



NFPA 805 License Amendment Requests

**Pre-Application Meeting with NRC Staff
March 22, 2011**



Agenda

- **Introductions**
- **NFPA 805 Transition Project Plan Overview**
- **Current Submittal Forecasts**
- **Overall Project Status**
- **Site Specific Updates**
- **Design Integration**



Introductions

- **NextEra Energy**
 - NFPA 805 Project Manager (PRA Manager) – Anil Julka
 - NFPA 805 Project Engineering Manager – Vinny Rubano
 - Site Licensing – Steve Catron, Ken Frehafer
 - Fleet Licensing – Larry Nicholson, William Cross

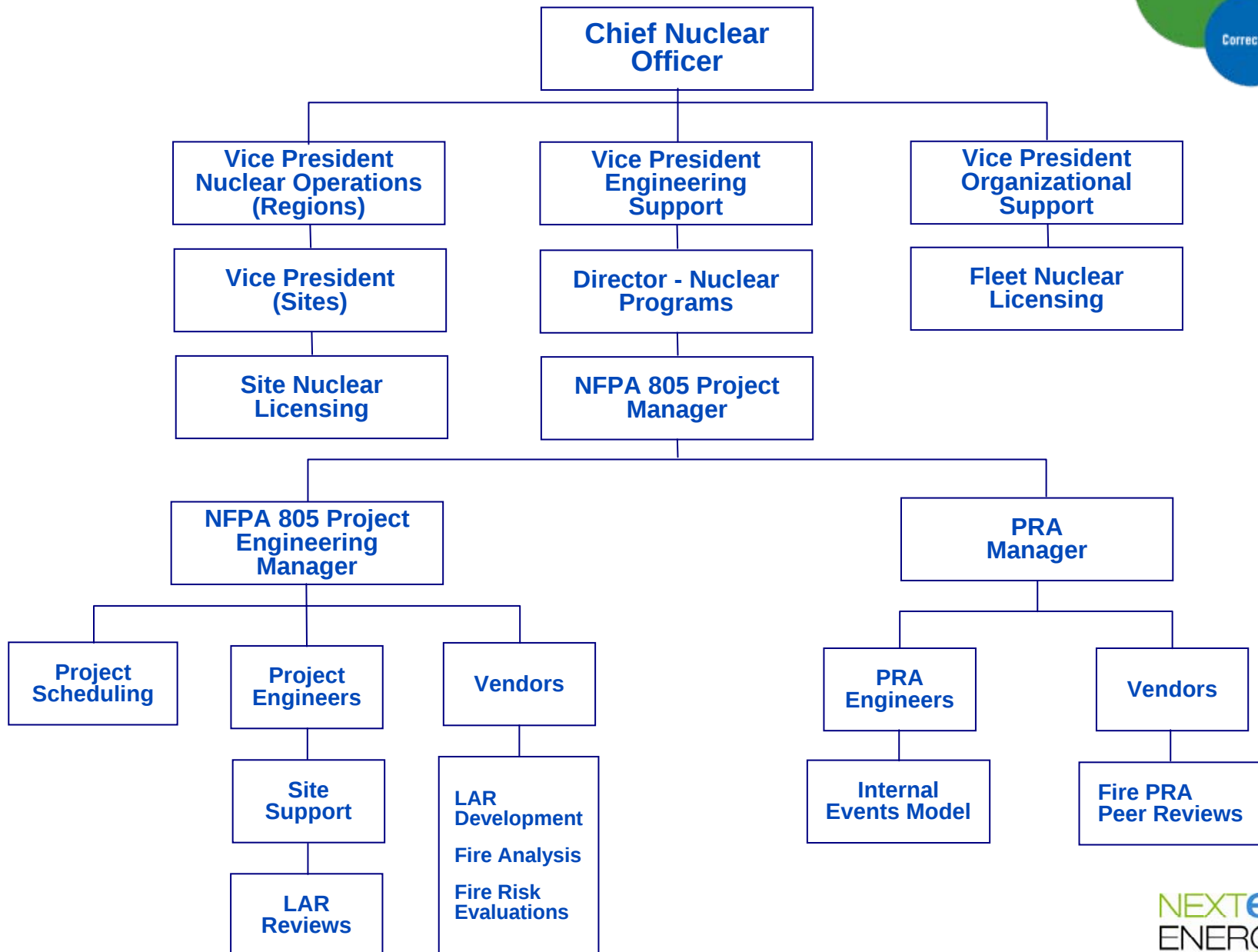


Purpose of Meeting

- **Provide status of Fleet NFPA 805 Project**
 - Duane Arnold Energy Center (DAEC)
 - Turkey Point Plant (PTN)
 - St Lucie Plant (PSL)
 - Point Beach Nuclear Plant (PBNP)
- **Ensure that project path forward aligns with NRC staff expectations as provided in implementation requirements/guidance**

Note: Seabrook Station not transitioning to NFPA 805

NFPA 805 Project/Support Organization





Project Challenges (Internal)

- Complex technical and licensing processes
- Involves numerous site organizations & functions
- Alignment of site and project priorities
- Vendor resources
- Meeting June 29, 2011 deadline for submittals



External Constraints

- **EPRI/NEI Review Team completion of Fire PRA methodology**
- **Resources for Internal Events PRA peer reviews and Fire PRA peer reviews**



Actions to Meet Project Expectations

- **Schedule/Project Plan to meet 6/29/11 LAR submittal deadline**
- **Executives engaged**
- **Focused project oversight**
- **Schedules developed**
 - to meet project evaluation and analysis demands
 - for PRA development and peer reviews



NextEra NFPA 805 Overview

- **LAR development schedules are optimized and challenged**
- **Schedule supports submittal of LARs for all sites by 6/29/11**
- **Significant work remains**
 - Completion of some Fire Risk Evaluations (FREs) (i.e., control room, cable spreading room)
