POLICY ISSUE
NOTATION VOTE

RESPONSE SHEET

TO: Carrie M. Safford, Secretary

FROM: Commissioner Crowell

SUBJECT: SECY-25-0052: Nth-of-a-Kind Microreactor Licensing and Deployment Considerations

Approved X Disapproved ____ Abstain ____ Not Participating ____

COMMENTS: Below ____ Attached X None ____

Entered in STAR
Yes X
No ____

Signature

Date 10/17/25

Commissioner Crowell's Comments on SECY-25-0052, "Nth-of-a-Kind Microreactor Licensing and Deployment Considerations"

Microreactor technologies present a rapidly evolving, important, and novel set of topics for Commission consideration, with an equally wide array of stakeholder interests and concerns regarding the ability to efficiently license proven microreactor technologies while preserving essential safety and security requirements. While commercial adoption of new microreactor technologies portends significant opportunities to expand the safe deployment of small-scale nuclear power systems, we must carefully consider many novel issues inherent in the full microreactor lifecycle, including new manufacturing methods, unique transportation-related issues, and used fuel management.

Specifically, this paper presents for Commission approval a policy issue related to licensing and potential approvals of nth-of-a-kind (NOAK) microreactors[1] by providing options for addressing standard operational programs or requirements submitted for review at the design certification (DC) or manufacturing license (ML) stage. As noted in enclosure 1 of this paper, the staff would apply this proposed policy to any program or program element of a given microreactor design, including to programs or elements thereof unrelated to operation or design (e.g., construction quality assurance, radiation protection during construction).

Review and approval of standardized operational programs at the DC or ML stage would allow NOAK microreactor applicants to potentially gain efficiencies by bringing portions of the staff review scope forward while simultaneously reducing key uncertainties on future NOAK submittals. Toward this end, I approve staff's recommended Option 2, to include a pathway for NRC staff to "review and approve, as appropriate, information on standard operational programs or requirements submitted by applicants in connection with a DC or ML application."[2] In my view, this approach appropriately balances changes to the NRC's existing policy on finality for DCs and MLs[3] with providing efficiency and flexibility in the licensing review process.

I appreciate staff noting in the paper that in certain cases they may need to defer making a finding on a program in DC or ML application if the description is incomplete or inadequate, particularly given some operational programs require owner- or site-specific information that simply may not be known at the design stage, such as site boundary characteristics and analysis of any contiguous or nearby facilities at the deployment site. Further, I understand Option 2 offers finality only insofar as a referencing application fits within the parameters of programs or program elements in a referenced DC or ML. This is an appropriate threshold from my perspective. Lastly, this approach could manifest additional efficiency gains by allowing public stakeholders to petition to intervene on site-specific issues, without need for a

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[1] To the NRC staff, for the purposes of this paper, Nth-of-a-kind or NOAK microreactor means a microreactor of a design that has been previously approved by the NRC through a design certification, manufacturing license, or a first-of-a-kind combined license, or construction permit/operating license. (SECY-25-0052 at 3).

[2] SECY-25-0052, at 16.

[3] The existing policy on finality for DCs, for example, is expressed in the final DCR for the U.S. Advanced Boiling Water Reactor, which stated that "plant operational matters were not finalized in the design certification review" and "final rules do not resolve any issues regarding conditions needed for safe operation (as opposed to safe design," and that this approach is "consistent with the goal of design certification, which is to preserve the resolution of design features." 62 Fed. Reg. 25,800, 25,806 (May 12, 1997).

Commission waiver, ahead of the staff's review of a referencing application, therefore helping better inform the review process on the front-end and potentially reducing the likelihood of complex issues later in the application review process.

Clear, effective, and timely communication will be essential to the future success of this policy. This applies equally to the NRC staff and applicants—including those in pre-application engagement— and will be key when identifying and addressing issues related to finality during reviews. When utilizing this review process, it will be crucial for the staff to be as clear as possible when finality can and cannot be afforded to certain programs and program elements, both at the DC and ML application stages and when referenced in an operating license application or combined license application. In such instances, providing feedback to applicants both verbally and in writing during the licensing process is strongly encouraged.