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New Reactors Business Line Commission Briefing

October 20, 2016
Victor McCree
Executive Director for Operations

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Overview of the New Reactor Program

Vonna Ordaz
Deputy Director
Office of New Reactors

Agenda

- **Large Light Water Reactor & Small Modular Reactor Licensing**
- **Technical Review Effectiveness**
- **Construction Oversight**
- **ITAAC**
- **Vendor Inspection Program**
- **Transition to Operations**
- **Advanced Reactor Regulation**

Effectively Managing Substantial Workload

- Emphasizing more effective, efficient, safety-focused reviews
- Ensuring safe construction
- Incorporating lessons learned and demonstrating efficiencies
- Focusing on quality and accountability

Enhancing Readiness for Future Work

- Ensuring readiness to review new technologies
- Implementing innovative approaches
- Aligning resources with workload

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Large Light Water Reactor & Small Modular Reactor Licensing

Frank Akstulewicz, Director
Division of New Reactor Licensing
Office of New Reactors

Effectively Delivering on the Mission (1/3)

Completed

- **32 licensing actions for Vogtle and V.C. Summer units**
- **Mandatory hearings for Levy and Lee COL applications**
- **Safety review for the Turkey Point COL application**

"An elevated view of the entire Vogtle 3 and 4 construction site."
Photo courtesy of Georgia Power Company

Effectively Delivering on the Mission (2/3)

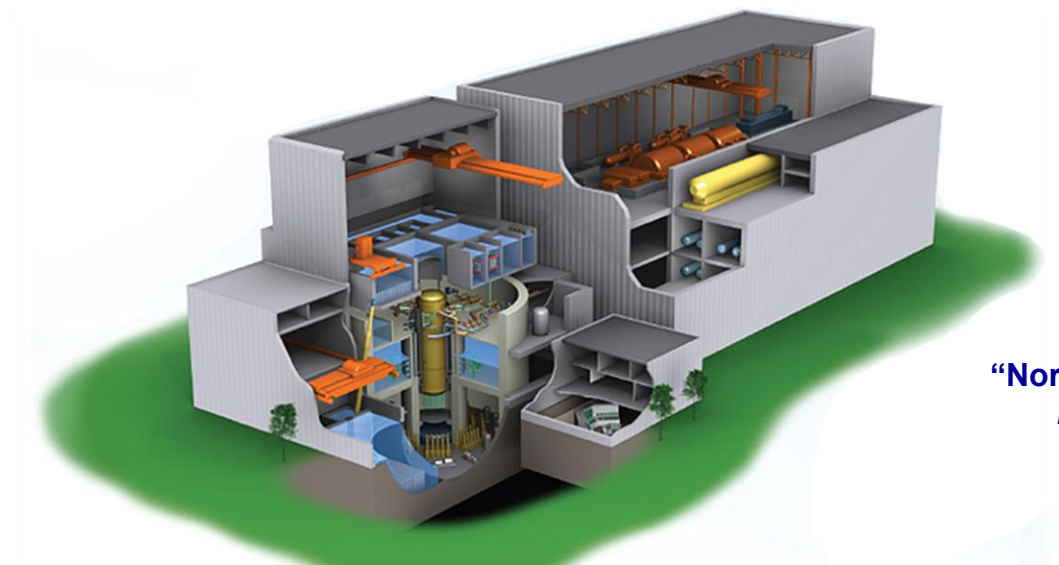
Issued

- **ESP to PSEG**
- **COLs for South Texas Project Units 3 & 4**
- **Milestone schedule letter to GEH for ABWR DC renewal application**

"South Texas Project Units 3 & 4"
Photo courtesy of nuclearstreet.com

Effectively Delivering on the Mission (3/3)

