

New Nuclear Licensing and the Next NRC Chair

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The next Chairman of the Nuclear Regulatory Commission will not be assuming the leadership of a smoothly running regulatory machine without challenges. In the last six years the NRC has faced a wave of eighteen new reactor license applications, five new reactor design applications, the Yucca repository license application and related litigation, the Fukushima tsunami and Virginia earthquake, licenses for new enrichment facilities, and its ongoing work of safety, plant upgrades, plant life extensions, plant inspections, and enforcement. The Commission has certified AP1000 reactor design and issued new reactor licenses for the Vogtle and Summer nuclear stations, but there is a lot of work left for the next NRC Chair and the Commission.

The U.S. has the largest and safest reactor fleet in the world. A strong, effective regulator is essential to “ensure adequate protection of public health and safety standards.” Public confidence instilled with stringent oversight by an effective NRC is a key ingredient. This oversight creates high barriers of entry for new projects, new technologies, and new suppliers. It can make reactor licensing painfully expensive and frustratingly unpredictable.

One challenge the NRC faces is to assure reactors are safe while still enabling new construction and continued operations. Most estimates project that the U.S. needs to build about 30 GW of new nuclear capacity (20-30 reactors) in the United States by 2030 to maintain a world class electricity system with the same levels of reliability, affordability, and environmental capability that the U.S. enjoys today.

The list of new reactor construction priorities awaiting the next Chair includes:

1. **Restoring Waste Confidence.** Last week, Court of Appeals rejected the NRC's determination that there is reasonable assurance that spent fuel will be removed from reactor sites even if the Yucca repository is not licensed. Without waste confidence, there is more uncertainty about NRC new plant licensing. To restore confidence that new reactor sites will not become graveyards for spent nuclear fuel, the NRC needs to fulfill its obligations under the Nuclear Waste Policy Act. A Yucca license restart will be a solid basis for a credible waste confidence determination.

2. **Completing the Fukushima lessons learned program.** Get all the facts first, and then identify plant specific cost effective safety improvements. Avoid mandating changes unless the safety benefits outweigh the costs. The NRC must be prudent to avoid requiring high-cost, low-benefit changes to address lessons learned from the Fukushima incident. Do not delay construction of new reactors with improved passive safety features, because of concern about radiation releases at the old, less robustly design Fukushima plant site. Those releases had a negligible impact on public health and safety. Nuclear regulation creation and modification must be driven by facts and science, not emotion and political grandstanding.

3. **Demonstrating that the NRC's "ITAAC" works** to assure quality and safety at Vogtle and Summer without undue burdens on the operators, the vendors, or the NRC. The process was intended to allow oversight by the NRC of critical points during construction and initial start-up testing. The NRC needs to assure correct identification and adequate resolution of ITAAC issues in a timely fashion, without continuous recourse to the original reviewer.

4. **Completing construction licenses** expeditiously for nine active applications. The licensing process schedule continues to be unpredictable sometimes taking 18-24 months beyond the original commitment dates.

5. **Completing new and amended LWR design license applications**

6. **Establishing cost effective and technology neutral standards** for small and advanced reactor designs. Perform a cost-benefit analysis for all new and revised regulations and standards for small and advanced reactors.

7. **Enhancing licensing processes.** Create a sustainable, predictable process to license safe and cost-effective nuclear power plants. Work with the NRC staff and licensees to:
 - Develop lessons learned from the recent licensing proceedings to improve the quality of applications and enable more efficient reviews.
 - Establish firm licensing process milestones to make the process more predictable and progress toward completion more transparent.
 - Create fast track procedures for applications that have few unidentified risks, e.g. existing sites or design changes that are not safety related.
 - Make the NRC pre-docketing review of applications more thorough. Identifying weaknesses or inadequate documentation earlier should enable the NRC and the applicant to manage the time and resources required to complete the licensing process.
 - Establish a fixed fee structure for licenses to encourage more efficient reviews.
 - Begin preparing staff Safety Evaluation Reports (SERs) earlier in the process.
 - Develop guidelines to incorporation of new information into the licensing process.

8. **Improving the NRC new reactor licensing process**

The wave of design certifications, followed by COL applications in 2007-9 stretched the limited pool of experienced engineers and project managers as the

NRC and applicants needed staff to manage the significant increase in work load for the licensing process. Specific actions include:

- Stabilize the workforce and implement knowledge preservation and transfer programs.
- Build employee morale by publicly recognizing exceptional service.
- Initiate junior staffer exchange programs with industry so NRC people work in industry facilities and industry people work at the NRC.
- Curb “Teach Me” RAIs sent to applicants for NRC staff education purposes, or “Zombie” RAIs seeking information that has already been requested, provided, and acted upon.
- Manage the NRC’s Difference of Professional Opinion (DPO) process so a single dissenter can’t cause lengthy licensing delays.
- Avoid press releases criticizing applicants regarding normal review issues. Press releases characterizing applicants as unresponsive or calling applications “poor quality” unnecessarily shake public confidence without improving safety. The open and transparent NRC processes enable interested representatives of the media and public to find out what’s going on without gratuitous announcements.
- Defend the independence of the NRC against political interference that would compromise its mission to promote safe nuclear development or its duty to obey the law.

Conclusion

Rigorous, effective NRC safety regulatory oversight is beneficial to all. It increases public confidence. Unpredictable licensing reduces confidence and makes the commission vulnerable to political interference. The NRC and the applicants are commended for the work done to complete the Westinghouse AP1000 design approval and for the issuance of the new construction permits for Vogtle and Summer in the face of challenging circumstances. However much work is left to be done to assure reliable,

affordable and clean new nuclear power will be available to facilitate growth of jobs and the U.S. economy.