 - Completion of some open items for Multiple Spurious Operations (MSOs) analysis
 - Completion of Probabilistic Risk Analysis (PRA) Peer Reviews
 - Focused scope peer reviews for RG 1.200 (PSL, PTN, DAEC)
 - Fire PRA peer review scheduled (PBNP)
 - Internal gap analysis complete, external focused peer reviews of floods and HRA scheduled
 - No issues of safety significance identified
- **LARs will meet acceptance criteria**



LAR Development Process

- **NEI template will be utilized for all LARs**
- **Expectations defined for LAR reviews**
 - Technical
 - Validation
 - Onsite safety
- **Communications with NRC staff**



Current LAR Submittal Schedules

Duane Arnold Energy Center

6/29/11

Turkey Point Nuclear Plant

6/24/11

St. Lucie Plant

6/29/11

Point Beach Nuclear Plant

6/29/11

Optimized LAR submittal schedules have little or no float



Fleet Level Issues

- **Specialized skill sets and PRA resources are limited**
- **3 of 4 sites have major spring outages**
 - Concurrent EPU's at 3 sites (PTN, PSL, PBNP)
- **Peer Reviews and resolution of Findings & Observations (F&Os)**
 - Focused scope peer reviews for RG 1.200 are scheduled late in the process
 - One fire PRA peer review is very late in the process
 - Limited time for resolution of F&Os
- **External resources for peer reviews**



Fleet Level Issues (continued)

- **Open Circuit Current Transformers (CT)**
 - Industry generic issue
 - Issue not resolved via pilot plants
 - Industry documentation is qualitative
 - Developing fleet position (based on industry developments)
 - Justification for problem resolution
 - Limit population through analyses
 - Modifications to resolve issue, as required
 - LAR supplement likely to finalize position



Fire PRA Treatments

- **NUREG/CR 6850 (6850) alternative treatments used for three types of fires**
- **Following EPRI/NEI Review Team Process for**
 - Electrical Cabinet Fires
 - Transient Fires
 - Hot Work Fires



