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Mr. Mike King
Executive Director for Operations (Acting)
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: NEI Comments on NRC's Proposed "Licensing Requirements for Microreactors and Other Low Consequence Reactors Rulemaking"

Project Number: 689

Dear Mr. King:

This moment presents the Nuclear Regulatory Commission (NRC) with an extraordinary opportunity to enable the United States to protect national interests and meet its surging energy demand, swiftly and safely, by charting a forward-leaning path for high-volume licensing that strengthens our nation's energy security, grid reliability, and global leadership in advanced nuclear innovation.

To this end, the Nuclear Energy Institute (NEI)[1] is submitting comments to inform the NRC's development of a rulemaking for "Licensing Requirements for Microreactors and Other Low Consequence Reactors." The NRC has stated that this rulemaking is responsive to the Advanced Nuclear for Clean Energy (ADVANCE) Act and Executive Order (EO) 14300 Section 5(e), which directs the NRC "to establish a process for high-volume licensing of microreactors and modular reactors, including by allowing for standardized applications and approvals and by considering to what extent such reactors or components thereof should be regulated through General Licenses." The NRC held public meetings on July 14, 17, and 18 (ML25192A134, ML25196A417) to "meet directly with individuals to receive comments from participants on specific NRC decisions and actions to ensure that NRC staff understands their views and concerns." We applaud the NRC's effort to undertake this rulemaking on an expedited basis and are thankful for your inclusion of a wide variety of stakeholders to participate in the comment gathering meetings and inform the rule.

While concepts of the potential rule that were presented by the staff during the comment gathering meetings do align with NEI's views, the proposed entry conditions for the rule that the NRC presented during these meetings do not appear to be on track to accomplish the goals of EO 14300. Specifically,

[1] The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

Section 5(e) directs the NRC to establish a rule that would facilitate industry's pursuit of new deployment models through standardization and issuance of General Licenses that enable high-volume licensing. The purpose of these comments is to provide input on the NRC's purpose and direction of the rulemaking, noting that the NRC is not soliciting formal comments, and the timeline does not provide sufficient opportunity for fulsome input.

Recommended Revision to Rulemaking Title

The implied scope from the current title of the NRC's proposed rulemaking, **"Licensing Requirements for Microreactors and Other Low Consequence Reactors Rulemaking,"** and discussions in the public meetings unintentionally narrows the focus to the physical characteristics of the reactors rather than the broader licensing outcomes the rule aims to enable. We recommend renaming the rulemaking to reflect the NRC's goal of establishing a streamlined, scalable framework more clearly that can support high-volume licensing of reactors.

A revised title such as **"Licensing Framework for High-Volume Deployment of New Nuclear Reactor Technologies"** would better communicate the NRC's intent to modernize and adapt the licensing process for any new reactor design that can meet the entry criteria, and that are standardized to be deployed at scale. Such a shift in framing would more accurately reflect both the scope and the strategic significance of this rulemaking.

Further, the term "low-consequence reactors" may unintentionally carry a misleading connotation. While intended to describe reactors with inherently safer designs or reduced potential offsite impact, the phrase can imply, through contrast, that other reactors are inherently "high consequence" or unsafe. This revision will help focus the rule on licensing outcomes rather than reactor typology which will help promote broader understanding of how this rule supports commercialization pathways for new, innovative nuclear technologies.

