support evaluation of existing measures or improvements to address AI HEAF

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# Industry Participation For Plants With No FPRA; With a Deterministic Licensing Basis

- Assessment phase
  - Industry will assess whether protected train per deterministic licensing basis is damaged by the AI HEAF
    - Assessment for deterministic licensing basis does not evaluate the difference between AI HEAF and the existing HEAF model
    - Deterministic licensing basis does not appear to consider HEAF
- If progress to ROI phase
  - Industry will assist in the evaluation of improvements to prevent damage to protected train

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# Determining Viable Pilots for GI Process

- Industry encouraged to work with staff to identify viable pilots
- Preliminary factors developed by staff to prioritize pilots
  - Plants without a main generator circuit breaker
  - Plants having direct generator feed for 1E switchgear
  - Plants which potentially expose redundant train to AI HEAF
- Plants which expose redundant train for prioritization
  - Fire PRA: redundant and diverse trains in same physical analysis unit
  - No fire PRA: expose protected train or defeat spatial separation credited in fire protection program
  - Applicable only for locations containing equipment subject to a HEAF
    - Rooms containing Medium Voltage switchgear,
    - Rooms containing Low Voltage switchgear,
    - Other locations containing bus ducts or HEAF susceptible equipment > 440V



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# Determining Viable Pilots for GI Process (cont.)

- More detailed spatial information will determine importance to AI HEAF
  - Fire PRA significance varies according to spatial relationship of AI HEAF source to important fire PRA targets providing redundant and diverse mitigative capability
  - Plant with significant risk contribution from HEAF with current model may not exhibit significant risk increase from AI

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# Final Remarks

- Pilot plants' participation in resolving pre-GI is of mutual benefit to NRC and the industry
- Timeliness of resolution supported by industry participation is important to NRC and the industry
- Staff believes that industry participation will lead to a mutually satisfactory resolution