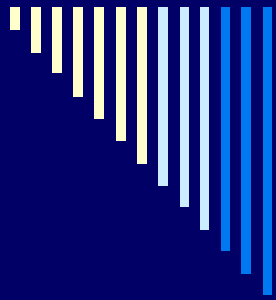


# Fort Calhoun Station Extended Power Uprate (EPU) Project

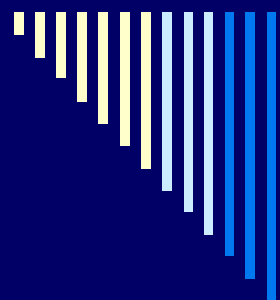
January 28, 2009

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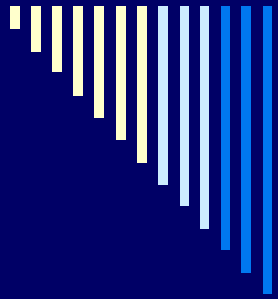
# Agenda

- Purpose
- Project Overview - Ron Short
- Plant Impact - Bernie Van Sant
- Plant Modifications - Bernie Van Sant
- Licensing Approach - Bob Dulee
- PRA Risk Insights - Carmen Ovici
- Summary - Ron Short
- Questions/Feedback



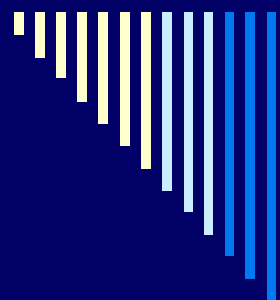
## Project Purpose

- Support the OPPD Integrated Resource Plan (IRP) for additional power supply by January 2013



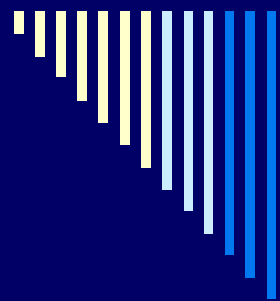
# Project Scope

- 17% Power Uprate - 1755 MWt
  - Current License - 1500 MWt
- 75 MWe – Summer
- 79 MWe – Non-Summer
- 78 MWe Average



## Background

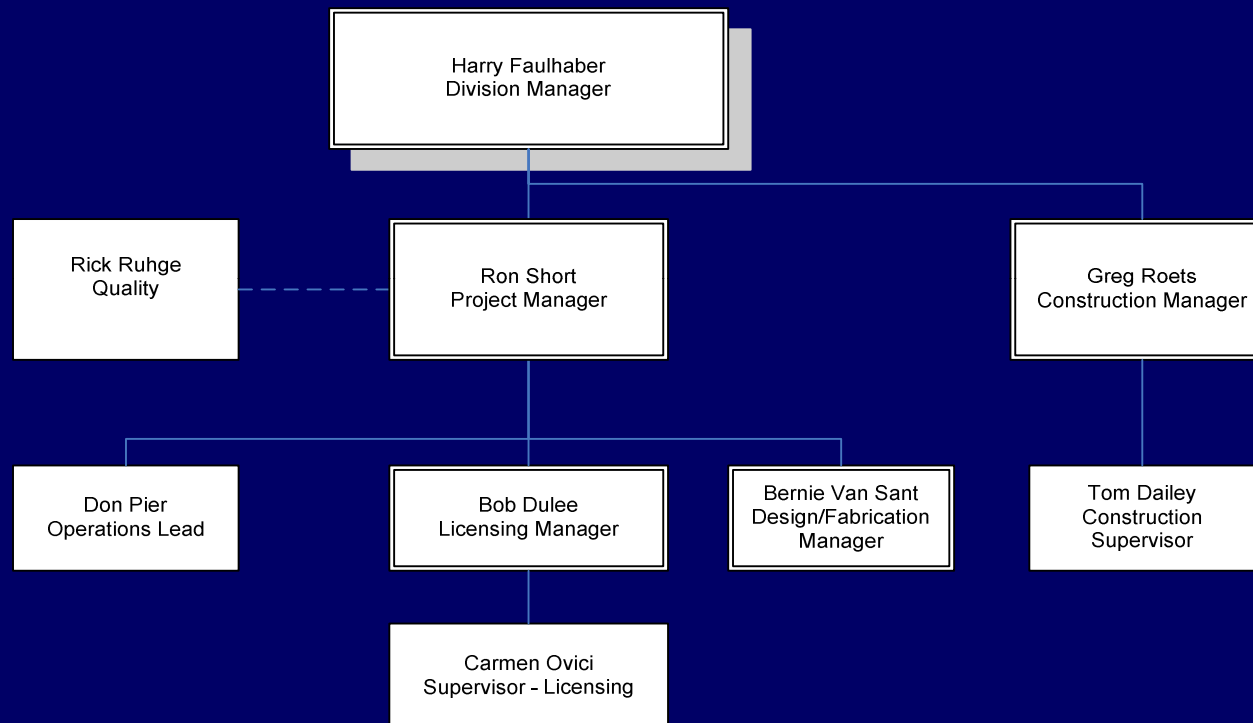
- ❑ Combustion Engineering NSSS
- ❑ Initial operation – September 1973
- ❑ License expires – August 2033
- ❑ EPU studied several times
- ❑ Conceptual engineering is complete
- ❑ Detailed engineering/licensing in progress
- ❑ Large components replaced in 2005/2006

