



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

June 9, 2023

PLEASE RESPOND BY:  
June 26, 2023

COMJMB-23-0001

MEMORANDUM TO: Chair Hanson  
Commissioner Wright  
Commissioner Caputo  
Commissioner Crowell

FROM: Commissioner Baran *Jeff Baran*

SUBJECT: ESTABLISHING COMMISSION EXPECTATIONS FOR THE  
EFFECTIVENESS, EFFICIENCY, AND TIMELINESS OF NEW  
REACTOR REVIEWS

**Background**

NRC has a key role to play in addressing climate change and energy security. It is our job to ensure the safety and security of nuclear power in the U.S. energy mix. To accomplish our mission, NRC needs an efficient, effective, and timely licensing process that can handle every application that comes our way. That is an important NRC responsibility.

Based on pre-application interactions with potential licensees, the NRC staff anticipates that at least 20 advanced reactor designs, reactor license applications, and early site permit applications will be under review in the next few years. The Department of Energy, utilities, and vendors predict that applications for hundreds of additional reactors may follow in the coming decades. NRC must therefore be fully prepared for a surge in new reactor work. Readiness is a multi-faceted challenge. NRC has intensified its focus on having sufficient resources and the right expertise to conduct these reviews. The agency is also working hard to establish a risk-informed, performance-based, and technology-neutral regulatory framework for new reactors.

At the same time, the staff is taking steps to make individual licensing reviews more efficient and predictable. The agency's dedicated and talented staff is employing core review teams with stable staffing over time, doing more in-person checks of supporting information and fewer formal requests for information, addressing more substantive technical issues during pre-application engagement, elevating tough licensing issues more quickly for senior leadership or Commission direction, using probabilistic risk assessments to focus reviews on safety significant items, and utilizing data analytics to quickly identify schedule risks. In addition, the staff has developed a draft Generic Environmental Impact Statement for Advanced Reactors.

These efforts are already having an impact. The Kairos application for a fluoride salt cooled high temperature reactor using TRISO fuel is scheduled for a 21-month safety review, while Abilene Christian University's application for a molten salt research reactor is set for an 18-month safety review.

To sustain and build on this early progress, the Commission must provide leadership and accountability by sharing its vision of – and expectations for – effective, efficient, and timely new reactor licensing reviews.

### **Proposed Staff Direction**

To communicate its expectations to the NRC staff, Advisory Committee on Reactor Safeguards, and external stakeholders, I believe the Commission should issue a Policy Statement on the effectiveness, efficiency, and timeliness of new reactor licensing reviews that addresses the following:

- Aggressive but achievable target schedules for the safety and environmental reviews of first-of-a-kind applications and subsequent reactor applications of the same design;
- The ability to apply regulatory findings and analyses from first-of-a-kind reviews to simplify subsequent reviews;
- Innovative licensing approaches and techniques that will evolve over time to optimize reviews;
- A risk-informed focus on safety and security;
- Prompt elevation of challenging issues to senior management and, if necessary, the Commission to seek timely resolution; and
- Effective, meaningful, and timely communication, Tribal consultation, and stakeholder engagement.

As it has done when crafting prior policy statements, the Commission would benefit from hearing the staff's views and suggestions. I propose that, within 60 days of the Staff Requirements Memorandum resulting from this paper, the staff should submit a notation vote paper to the Commission providing its perspective on setting expectations for the effectiveness, efficiency, and timeliness of new reactor licensing reviews. The staff should include a draft proposed Policy Statement with the paper. The Commission would then decide on the specific expectations articulated in the proposed Policy Statement, which would be issued for public comment. The goal of the final Policy Statement would be a common understanding of how NRC will conduct timely, predictable, cost-effective, and mission-focused licensing reviews for the next generation of nuclear reactors in the United States.

cc: EDO  
SECY  
OGC