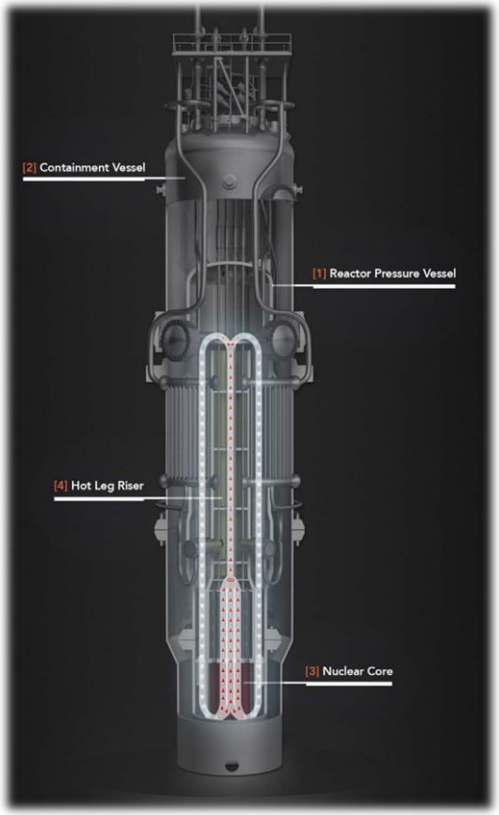
- **Completed the North Anna COL application safety review 3 months ahead of schedule**
- **Employing a staggered Phase 2 review of APR-1400 DC application to maintain 42-month review schedule**



"North Anna Power Station Unit 3"
Photo courtesy of Dominion

Employing Lessons Learned to SMR Licensing Work

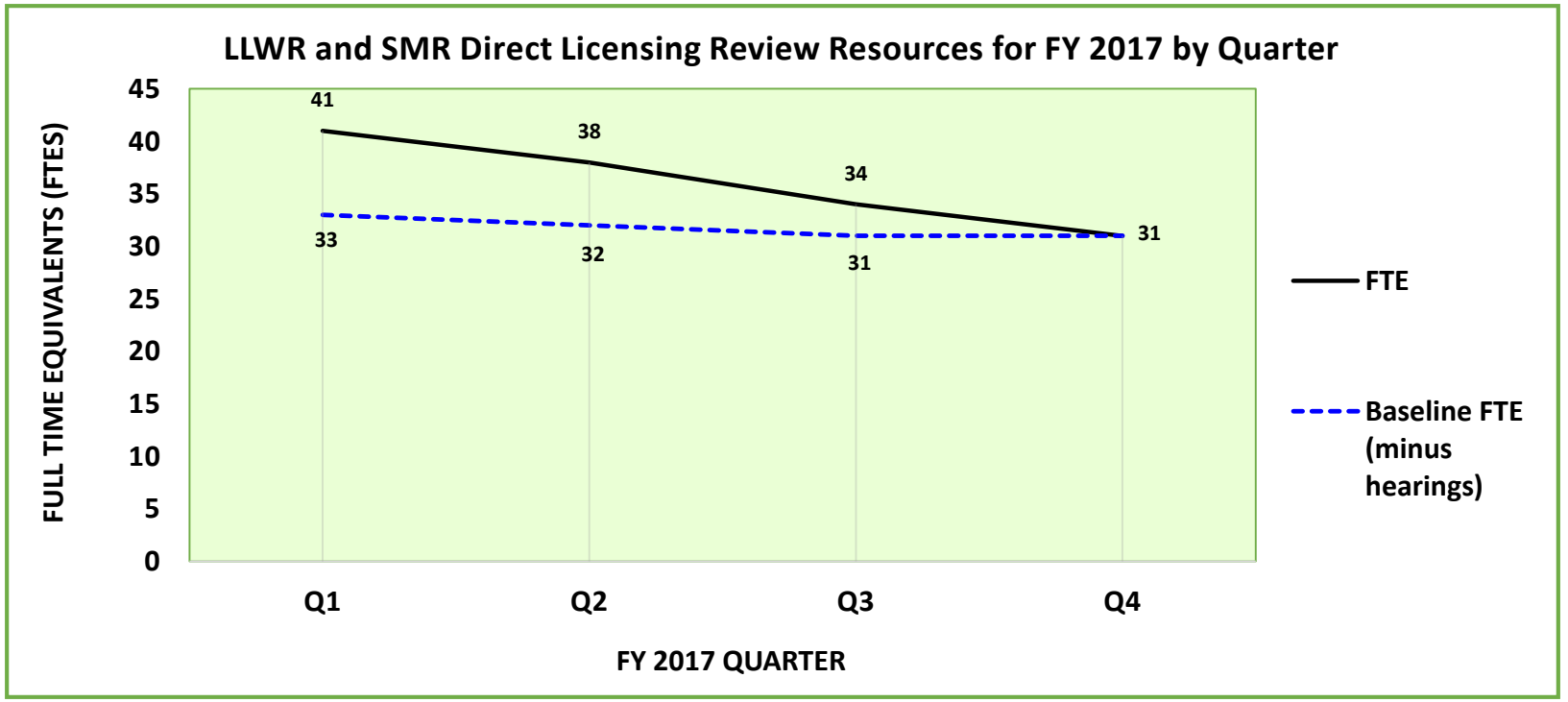
- **Addressed Regulatory Gap issues**
- **Issued readiness assessment for NuScale DC application**
- **Completed acceptance review of Tennessee Valley Authority's tendered ESP application**



