



1st Pre-Application Meeting with NRC

ESBWR Design-Centered Working Group

North Anna COL Application

Grand Gulf COL Application

River Bend COL Application

July 14, 2006



Opening Remarks

- We share NRC's vision of a design-centered approach to preparing and reviewing standard Combined License applications (COLAs)
- Our commitment to meeting our submittal schedules with quality COLAs is firm
- Standardization extends beyond COLAs to plant design and programs
 - Standard programs may cross technology lines

Meeting Purpose

- Introduce ESBWR DCWG Participants
- Describe DCWG Plans, Schedules and Expectations
- Describe COLA Development Approach
- Summarize DCWG Response to Regulatory Issue Summary 2006-06 Request
- Discuss Key Challenges
- Propose Next Steps

ESBWR DCWG Participants

- Dominion, Entergy, NuStart, and GE have formed the ESBWR Design-Centered Working Group (DCWG)
- The DCWG is currently supported by
 - Bechtel Power Corporation
 - Enercon Services, Inc.
- DOE provides funding to NuStart and Dominion through Nuclear Power 2010 initiative
- ESBWR DCWG coordinates with other technologies through NEI and NuStart

ESBWR DCWG Points-of-Contact

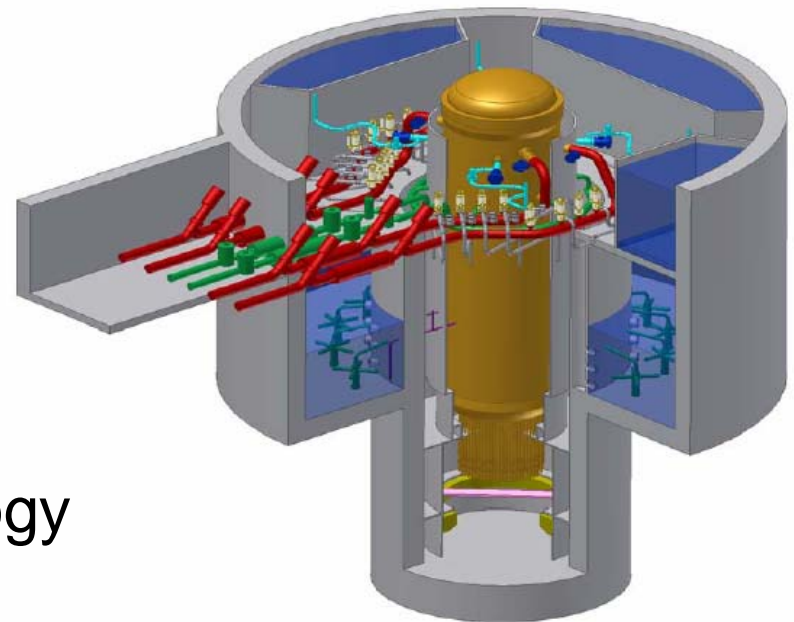
- Dominion (North Anna)
 - Gene Grecheck
 - Joe Hegner
- NuStart (Grand Gulf)
 - Marilyn Kray
 - Tom Williamson
- Entergy (River Bend)
 - Randy Hutchinson
 - George Zinke
- GE (DCD Scope)
 - Steve Hucik
 - David Hinds

Key DCWG Activities/Scope

- ESBWR design is currently under review by NRC for final design approval and certification
- COL applications referencing the ESBWR design for
 - North Anna
 - Grand Gulf
 - River Bend
- Standardization extends to
 - Licensing
 - Standard plant design
 - Standard operational programs
 - Collaborative approach to site-specific issues

ESBWR

- Design Certification Application Accepted December 1, 2005
 - Docket 52-010
- Advanced Design
- Passive Safety Features
- 4500 MWt
 - ~1,575 MWe gross
- Leverages ABWR Technology
 - Builds on Existing BWR Experience



North Anna

- Located in central Virginia
- Two existing units
- NRC ESP Docket No. 52-008
- ESP application submitted September 2003
- Final SER and EIS expected late 2006
- ESP expected in 2007