Site Updates



Duane Arnold Energy Center

- **Current Status**

- **Complete/under review**

- Non-Power Operations (NPO) pinch point analysis final draft
 - Majority of final drafts for fire risk evaluations
 - Control room evacuation scenarios and PRA modeling recently resolved

- **Essentially complete**

- Fundamental Fire Protection (FP) (B-1 Table)
 - Nuclear Safety Capability Assessment) (NSCA) Methodology (B-2 Table)
 - Fire Area by Fire Area Review (B-3 table without Fire Risk Evaluation (FRE) results)
 - Radiological release review



Duane Arnold Energy Center

- **Modification Overview**

- No modifications required to meet risk criteria
- Modifications being considered for defense in depth
 - Add incipient detection in sensitive control room panels
 - Add fuses to protect emergency service water in the turbine building
 - Will be included in LAR, as applicable



Duane Arnold Energy Center

- **Challenges**
 - LAR development schedule
 - Focused peer review for RG 1.200 scheduled for late-March



Duane Arnold Energy Center

- **Fire PRA**
 - 6850 alternative treatments for
 - Electrical Cabinet Fires
 - Transient Fires
 - Hot Work Fires
 - Treatments will be reviewed by EPRI/NEI team
 - Changes to fire PRA may be required following industry review



Duane Arnold Energy Center

- **Fire PRA resolution of Peer Review F&Os**
 - F&Os in three categories
 - Methodology issues
 - Forwarded to the EPRI/NEI review group
 - Documentation issues
 - Addressed in final fire PRA documentation package
 - Model issues
 - All F&Os reviewed for model impact and model has been revised



Duane Arnold Energy Center

- **Fire PRA detailed fire modeling**
 - Used to support control room evacuation scenarios
 - Generic fire modeling similar to pilot plants treatment used for all other areas



Duane Arnold Energy Center

- **LAR gaps that will likely require supplement**
 - Incomplete EPRI/NEI industry team review of 6850 alternative fire PRA methods
 - Focused scope peer review for internal events model (scheduled late in process)
 - Internal events PRA peer review F&Os addressed but not incorporated
 - Open circuit CT resolution



Duane Arnold Energy Center

- **Strategies to resolve LAR gaps**
 - Established rapid response team to support the peer review to expedite resolution of F&Os
 - Monitoring industry review of Fire PRA methods
 - Developing fleet position for open circuit CT

Turkey Point Plant



- **Current Status**
 - **Complete/under review**
 - NPO pinch point draft analysis
 - Draft fire risk evaluations
 - **Essentially complete**
 - Fundamental FP (B-1 Table)
 - NSCA Methodology (B-2 Table)
 - Fire Area by Fire Area Review (B-3 table without FRE results)
 - **Nearing completion**
 - Radiological release review
 - Fire PRA being revised to incorporate the latest internal events PRA model
 - Control room evacuation scenarios and PRA modeling recently resolved



Turkey Point Plant

- **Modification Overview**

- Modifications are required to meet risk criteria and to eliminate certain recovery actions
- Majority of modifications are to protect and/or restore electrical power distribution functions
- Incipient detection system for the alternate shutdown panels will be installed
- Two modifications have been implemented on Unit 3 and will be implemented on Unit 4 in the spring 2011 outage
- Engineering is complete for many modifications and most already have an outage slot reserved
- Scheduled by outage cycle and buss availability
- Will be included in LAR, as applicable



Turkey Point Plant

- **Extended Power Uprate (EPU)**
 - EPU application currently under review by NRC staff
 - Implementation of EPU and NFPA 805 modifications are not linked
 - EPU modifications are being evaluated for impact on fire PRA on an ongoing basis
 - No significant impact to risk currently identified
 - Fire PRA incorporates EPU parameters and success criteria for conservatism