"NuScale Reactor Diagram"
Photo courtesy of NuScale Power, LLC

Emphasizing Agility in Using Resources in FY 2017

- **Challenge: Balancing resources in certain skill set areas**
- **Strategy: Effectively using rotations, details, and resource sharing with NRR**



Preparing for Licensing Work in FY 2017 and Beyond

- Reviewing increased number of licensing actions for the AP1000 design center
- Completing review of current applications
- Preparing for new COL, ESP, and DC applications
- Supporting international activities

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Increasing Effectiveness and Efficiency of Technical Reviews

John Monninger, Director

Division of Safety Systems and Risk Assessment

Office of New Reactors

Enhancing Execution of our Safety Mission

- Continuing to assess and apply lessons learned
- Standardizing practices and focusing efforts
- Benefiting from risk-informed approaches

Enhancing Licensing Review Tools

- **Issued job aids for audits, confirmatory analysis, and requests for additional information**
  - **Clarified the purpose of the tools**
  - **Identified best practices and what to avoid**

Implementing Risk-Informed Approaches

- Capitalizing on the Standard Review Plan framework for SMRs
- Developing the NuScale safety focused review approach
  - Integrated consideration of safety significance, defense-in-depth, risk insights, and safety margin

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Construction Oversight

Laura Dudes
Deputy Regional Administrator,
Construction
Region II

Effectively Meeting Challenges of the Dynamic Construction Environment (1/3)