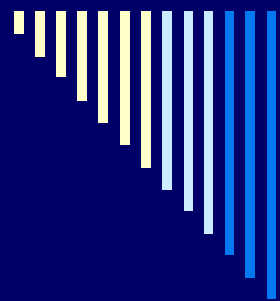


# Project Schedule

- Project Initiation – April 2008
- Design and licensing
  - Engineering analyses/Licensing in progress
  - Finalize modification scope – early 2009
- Submit LAR to NRC – March 2011
- 2011 and 2012 Re-Fueling Outages (RFO)
  - Component modifications
- Up-rated condition following 2012 RFO

# Project Management Team





# Vendor Support Team

- Fuel & Related Services – AREVA NP
- NSSS – Westinghouse
- Balance of Plant – Sargent & Lundy
- Modification Packages – Sargent & Lundy
- Equipment – TBD
- Installation - TBD





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## Licensing Approach

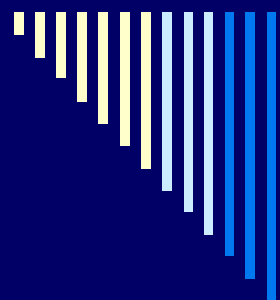
- Benchmark Ginna and Waterford 3
  - License Amendment Request (LAR) prepared per Review Standard RS-001
  - EPU Project to compile LAR
  - Independent review prior to submittal
  - Expect frequent interface with NRC
  - Member NEI EPU Working Group
-



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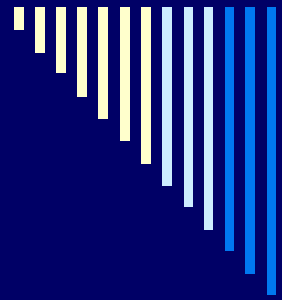
# PRA Risk Insights

- Initial EPU impact assessed
  - Potential risk reduction items identified
    - Power Operated Relief Valves (PORVs)
    - Atmospheric Dump Valves (ADVs)
    - Procedure enhancements
-



## Plant Impact

- 3-pump operation (Main feedwater, Condensate)
- Reactor coolant system at 2250 psi
- Increased fuel enrichment (4.95%)
- Several modifications required



# Activities Completed with EPU Considerations

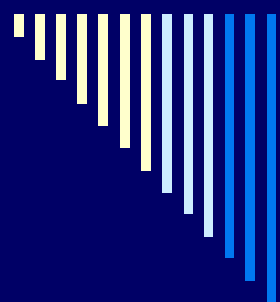
- ❑ Replaced Steam Generators
- ❑ Replaced Pressurizer
- ❑ Replaced Low Pressure Turbines
- ❑ Replaced Main Condenser
- ❑ Replaced Main Transformer



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# 2011 RFO Modifications

- ❑ New potable water and supplemental emergency feedwater storage tank
  - ❑ Heater drain tank and valves
  - ❑ Main feedwater regulation valve trim
  - ❑ Turbine cross around relief valves
  - ❑ Safety injection pump room cooling
  - ❑ Nuclear detector well cooling
-



# 2012 RFO Modifications

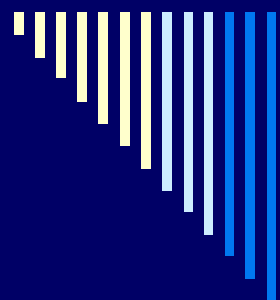
- High pressure turbine
- Main generator rewind
- Main steam safety valves (MS-291/292)
- Trippable Group N rods
- Isophase bus duct cooling
- Auxiliary feedwater pump and motor
- Transmission & Distribution
  - No FCS switchyard modifications



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## Possible Component Modifications

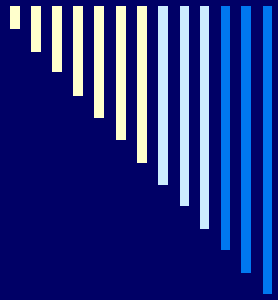
- ❑ Replace Feedwater heaters (FW-14 A & B)
  - ❑ Switchgear room cooling
  - ❑ Isophase bus duct
  - ❑ Larger PORVs
  - ❑ ADVs upstream of MSIVs
-



## Project Summary

- Supports the OPPD Integrated Resource Plan (IRP) for additional power supply by January 2013
- Vendor detailed Engineering & Licensing work underway
- LAR submittal in March 2011
- NRC approval in March 2012





# Questions/Feedback