Turkey Point Plant

- **Challenges**

- LAR development schedule
- Site starts outage this month – support for project during the outage
- Internal events PRA model recently updated requiring revision to the fire PRA model
- Focused scope peer review for HRA and internal flooding in the internal events model is scheduled late in the process and could affect fire PRA results



Turkey Point Plant

- **Fire PRA**
 - 6850 alternative treatments for
 - Electrical Cabinet Fires
 - Transient Fires
 - Hot Work Fires
 - Alternative treatments will be reviewed by EPRI/NEI team
 - Changes to fire PRA may be required following industry review



Turkey Point Plant

- **Fire PRA resolution of Peer Review F&Os**
 - F&Os in three categories
 - Methodology issues
 - Forwarded to the EPRI/NEI review group
 - Documentation issues
 - Addressed in final fire PRA documentation package
 - Model issues
 - All F&Os reviewed for model impact and model has been revised



Turkey Point Plant

- **Fire PRA detailed fire modeling**
 - Used to support control room evacuation scenarios
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Turkey Point Plant

- **LAR gaps that will likely require supplement**
 - Incomplete EPRI/NEI industry team review of alternative fire PRA methods
 - Focused scope peer review for internal events model (scheduled late in process)
 - Internal events PRA peer review F&Os addressed but not incorporated
 - Open circuit CT resolution



Turkey Point Plant

- **Strategies to resolve LAR gaps**
 - Established rapid response team to support the peer review to expedite resolution of F&Os
 - Monitoring industry review of the fire PRA methods
 - Developing fleet position for open circuit CT
 - Communication with NRC staff



St. Lucie Plant

- **Current Status**
 - **Complete and under review**
 - Majority of final draft fire risk evaluations
 - **Essentially complete**
 - Fundamental FP (B-1 Table)
 - NSCA Methodology (B-2 Table)
 - Fire Area by Fire Area Review (B-3 table without FRE results) essentially complete
 - **Nearing completion**
 - NPO pinch point analysis
 - Radiological release review
 - Fire PRA being revised to incorporate the latest internal events PRA model
 - Control room evacuation scenarios and PRA modeling issues recently resolved



St. Lucie Plant

- **Modification Overview**
 - To date no modifications needed to meet risk criteria
 - Defense in depth review not complete
 - Potential for modifications
 - Will be included in LAR, as applicable



St. Lucie Plant

- **Extended Power Uprate (EPU)**
 - EPU application currently under review by NRC staff
 - Implementation of EPU and NFPA 805 modifications are not linked
 - EPU modifications are being evaluated for impact on fire PRA on an ongoing basis
 - No significant impact to risk currently identified
 - Fire PRA incorporates EPU parameters and success criteria for conservatism



St. Lucie Plant

- **Challenges**

- LAR development schedule
- Major outage in progress since early-January – site support for project has been limited
- Internal events PRA model recently updated requiring revision to the fire PRA model
- Focused scope peer review for Human Reliability Analysis (HRA), data and internal flooding in the internal events model is scheduled late in process and could affect fire PRA results



St. Lucie Plant

- **Fire PRA**
 - 6850 alternative treatments for
 - Electrical Cabinet Fires
 - Transient Fires
 - Hot Work Fires
 - Treatments will be reviewed by EPRI/NEI team
 - Changes to fire PRA may be required following industry review



St. Lucie Plant

- **Fire PRA resolution of Peer Review F&Os**
 - F&Os were in three categories
 - Methodology issues
 - Forwarded to the EPRI/NEI review group
 - Documentation issues
 - Addressed in final fire PRA documentation package
 - Model issues
 - All F&Os reviewed for model impact and model has been revised



St. Lucie Plant

- **Fire PRA detailed fire modeling**
 - Used to support the control room evacuation scenarios
 - Generic fire modeling similar to pilot plants treatment used for all other areas



St. Lucie Plant

- **LAR gaps that will likely require supplement**
 - Incomplete EPRI/NEI industry team review of alternative fire PRA methods
 - Focused scope peer review for internal events model (scheduled late in process)
 - Internal events PRA peer review F&Os addressed but not incorporated
 - Open circuit CT resolution



