Multinational Regulatory Influence on New Nuclear Construction Projects

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Westinghouse’s Worldwide Presence

Westinghouse’s operations and its new plant project opportunities span five continents.
AP1000™ Project Update: China / Sanmen

Recent Milestones:
Sanmen Unit 1: Hot Supplemental Testing completed 30 June 2017
Sanmen Unit 2: Containment Integrated Leak Rate Test completed 31 May 2017

Next Milestone:
NNSA Permission to Load Fuel in Sanmen 1
AP1000 Project Update: China / Haiyang

Recent Milestones:
- Haiyang Unit 1: Hot Supplemental Testing completed 13 July 2017
- Haiyang Unit 2: Containment Integrated Leak Rate Test completed 23 July 2017

Next Milestone:
- NNSA Permission to Load Fuel in Haiyang 1
AP1000 Project Update – Vogtle 3 & 4

- Southern Company has assumed responsibility for plant construction
- Construction of both units proceeding without interruption
AP1000 Project Update – Vogtle 3

- Unit 3 Turbine Building
- Unit 3 Containment & Shield Building
- View inside Unit 3 Containment Vessel
- View inside Unit 3 Turbine Building
- MSR
- 1st of 2 Steam Generators being prepared for installation
AP1000 Project Update – Vogtle 4

Unit 4 Turbine Building

Unit 4 Containment & Shield Building

Unit 3

View inside Unit 4 Containment Vessel

CA20 Module

CV

CA01 Module

View inside Unit 4 CA20 Module
Future AP1000 Projects

• United Kingdom
  – AP1000 GDA completion achieved in March 2017
  – Toshiba currently evaluating options for NuGen ownership and Moorside project

• India
  – NPCIL plan for six AP1000 units at Kovvada site
  – Preliminary contract favorably concluded technical feasibility of the AP1000 plant design as adapted for India, with key priority areas/development work identified for the early licensing phase
  – Technical and commercial offer being negotiated with NPCIL, Department of Atomic Energy, and Government of India

• Turkey
  – Continuing to discuss potential Nuclear Project applying AP1000 and CAP1400 plant designs
  – Preliminary site investigations anticipated to begin in 2017
Observations regarding MDEP and Member Regulatory Authorities

- Wide differences in regulatory approach
  - Prescriptive vs. non-prescriptive approach
  - Vendor interaction with regulator (direct vs. non-direct)
  - Scope of review (separation of vendor vs. utility scope)
  - Codes & standards, and demonstration of equivalence vs. redesign (e.g. IEC vs. IEEE)

- Differences in timing and stages of review
  - One-step vs multi-step licensing processes
  - Regulatory reviews are at different stages due to differing project implementation schedules

Despite differences in approach among members, the MDEP AP1000 Working Group provides a valuable vehicle for sharing perspectives and bases for regulatory decision-making
Observations regarding MDEP AP1000 Working Group

• Working Group provides means to discuss differences in regulatory philosophy and approach
  – Understanding of the basis of the country-of-origin regulator’s design certification
  – Ability to achieve alignment on acceptability of resolution of common issues
  – Understanding of the basis for exemptions (e.g., Operating Basis Earthquake)

• Working Group provides means for informal discussion of topics important to plant safety and of issues associated with first-of-a-kind components

• Provides regulatory personnel with opportunity to obtain prompt response to critical questions – assuring plant safety while potentially minimizing construction or startup impacts
Observations regarding MDEP AP1000 Working Group

• Promotes design standardization and plant safety
  – Publishing common MDEP position papers is important to achieve a standard regulatory approach (e.g., paper addressing Fukushima-related issues)
  – MDEP initiatives contribute to improve plant safety, including through information-sharing
  – MDEP initiatives facilitate design standardization and common design approach to key issues

AP1000 Working Group is expected to continue playing an important supporting role in the startup of Sanmen & Haiyang in the near term and in the future licensing of AP1000 in India and Turkey