Placement of the In-containment refueling water storage module, VC Summer Unit 2

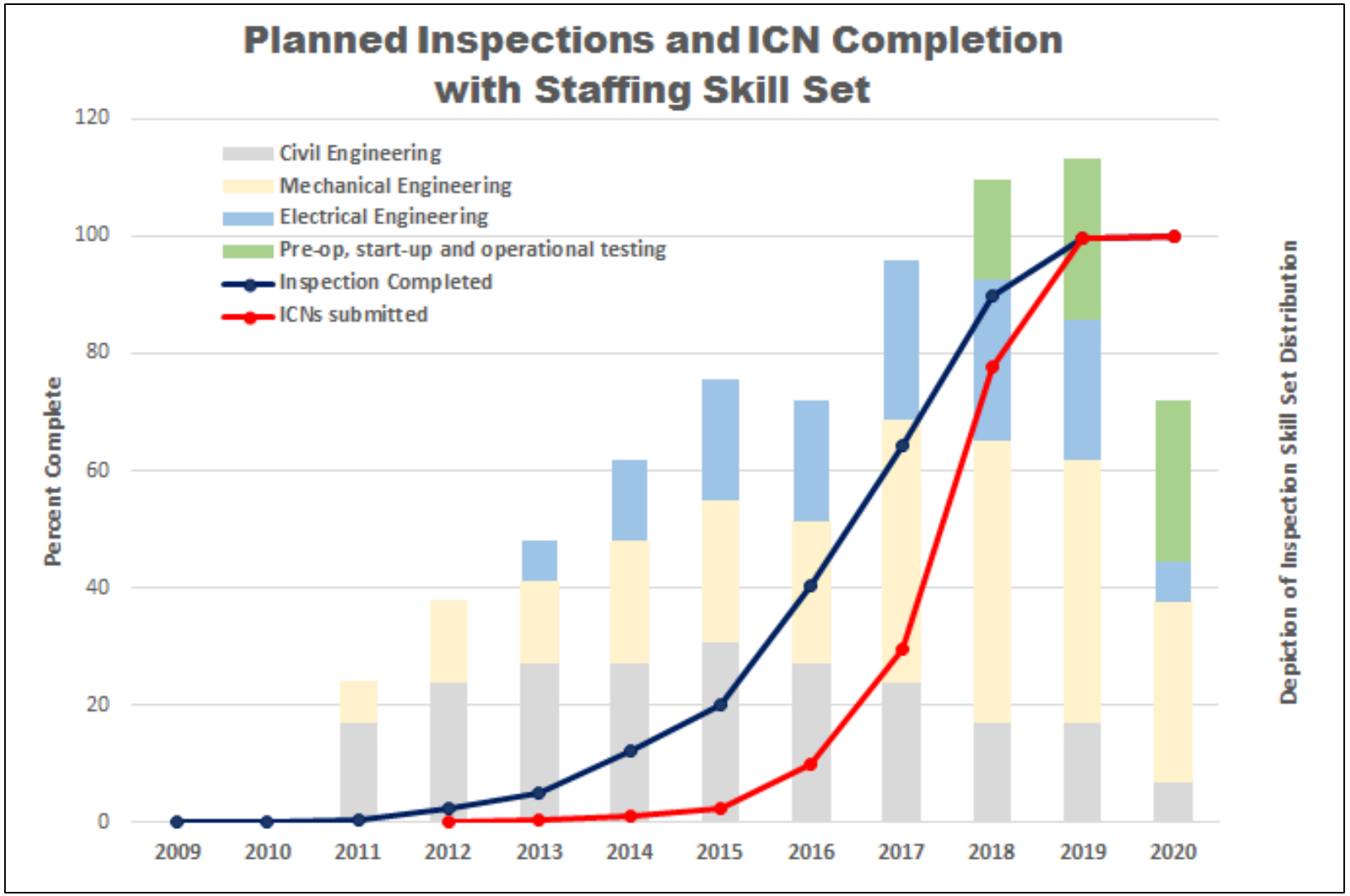
Placement of the Auxiliary Building Module, Vogtle Unit 4

Effectively Meeting Challenges of the Dynamic Construction Environment (2/3)

Mechanical Module Receipt Inspection at Vogtle AP1000 Site

Chemical and volume control system pumps

Effectively Meeting Challenges of the Dynamic Construction Environment (3/3)



Transition: Construction to Operations

- Organizational plan for the AP1000 transition
- Staff readiness for AP1000 operation
  - AP1000 reactor operations training
  - Resource agility during initial operations
  - Watts Bar lessons learned

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ITAAC, Vendor Inspection Program, & Transition to Operations

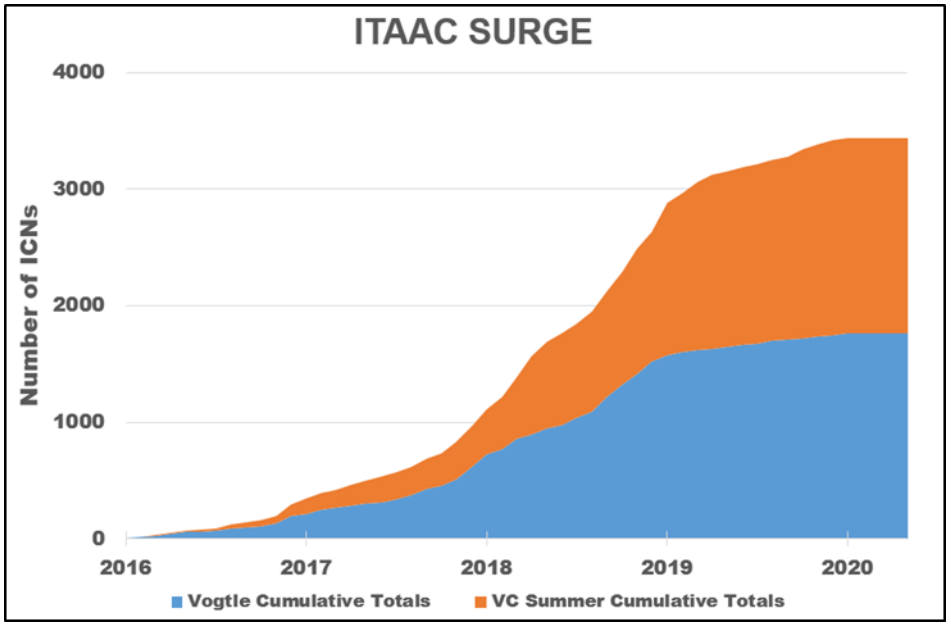
Michael Cheok, Director
Division of Construction Inspection and Operational Programs
Office of New Reactors