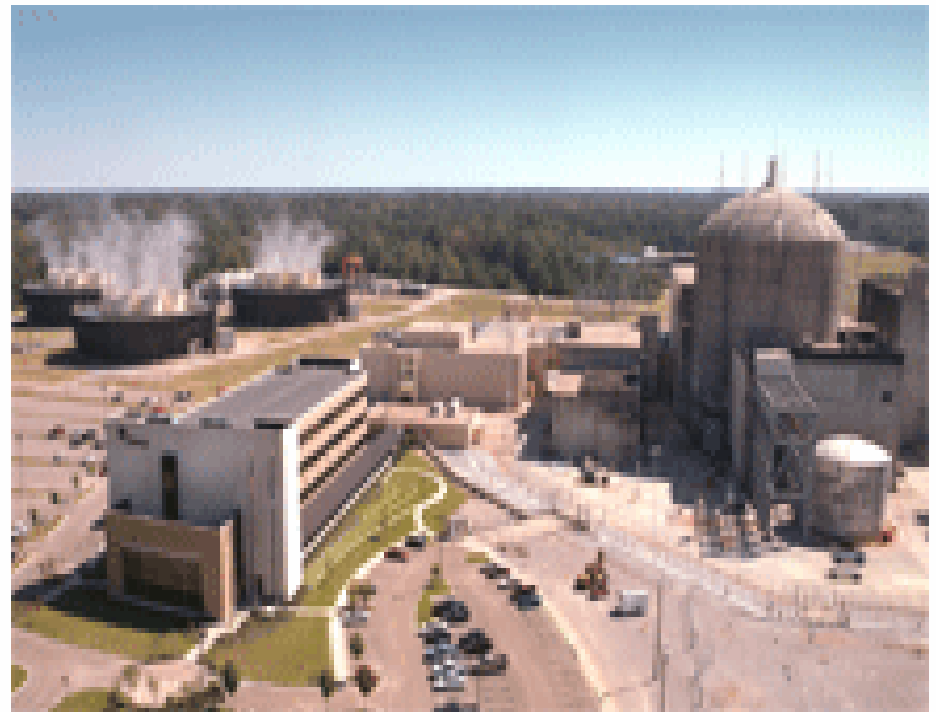
Grand Gulf

- Site located in west central Mississippi
- One existing unit
- NRC ESP Docket No. 52-009
- ESP application submitted October 2003
- Final SER and EIS issued
- ESP expected in 2007



River Bend

- Site located near St. Francisville, Louisiana
- One existing unit
- No ESP licensing action



DCWG Plan, Schedules & Expectations

■ Plan

- Take advantage of ongoing ESBWR design certification
- Submit standard COLAs using a design-centered approach

■ Schedules ¹

- Submit North Anna and Grand Gulf COL applications (each for one unit) to NRC in November 2007
- Submit River Bend COL application to NRC in May 2008

¹ Dependent on completion of NRC actions and final applicant organization approvals

■ Expectations

- NRC issues ESBWR design certification in June 2009
- NRC issues North Anna/Grand Gulf COLs in June 2010
- NRC issues River Bend COL in December 2010

Design-Centered Approach

- Individual projects have been preparing for COLAs for more than a year. Activities include:
 - Division of responsibilities
 - Work breakdown structure
 - Integrated project schedule
 - Resources to support schedule
 - COLA development process
 - Ongoing ESP and DCD licensing actions
 - NEI COL Task Force
- Individual projects coordinated their efforts to enhance efficiency and effectively became a DCWG

Design-Centered Approach (cont.)

- DCWG members are currently preparing:
 - Standard COLA sections (i.e., identical content)
 - Standard COLA sections with some site-specific content
 - Site-specific COLA sections (for North Anna and Grand Gulf, primarily derived from ESPs)
- A Division of Responsibility (DOR) designates the DCWG member responsible for authoring each section
- Standardization is being enhanced through a feedback loop from COLA to design certification
 - Reduce number of COL items
 - Enhance format and content of DCD and COLA

Division of Responsibility (DOR)

| Authoring Organization | Scope |
|---------------------------------|--|
| GE | Responsible for COLA sections relating to ESBWR design |
| Dominion/NuStart/Entergy | Responsible for COLA sections related to operations and administrative information |
| Dominion/Bechtel | Responsible for North Anna site-specific sections |
| NuStart/Enercon | Responsible for Grand Gulf site-specific sections |

