



It's Not Just For NFPA 805
The Importance of Moving Forward with
Continued Improvements to Fire PRA
 Improving Realism in Fire
 Probabilistic Risk Assessments

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 NRC Regulatory Information Conference
 March 10, 2016




Why Bother?

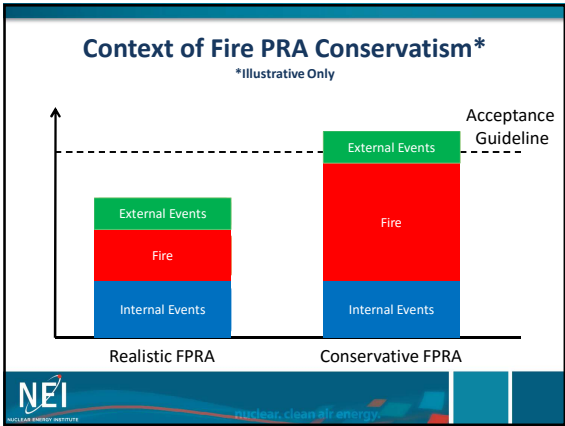
- Common perception: NFPA 805 is done and there is no need to improve Fire PRAs
 - Application reviews may be nearly complete, but implementation is not
 - Programs managed under NFPA 805 rely heavily on Fire PRA results
 - NFPA 805 can still benefit from improved Fire PRA realism
 - Less than half the fleet is in process for NFPA 805



Fire PRA Uses Beyond NFPA 805

- Fire PRA has a key role in areas other than NFPA 805
 - Other licensing applications (risk informed tech specs)
 - Day-to-day operations (configuration risk management)
 - Regulatory oversight (SDPs)





Impact of Work Since NUREG/CR-6850/ EPRI 1011989

- Substantial improvements have been made since NUREG/CR-6850/EPRI 1011989 was first released in 2005
 - 2010: Supplement 1
 - 2013: Fire PRA FAQ process
 - 2015: Ignition frequencies (NUREG 2169)
 - 2015: Electrical cabinet heat release rates (NUREG 2178)
- Taken together, these improvements to realism have made the transition to NFPA 805 **tolerable** to operating reactors

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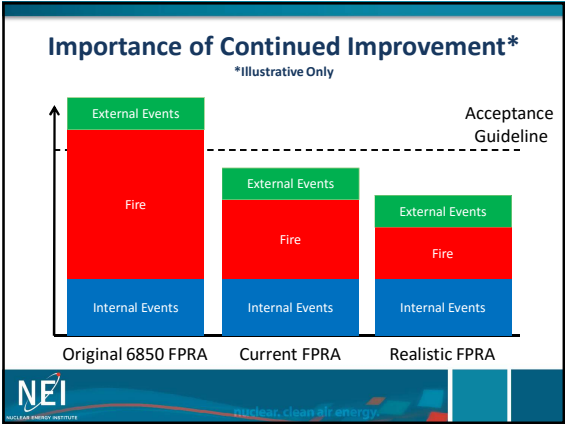
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How Can We Get Even Better?

- Fire Events Database was made available in 2013
 - Substantial industry effort led by EPRI
 - NRC has conducted extensive review of contents
 - Comprehensive source of fire incident information from 1990 through 2010
 - Classification scheme identifies important attributes of fire incidents
 - Potential to use data to refine Fire PRA methods
- Computational studies
 - Many previous improvement efforts relied on fire testing
 - Software codes such as Fire Dynamics Simulator can be used to expand scope of progress made by testing (e.g. obstructed plume work)

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- ### Advantages to Proposed Path Forward
- Improvements will be available in near term
 - 6-18 month timeframe
 - Most necessary information is readily available
 - No immediate need for extensive fire testing
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- ### Key Areas for Improved Realism
- Completed EPRI research
 - Fire location factor
 - Transient fire propagation factor
 - Liquid spill fires
 - Upcoming opportunities
 - Transient fires
 - Ignition criteria for cable trays
 - Fire growth profiles
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Potential Consequences of Not Acting

- Management of NFPA 805 implementation becomes unnecessarily cumbersome
- SDP evaluations not reflective of event impact
- Licensees unable to pursue risk-informed licensing applications
- And other potential decisions made with incomplete information



Utopian End Point

- Fire PRA methods and data are updated to reflect operating experience
- Realistic testing and computational modeling support even more improvements to realism
- Plant Fire PRAs are realistic and used in a variety of licensing and regulatory applications