Successfully verifying ITAAC Closure Notifications (ICNs)

- 131 ICNs received, with 111 verified
- ICN submittals will increase
- Closure notification submittals have been high quality

Ready for the ITAAC surge

- Issued Reg Guide 1.215 to facilitate quality ICN submittals
- NRC training on ICN verification
- Use of staff experts to assist in verification of complex ITAAC



Implementing Efficient Solutions

- Carried out a successful Uncompleted ITAAC Notification (UIN) pilot project
- Enhanced infrastructure to process UIN reviews
- Achieved greater efficiencies with periodic, multiple-ICN Federal Register Notices

Vendor Inspection: Focusing on New Reactor Builds

- **Majority of vendor inspections completed in FY2016 focused on new reactor components**
- **Inspections targeted vendors supplying safety-significant components**

Inspection of General Atomics Electromagnetic Systems

Vendor Inspections are Enhancing Safety

- Maintaining technical focus on AP1000 engineering and design verification

Squib Valve Vendor Inspection at SPX, Copes-Vulcan

- Closing out safety issues
- Continuing follow-up on AP1000 module fabrication

Sustained Focus on Vendor Oversight

- Continue our focus on commercial-grade dedication issues
- Continue vendor outreach
- Leverage international partnerships

AP1000
Reactor Coolant Pump

Actively Preparing for Transition to Operations

- Making progress on 21 Readiness Issues
- Developing implementation plan
- Applying enhancements to the Reactor Oversight Process for new reactors

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Advanced Reactor Regulation

Vonna Ordaz
Deputy Director
Office of New Reactors

Increasing Emphasis on Advanced Reactors

- **Industry engagement with NRC has increased**
- **Congressional interest remains high**
- **Staff aggressively working toward readiness for efficient and predictable reviews**

Managing the Challenges to Advanced Reactor Readiness

- Maturity of designs – focusing on common issues
- Clarity of schedule – effective communication
- Flexibility of regulatory review process – soliciting stakeholder feedback

Actions Focus on Readiness for Efficient Reviews

- **NRC Vision and Strategy**
  - **Three Pronged Approach**
    - **Technical Readiness**
    - **Regulatory Readiness**
    - **Communications Optimization**

Efficient Reviews are Essential to Success

- Developing strategies and Implementation Action Plans
- Technical work on design criteria progressing
- Taking first steps to develop a licensing strategy

Communication and Coordination are Vital

- **Excellent coordination with DOE**
- **Active communication with vendors and industry organizations**
- **International collaboration**

Summary

- **Positively impacting safe construction**
- **Implementing innovative approaches to complete current licensing reviews**
- **Enhancing readiness for new technologies**

Acronyms (1/2)

- ABWR – Advanced Boiling Water Reactor
- COL – combined license
- DOE – Department of Energy
- DC – design certification
- ESP – early site permit
- GEH – General Electric Hitachi
- ICN- ITAAC closure notification

Acronyms (2/2)

- ITAAC – inspections, tests, analyses, and acceptance criteria
- LLWR – Large Light Water Reactor
- RAI – request for additional information
- NRR – Office of Nuclear Reactor Regulation
- PSEG - PSEG Power, LLC and PSEG Nuclear, LLC
- SMR – small modular reactor