St. Lucie Plant

- **Strategies to resolve LAR gaps**
 - Established rapid response team to support the peer review to expedite resolution of F&Os
 - Monitoring industry review of the fire PRA methods
 - Developing fleet position for open circuit CT



Point Beach Nuclear Plant

- **Current Status**

- **Complete**

- NPO draft analysis including pinch point analysis – comments being incorporated
 - Large number of draft fire risk evaluations

- **Essentially complete**

- Fundamental FP (B-1 Table) and NSCA Methodology (B-2 table)
 - Fire Area by Fire Area Review (B-3 table) with revised strategies

- **In progress**

- Radiological release review
 - Fire risk evaluation for control room and cable spread room expected completion mid-April



Point Beach Nuclear Plant

- **Modification Overview**

- Modifications are required to meet risk criteria and eliminate recovery actions
- Modifications needed to
 - Protect charging function to reduce RCP seal LOCA potential
 - Resolve secondary fire issue
 - Protect power for instrumentation and control in some areas
- Conceptual design complete for 5 modification packages
- Conceptual design for final set of modifications scheduled for April completion
- Crediting new unitized AFW Pumps in Fire PRA



Point Beach Nuclear Plant

- **Extended Power Uprate (EPU)**
 - EPU amendment in final stages of NRC staff review
 - Implementation of EPU and NFPA 805 modifications are not linked
 - EPU modifications are being evaluated for impact on fire PRA on an ongoing basis
 - No significant (adverse) impact to risk
 - AFW Pump modification (risk decrease)
 - Power increase (included in fire PRA)
 - Fire PRA incorporates EPU parameters and success criteria for conservatism



Point Beach Nuclear Plant

- **Challenges**
 - LAR development schedule
 - Numerous analysis tasks performed in parallel
 - Site technical support for LAR reviews impacted by outage
 - Fire PRA peer review schedule (Industry Issue)



Point Beach Nuclear Plant

- **Fire PRA**
 - Currently conforms with 6850 methods
 - Potential use of alternative 6850 methods for cable spread room
- **Resolution of peer review F&Os**
 - Peer review scheduled of June 6, 2011
 - Final peer review report expected by August 2011
 - Preliminary F&Os will be available and will be reviewed for impact on results
- **Detailed fire modeling**
 - Control room and cable spread room
 - Plant auxiliary building for two elevations
 - Auxiliary Feed Pump Rooms



Point Beach Nuclear Plant

- **Gaps in LAR that will likely require supplement**
 - Fire PRA peer review scheduled for 6/6/11
 - Only preliminary F&Os will be available at LAR submittal
 - Fire PRA conservative assumptions yield unrealistic results
 - Incomplete EPRI/NEI industry team review of alternative fire PRA methods
 - Open circuit CT resolution



Point Beach Nuclear Plant

- **Strategies to resolve LAR gaps**

- Established a rapid response team for assessment of preliminary Fire PRA peer review F&Os
- Qualitative assessment of preliminary F&Os for impact on fire risk results
- Independent assessment completed in January 2011 – gaps being resolved
- F&Os will not likely change fire risk analysis results with respect to RG 1.174
- Monitoring other peer reviews to identify potential issues
- Status of Fire PRA more complete than previous Fire PRA peer reviews
- PRA assumptions are conservative – expect risk improvement when information is updated



Summary

- **NextEra has developed a Project Plan and Schedule to support submittal of LARs by June 29, 2011**
- **Pre-application presentation to inform the NRC staff of project status**
 - Fire PRA peer reviews will be complete for all sites
 - Strategies for resolving LAR gaps have been identified
 - F&O assessment/resolution
 - EPRI/NEI Review Team
- **Path forward aligns with NRC expectations**
- **Challenges remain and will likely result in need to supplement initial LAR submittals**