ESBWR COLA Standardization


- High degree of standardization will be achieved

| FSAR Standardization | | |
|-------------------------|--------------------------|--|
| Number of FSAR Sections | Percent of FSAR Sections | Section Type |
| 127 | 75% | Standard (identical) |
| 27 | 16% | Standard with a limited amount of site-specific information |
| 9 | 5% | Standard with a moderate amount of site-specific information |
| 7 | 4% | Site-specific |
| 170 | 100% | Total |

- Various subsections will be standard across reactor technologies

RIS Response Status

The following two slides summarize the RIS 2006-06 questions

The intent of the slides is to identify questions we've already covered (identified with a ) and set the stage for the next slides that address the remaining items

RIS 2006-06 Items

- Whether a DCWG will be formed
 - Who is the R-COL applicant?
- When will R-COL and S-COL applications be submitted? (month/yr.)
 - Will applicants provide RAI responses within the typical 30 day period?
- Identify standard and site-specific sections at the x.y.z level

RIS 2006-06 (cont.)

- Whether vendor/applicants intend to submit pre-application topical reports
 - How many?
 - Describe each report's scope and content
 - Schedule
- Whether and when applicants intend to submit an ESP
- Provide information within 45 days of RIS issuance

R-COL and S-COL Applicants

- The design-centered approach and the high-degree of standardization provides the DCWG with the opportunity to submit two COLAs concurrently
 - Demonstrate that a high degree of standardization can be achieved
 - Enhance NRC review efficiency
 - NRC resources currently will be well-positioned for COLA reviews
- The R-COL will be designated at the appropriate time
- The River Bend COLA would be a true S-COL

RAI Response Approach

- NRC and DCWG agree to an RAI response process modeled on ESP safety review and ESBWR DCD interactions
 - NRC develops draft questions
 - NRC/applicant discuss and establish response timeframe
 - NRC issues formal letter
 - Applicant responds as agreed

Pre-Application Topical Reports



- The overall need for pre-application topical reports is reduced because the ongoing ESBWR design certification review both
 - Benefits from predecessor DCs, and
 - Provides an opportunity to address NRC information requirements that might otherwise be deferred to COLA
- Nonetheless, a number of potential candidate areas for early interactions exists

Early Interactions

- Selected operational programs
 - Training
 - Fire protection
 - Radiation protection/ALARA
 - Security
- Quality assurance
- Initial reactor core safety analysis
- Emergency preparedness
- Limited work authorization
- NRC/DCWG workshops on COLA content

Key Challenges

- COLA development approach was evaluated
- Key challenges were identified
- Certain assumptions and approaches have been developed
- The North Anna and Grand Gulf COLAs' submittal date is based on the validity of the assumptions and approaches

Key Challenges

- NRC Rulemaking/Guidance
- Process for parallel DC and COL reviews
- PRA
- ESP Environmental Finality

NRC Rulemaking/Guidance

- Schedule Challenge
 - NRC issuance of a revised Part 52 and guidance during COL application development
 - NRC activities and milestones factored into application development process
- Content Challenge
 - Level of additional design detail in COLA beyond DCD and premature information requirements
 - The DCWG will work through NEI to resolve
- DCWG assumption: Issues resolved in a manner that doesn't significantly impact content

