



The Urgency of NRC Reform

*by Judi Greenwald, Executive Director, Nuclear Innovation Alliance Updated
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There is growing recognition that advanced nuclear energy is essential to achieving our climate and energy security goals, and that Nuclear Regulatory Commission (NRC) reform is needed to enable advanced nuclear energy. Our mission at the Nuclear Innovation Alliance (NIA) is to help create the conditions necessary for development and deployment of advanced nuclear energy, including NRC reform. Two things are required to make reform happen: (1) a shared sense of urgency and (2) a shared willingness to roll up our sleeves and dig deeply into removing the operational and organizational barriers that are getting in the way of meeting this moment.

The NRC's job is to license new reactors and oversee existing ones to ensure the public safely benefits from nuclear energy. The NRC demonstrates many organizational strengths, including a highly technical and dedicated staff. As an independent Commission with a bipartisan set of five commissioners, it is relatively insulated from changing political winds. It has a proud history of overseeing a remarkably safe nuclear industry.

But it is not doing its job efficiently enough. Historically, public debate around the NRC has been between anti-nuclear voices advocating for slower licensing or fewer nuclear power plants, and industry advocating for streamlined regulations and more nuclear power plants. NIA and others are injecting a new voice and message into this conversation: that there is a public interest in efficient and effective licensing because there is a public interest in solving climate change and achieving energy security as quickly as possible.

NRC licensing efficiency is just one example of a broader challenge for all clean energy, not just nuclear energy. U.S. infrastructure permitting rules implicitly assume that it is okay if it takes years or even decades to build new infrastructure. This premise is no longer acceptable, and, in retrospect, it probably never was just or correct. Solving climate change and ensuring energy security requires that we replace and build new clean energy infrastructure rapidly. NRC reform is a set of actions that need to be taken by NRC staff, the Commission, Congress, the nuclear industry, and civil society to improve the effectiveness and efficiency of advanced reactor licensing. Work is needed to reform NRC licensing on three timescales: short-term, medium-term and long-term. (See [Key Recommendations for Reforming U.S. Nuclear Energy Regulation](#)).

In the short term, about a dozen advanced reactor developers are engaging one-on-one with the NRC to obtain approvals under existing rules. This is challenging because current licensing pathways have been tailored to conventional, large, light water reactors. There are many things that the NRC and industry license applicants can do to make these early engagements go well. (See the recommendations in NIA's most recent [licensing efficiency report](#)). NRC staff and applicants continue to make progress licensing new nuclear reactors. Kairos Power has received construction permits for the Hermes 1 and Hermes 2 test reactors and Abilene Christian University has received a construction permit for their molten salt research reactor. The NRC staff and applicants are incorporating lessons learned from NuScale's design approval, but licensing timelines and costs remain uneven, often attributable to inconsistent quality in mundane but important practices like disciplined project management and clear internal and external communication.

Additionally, some industry stakeholders are meeting with the NRC to encourage specific reforms. NOV Shepherd Power, a subsidiary of the oil and gas company, NOV Inc., is planning to deploy BWXT microreactors to supply baseload power and heat for oil field operations. It has partnered with the Nuclear Energy Institute on [a series of white papers](#) to address specific issues needing regulatory reform, including shortening the timeline from site selection to deployment to 180 days. These white papers are under consideration by the NRC.

For the medium term, the NRC has begun a multi-year rulemaking on risk-informed, performance-based and technology-inclusive licensing (referred to as "10 CFR Part 53", or more simply "Part 53"). This rulemaking is required under the 2019 Nuclear Energy Innovation and Modernization Act ([NEIMA](#)). As described in [NIA's Part 53 paper](#), the NRC staff's proposed draft rule was flawed but fixable with leadership by the Commission. In March 2024, the Commission stepped up, providing leadership and clear direction to NRC staff. The Commission's vote on the Part 53 proposed draft rule and the accompanying [Staff Requirements Memorandum](#) instructed the staff to make major changes to improve the proposed draft rule. The staff produced an updated draft rule in October 2024. NIA submitted [its own public comments](#), as well as a [joint NGO letter](#) and [joint stakeholder comments](#). Effective NRC staff incorporation of public comments will be critical in

creating a rule for licensing advanced reactors that marks a substantial improvement over current rules.