Purpose and Scope of the Rulemaking

NEI believes that the NRC's rulemaking should expand potential pathways to allow for alternative business models, and be built upon the establishment of technology-inclusive, performance-based, risk-informed and graded approaches as described in the RHDRA proposal (ML24213A337), the RHDRA Supplement (ML25195A307)[2], and the NEI 24-05 approach for emergency planning to meet the scope of the rule, which is to be "…inclusive of all future applications and technologies," as indicated in the slides from the NRC's comment gathering public meetings. NEI first submitted its RHDRA proposal on July 31, 2024, which included a main paper with an integrated concept of rapid high-volume licensing, deployment,

[2] The term "Rapid High-Volume Deployable Reactors (RHDRA)" means "any advanced reactors with characteristics of safety, standardization, the use of automatic features and/or incorporation of advanced technologies, regardless of size or power level, that meet one or more performance-based criteria established for the use of alternative approaches." It is noted that RHDRA are not exclusive to advanced reactors meeting all of the most stringent criteria for every alternative approach, but rather RHDRA includes advanced reactors that utilize one or more of the proposed alternative approaches based on their specific features and ability to meet performance-based criteria as may be applicable to each topic area.

operations, and lifecycle management, thirty-one appendices with alternative approaches on various topical areas and two attachments on background topics (ML24213A337). The Nuclear Regulatory Commission (NRC) responded to the NEI proposal by letter dated December 9, 2024, stating that, “The NRC agrees with the high-level concepts outlined in your letter and the staff has not identified any fundamental gaps…” (ML24317A174). The NRC response provided some regulatory clarity to enable companies to pursue the use of these alternative approaches for their designs and future applications.

The RHDRA proposal, dated July 31, 2024, and supplemented on July 14, 2025, would align with and expand upon the NRC’s valuable efforts to establish a modern and efficient regulatory framework that enables and facilitates new and advanced reactors consistent with the recently-issued Executive Orders, the 2019 Nuclear Energy Innovation and Modernization Act (NEIMA) and the 2024 ADVANCE Act (specifically, Sections 206, 208, 505, 506, 507).

Entry Criteria

The NRC should establish a single entry criteria for use of the rule for licensing high volume deployment of reactors, and that single criteria should be a site boundary emergency planning zone.

> *Site Boundary Emergency Planning Zone*: A facility qualifies for a plume exposure pathway (PEP) Emergency Planning Zone (EPZ) that does not extend beyond the site boundary in accordance with the requirements of 10 CFR 50.33(g)(2).

Rapid high-volume deployable reactors are characterized by having low potential radiological consequences and high degrees of design standardization. They are expected to blend simplicity with advanced technologies. Each of the RHDRA proposal’s alternative approaches is enabled by one or more of these characteristics. Design standardization that enables the NRC to approve as much of the design as possible, including bounding site parameters, one time up front is key to enabling high-volume licensing by minimizing the need for additional NRC review for each site application. The NEI RHDRA proposal establishes the rapid efficient licensing (ReLic) process, which is compatible with the NRC’s NOAK licensing proposal (SECY-25-0052).

On July 14, 2025, NEI submitted a supplement to its RHDRA proposal (ML25195A307). Attachment C of the supplement, “Reactors with Site Boundary Emergency Planning Zones,” provides an evaluation of the enhanced levels of protection of public health and safety provided by reactors with a site boundary EPZ.[3] Attachment C establishes a performance-based criterion to determine a class of reactors with potential public impacts on the order of research and test reactors, and for which the maximum benefits of the RHDRA proposed alternative approaches should be available, to the extent they also utilize design standardization and generically address site considerations.

[3] A facility qualifies for a plume exposure pathway (PEP) EPZ that does not extend beyond the site boundary in accordance with the requirements of 10 CFR 50.33(g)(2). A facility with an EPZ not extending beyond the site boundary also encompasses facilities that can justify no EPZ.

The conclusion in Attachment C is that reactors with a site boundary EPZ would have potential offsite radiological consequences that are far below the potential impacts permitted by the current regulations today. The NRC regulatory framework is based on the premise that demonstrating compliance with NRC requirements provides reasonable assurance of adequate protection of public health and safety and the environment. Regulatory compliance also means that a facility's radiological consequence is not a significant contributor to an individual's risk of accidental death or injury and presents societal risks that are comparable to or far lower than other industries. Additionally, the potential risk of accidents at these facilities are equivalent to, or far lower than, non-nuclear industrial facilities. Facilities with a site boundary EPZ would represent potential impacts at a comparable distance that are significantly lower than levels currently accepted by the NRC and are much lower than those associated with other means of generating electricity, as well as most industrial facilities. Therefore, it is reasonable for the NRC to develop its rulemaking with a single-entry criterion to demonstrate a site boundary EPZ.