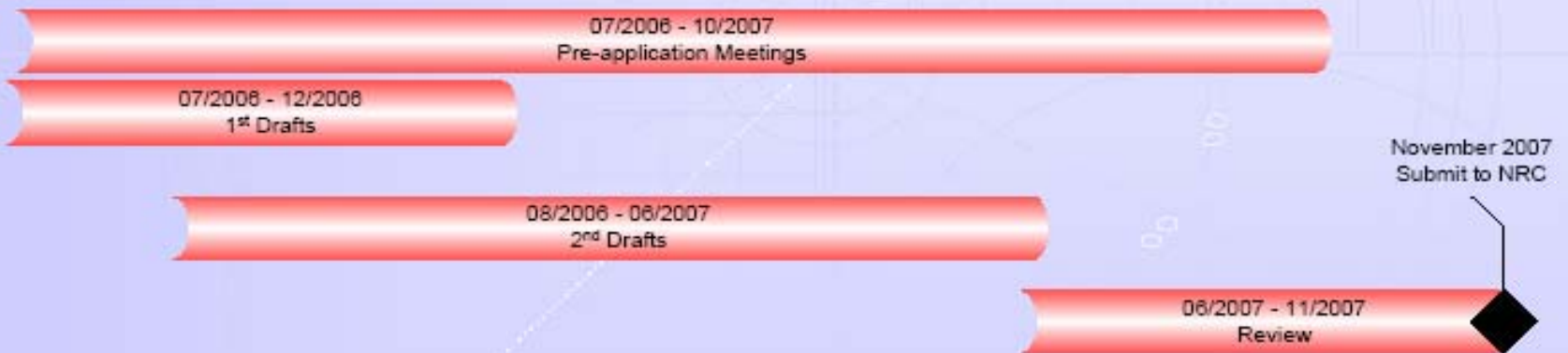
ESP



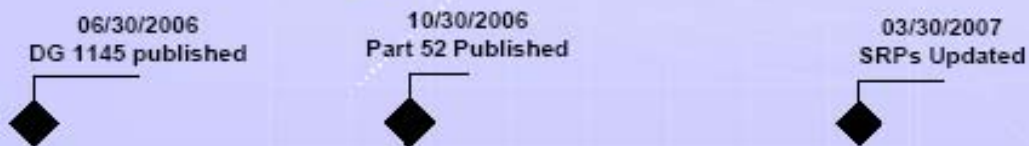
ESBWR DC



COL



NRC Rulemaking/Guidance



COLA Schedule Challenges

Parallel DC and COL Reviews

- One issue, one review, one resolution
- NRC should avoid duplicative review in a COL proceeding of issues being resolved in design certification proceedings

Evolution of a Design and PRA

| | | | | |
|--------------------------------|---|---|--|---------------------------------------|
| Conceptual Design | Design Base | Detailed Design | Construction Design | Plant in Operation |
| Is Design Feasible? | Can Design be Licensed? | Implementation of Design | Confirmation of Assumptions | Confirmation of Assumptions |
| Low Design Detail | Major Components Specified | All Components Specified | All Components Described | All Components Described |
| Qualitative Risk Assessment | Qualitative & Quantitative PRA | Quantitative PRA with Gaps | Quantitative PRA with Fewer Gaps | As-Built As-Operated PRA |
| Defense-in-Depth Concepts | Defense-in-Depth Analyzed | Defense-in-Depth Mostly Resolved | No Defense-in-Depth Issues | No Defense-in-Depth Issues |
| Past Vulnerabilities Addressed | Sequence Level Vulnerabilities Eliminated | System Level Vulnerabilities Eliminated | Component Level Vulnerabilities Eliminated | Additional Vulnerabilities Eliminated |

← DCD/COLA Level of Design Detail

Design Detail Needed for PRA

- Recent NRC workshop feedback indicated DCD PRA is acceptable for COL
 - Site-specific information considered
- PRA with construction-level detail is needed to support risk-informed activities after COL issued

COLA ER Approach

(Applications Referencing ESP)

- Starting Point:
 - ESP Environmental Impact Statement
 - ESP Environmental Report
 - Design Certification Environmental Assessment (SAMDA)
- Previously resolved issues have finality for COL
 - Industry/NEI seeking to clarify NRC regulations in this regard