The Commission is also making progress on other rulemakings. On December 18, 2023, NRC promulgated a risk-informed approach for rightsizing emergency planning zones. On December 1, 2024, the draft rulemaking for a new reactor generic environmental impact statement was submitted to the Commission for final approval. This rulemaking is expected to improve the efficiency of environmental reviews. Concurrently, the NRC is working to align the licensing rules in 10 CFR Part 50 and 10 CFR Part 52, which could provide a more predictable and consistent approach to regulating new nuclear reactors. This rulemaking process is on-going, and it is important that it results in improvements to both rules and does not add unnecessary barriers to the use of existing regulatory frameworks.

For the long term, we need to re-imagine licensing in a world where the NRC must license dozens, if not hundreds, of reactors per year. Ultimately, this will require streamlined and standardized NRC processes and practices as well as standardized technologies. (See [Enabling High Volume Licensing of Advanced Nuclear Energy](#)).

There is much Congress can do to reform the NRC through authorization, appropriations, and oversight. Requiring the Part 53 rulemaking under NEIMA was an important congressional achievement, but additional off-fee appropriations and oversight are essential to ensure successful completion of the rule, and to ensure the NRC improves the management and organizational issues that stand in the way of efficient licensing. In July 2024, President Biden signed into law the ADVANCE Act, which garnered broad bipartisan and bicameral support and initiates [several useful NRC reforms and rulemakings](#). For example, it improves how the NRC charges fees to applicants, authorizes hiring incentives to address the NRC's workforce issues, and establishes prizes to cover licensing costs for early movers. In response to the enactment of the ADVANCE Act, the NRC promptly organized project teams and launched a public [Implementation Status Dashboard](#). NRC progress on implementing the ADVANCE Act will be a key focus area for Congressional oversight and for stakeholders in 2025.

We are seeing bipartisan and bicameral leadership on NRC reform. Senate Environment and Public Works and House Energy and Commerce leadership have demonstrated commitment to NRC reform legislation and oversight. Effective congressional oversight is crucial for holding the NRC accountable and improving its performance.

NIA is pleased to see companies, civil society, NRC staff, Commissioners, and Congress recognizing and communicating the urgency of NRC reform and committing to do the hard work to make it happen. But more is needed. In addition to the useful reforms in the ADVANCE Act, there are many options for Congress to pursue through legislation and oversight.

NIA recommends that Congress establish an independent panel to conduct a comprehensive examination of the NRC's organizational effectiveness, leadership and culture. Unlike many Congressionally mandated panels that come up with high-level recommendations, this panel would dig deep, surveying employees and management; and identify the HR practices, organizational roles and responsibilities, training, performance incentives, and internal processes that pose barriers to the NRC's effectiveness and efficiency and recommend how to eliminate these barriers. For example, the Panel should dig into how the NRC can take advantage of the flexibility under the Atomic Energy Act, which provides room to innovate and move beyond existing regulatory precedents to achieve genuine improvements. It also can look into how to encourage more of the two-way communication with stakeholders that is essential to developing novel regulatory approaches.

Other useful reforms Congress should pursue include ensuring that the NRC conducts more proactive, two-way engagement with stakeholders and the public and develops more simplified and accessible technical documents, information tools, and meetings. NIA also recommends focusing the NRC's Advisory Committee on Reactor Safeguards on reviewing only novel safety issues ([see NIA report](#)) to make the best and most efficient use of their expertise. NIA welcomes the NRC's action to remove the existing blanket requirement for oral hearings in licensing approval processes. NIA would also like Congress to eliminate certain mandatory hearings, as recommended in a recent Idaho National Laboratories report ([see INL report](#)), which waste agency time and resources without benefiting the licensing process.

NIA would like to see the Commission efficiently and effectively implement the reforms in the ADVANCE Act, and for Congress to continue its efforts to hold it accountable. We'd like to see an NRC staff that is both empowered and accountable to effectively and efficiently review license applications. We are heartened by the recent signs of progress on NRC reform, but much work remains. It is urgent that the NRC become an agile, modern, risk-informed, and performance-based regulator to successfully meet this moment.

For more information on NRC Reform, please contact the NIA at info@nuclearinnovationalliance.org.