Currently, the NRC's proposed rulemaking is considering three entry criteria based on dose-acceptance, a maximum hypothetical accident, and a special nuclear material limit that would be assessed for entry into the rule and further supported by elements of design criteria attributes that would be used to demonstrate compliance with the entry criteria. While these analyses and assessments may be reasonable inputs for demonstration of low radiological consequences, they should not restrict an applicant's choice of consequence analyses for demonstration of low-consequences; nor should they establish entry criteria, which would constrain innovation and business models. Each of the three is a surrogate for potential impact to public health and safety and the environment. The RHDRA EPZ concept encapsulates all three; the applicant can show site boundary EPZ (i.e., very low potential impact to the public) using a probabilistic dose consequence approach or a simplified maximum hypothetical accident approach. Using the total special nuclear material (SNM) inventory is unnecessary. It is sufficient for the NRC to establish the expectation of design standardization and low radiological consequence, consistent with the Policy Statement on Advanced Reactors, and to incentivize standardization through a licensing process that leverages prior NRC approvals for maximun efficiency.[4]

General License Considerations

The NEI RHDRA proposal is able to achieve nearly all the benefits of a General License within the current statutory requirements of the Atomic Energy Act and is compatible with business models that can accommodate site specific licensing of at least 4 months. NEI further concluded that the Atomic Energy Act (AEA) does not currently allow a General License process for construction and operation of utilization facilities. However, it is recognized that EO 14300 Section 5(e) directs the NRC to consider the use of General Licenses.

A formal General License process could be a valuable addition to the rule if it would enable business models that require deployments (from site identification to operations) within days or weeks, and/or it

[4] The NRC and stakeholders generally agree that n^{th}-of-a-kind approvals will be approved with increasing efficiency relative to first-of-a-kind approvals.

significantly improves licensing efficiency regardless of the deployment timelines. If a General License process is included, it is essential that it is voluntary, perhaps included as a subpart, and not imposed on all reactors licensed under the main part of this rule. The rule should establish the minimum necessary criteria for a General License, and the criteria should be performance-based. Since the entry criteria of a site boundary EPZ already establishes a criteria related to potential impacts to the public, any additional criteria should be related to enabling a General License (e.g., a "self-mitigating facility" that is the criteria for generic licenses operators). Finally, the following options could be considered for inclusion of a General License process:

1. Request Congress makes a change to the AEA to explicitly enable use of General Licenses for advanced reactors with a proven site boundary EPZ.
2. Establish a new class of advanced reactors that are not "utilization facilities," by rule of the Commission, as authorized by the AEA, Section 11.cc.[5]
3. Establish General License for specific activities (e.g., Construction, Transportation, Manufacturing).

NEI and the industry are thankful for the time and dedication that is being devoted to this consequential rulemaking and stand ready to support NRC staff throughout the process and looks forward to reviewing and providing feedback on the future, draft proposed rule.

Please contact me or Spencer Klein at spk@nei.org or 865-466-9248, with any questions.

Thank you for your attention to this matter.

Sincerely,

Douglas True
St. Vice President & Chief Nuclear Officer

cc: Christian Araguas, RES/DE
Cynthia Roman-Cuevas, NMSS/FCSE
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[5] Section 11.cc of the AEA states: "The term 'utilization facility' means (1) any equipment or device, except an atomic weapon, ***determined by rule of the Commission*** [emphasis added] to be capable of making use of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public, or peculiarly adapted for making use of atomic energy in such quantity as to be of significance to the common defense and security."