COLA ER Content

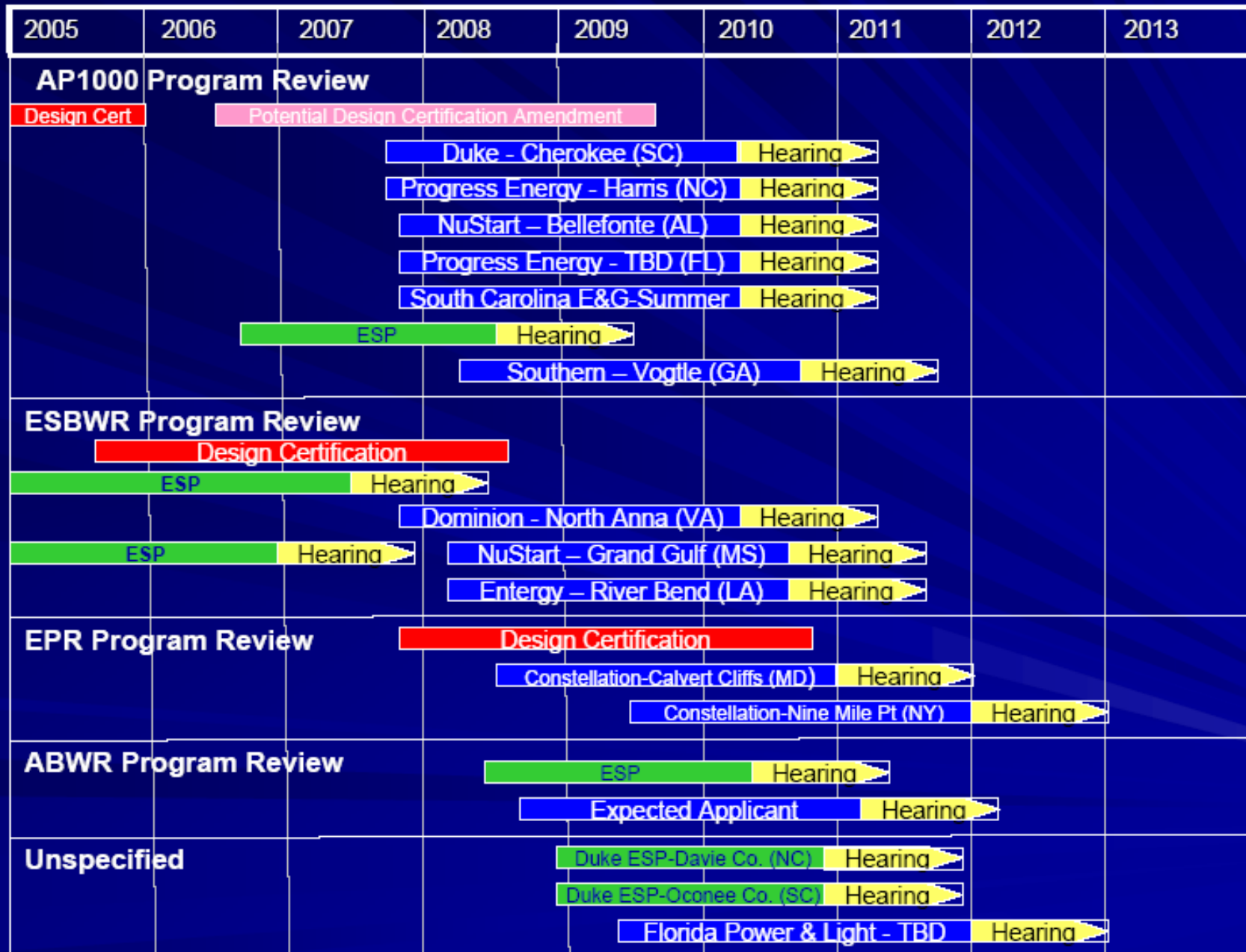
- COLA ER content (based on proposed rule)
 - Demonstrate actual ESBWR facility falls within site characteristics and design parameters specified in ESP
 - Resolve any environmental issues deferred in the ESP proceeding
 - Identify new and significant information
- Common approach to ER preparation

New and Significant Info

- Common approach (based on License Renewal process and May 16 NEI response to NOPR)
 - Review to identify “new” information
 - Significance determined with respect to environmental impacts defined in ESP EIS
 - Significant if new information results in change in “level of impact”
- Include information in COLA ER that is both new and significant
- Results maintained in auditable format available for NRC audit and inspection

New Plant Licensing Applications

An Estimated Schedule



Next Steps

- Engage with NRC staff on a regular basis
 - Pre-application meeting process
 - DCWG/NRC Workshops on COLA content
 - Scheduling
- Target for next meeting:
 - Week of September 4, 2006
 - Topics:
 - Pre-application interactions
 - Critical path NRC review issues
 - Pre-application activities list (DG-1145, Section C.IV.7)
 - Project status
 - NRC review of site-specific information

Summary

- Appreciate opportunity to meet
- NRC and DCWG vision is aligned
- DCWG is committed to on-schedule, quality, standardized COLAs