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# The NRC's Juggling Act: Enabling the Agency to Fulfill Critical Missions





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## Key Takeaways

Although the traditional mission of the US Nuclear Regulatory Commission (NRC) is the protection of public health and safety, its work has increasing implications for other vital national priorities—including climate change, innovation, and national security. Therefore, given the NRC's diverse and expanding volume of responsibilities and activities around the licensing of advanced reactor technologies, it is imperative that we provide the agency with the means and resources to succeed. This includes swiftly bringing the Commission to its full

complement of five Commissioners and robustly funding the NRC's advanced reactor licensing work so that it can complete such activities effectively and on time.

The US Nuclear Regulatory Commission (NRC) plays an absolutely vital role in protecting public health and well-being by regulating the safe and secure use of nuclear energy and other civilian applications of nuclear technology. While this statutory mission has historically been central to the agency's purpose, it is increasingly clear that the NRC's work has significant consequences for so many other critical national and even global priorities. For example, the NRC is of <u>immense</u> relevance to our climate and carbon mitigation goals as the regulator and gatekeeper of the <u>world's</u> largest civil nuclear fleet, which generates a majority of our carbon-free power.

In the very near future, our existing light-water reactors will be accompanied by advanced reactor technologies poised to serve as a safe, reliable, flexible, and scalable tool in our fight against climate change. The development, demonstration, and commercialization of American advanced reactors will have implications beyond climate, but will also affect <u>US technological leadership</u>, the development of our industrial and manufacturing base, our <u>competitiveness in export markets</u>, <u>advancing vital national security and geopolitical objectives</u>, and <u>securing energy independence for ourselves and our allies in the face of authoritarian aggression</u> and regimes that seek to use <u>energy</u> as a tool of coercion.

As the principal regulator for the US nuclear industry and a leader among the world's nuclear regulatory agencies, the NRC will have a say in all these outcomes. First, it must navigate multiple parallel work streams involved in modernizing the agency and licensing advanced reactors. The agency's success in these endeavors will impact not only the future of the US nuclear industry, but also our environment, economy, security, and diplomatic relationships for decades to come.

# The Juggling Act

Modernizing institutional processes to effectively and efficiently regulate advanced nuclear plants will require out-of-the-box thinking and taking on multiple challenges concurrently. Spearheaded by advanced nuclear developers funded through the US Department of Energy's (DOE) Advanced Reactor Demonstration Program (ARDP), the NRC is expected to engage in a growing number of advanced reactor licensing activities—from pre-application interactions to actual license reviews in the coming years. ARDP, the DOE's flagship advanced reactor program, was <u>significantly forward-funded in the Infrastructure Investment and Jobs Act</u> to speed demonstrations of advanced reactors through cost-shared partnerships with US industry. To fulfill this mission, advanced nuclear developers embraced an interim solution—to apply for NRC licenses by utilizing the existing frameworks designed for conventional nuclear reactors known as Part 50 and Part 52.

This initial wave of engagements cast the first challenge in <u>the juggling act</u> that the agency must manage by prompting staff to adapt legacy processes to license the diverse advanced reactor types fast approaching commercialization. Given its historical focus on licensing light-water reactors, the agency has largely developed its framework and practices around regulating such technologies. NRC staff, facing an anticipated wave of applicants seeking to license a broad range of new reactor designs from metal-cooled fast reactors to molten salt reactors, are now tasked with thoughtfully applying decades worth of institutional lessons to reactor technologies built for new contexts and varying scales.

On top of this, the NRC is mandated through the Nuclear Energy Innovation and Modernization Act (NEIMA) to modernize its regulatory framework by developing a new risk-informed, technologyinclusive rulemaking that would optimize reviews of advanced reactor applications known as Part 53. The development of a usable, streamlined Part 53 rule would further promote deployment of US advanced nuclear technology by facilitating cost reductions for new reactors and accelerating the licensing process, making advanced reactors more market competitive and enabling faster commercialization to support the clean energy transition.

Another effort adding to this sizable workload is expanding international coordination and harmonization, including a 2019 Memorandum of Cooperation with the Canadian Nuclear Safety Commission (CNSC) to share best practices in reviewing SMR and advanced reactor designs and collaborate on approaches to resolve technical issues.

This volume of work is compounded by ambitious timelines, including a commitment to adopt a final rule for Part 53 by 2025—two years ahead of the deadline set by NEIMA, the need to license the leading ARDP projects by mid-decade, and impending capacity shortages as the agency faces a cascade of staff retirements over the next several years. Without ample resources and people with the right skillsets to meet the increasing number of activities around licensing and regulating multiple reactor technologies, these demands will undoubtedly challenge the agency's capacity.

### Giving the Agency the Resources it Needs

Given how critical the NRC's role has become for the pressing national priorities and issues of the day, the agency must be empowered with the means and resources it needs to balance its numerous priorities and be successful in licensing and regulating emerging nuclear technologies. While this empowerment can entail different things, there are two needs we believe are crucial for the NRC to effectively and efficiently license advanced reactors, now and in the future: filling vacant Commissioner posts and appropriation of sufficient funding.

#### **Filling Commissioner Vacancies**

The Commission is intended to be a body of five Commissioners, appointed by the President and confirmed by the Senate. The Commission plays the central leadership role for the NRC by setting

policy, developing regulations, issuing orders to licensees, and adjudicating legal issues.

Although the Commission functions and operates most optimally with the full complement of five Commissioners, there are presently two open vacancies on the Commission. This is an unnecessary impediment at a critical juncture for the US nuclear sector and a hindrance to the administration's broader goals on nuclear energy—not just for climate, but for economic and jobs growth, foreign policy, etc.

The Biden Administration <u>recently announced</u> its nomination of former NRC Commissioner Annie Caputo and former DOE Assistant Secretary Bradley Crowell, to fill these vacancies. Swiftly confirming nominees who grasp the potential of advanced nuclear technology and nuclear power's role in clean energy development will restore the Commission to a full, more balanced complement.

#### Funding

The agency's workload is growing in both volume and complexity. To better manage and execute advanced reactor-related missions and activities, the agency needs sufficient funding, whether for staffing requirements or generally building out capacity.

The Third Way Climate and Energy Program identified various funding priorities for fiscal year 2023 (FY23) that are critical for clean energy innovation, combating climate change, strengthening energy security, and increasing job opportunities for American workers. While not specifically identified in <u>our appropriations memo</u>, we strongly support increased funding for the NRC's advanced reactor programs and activities.

For FY23, Third Way recommends at least \$35 million for NRC's Advanced Reactor Regulatory Infrastructure Activities account. This additional funding (about \$11 million more than the FY23 request) would go towards the NRC's parallel activities of adapting/applying existing licensing frameworks to advanced reactor license applications under Part 50 and Part 52 and developing a new, modernized licensing pathway for advanced reactor technologies (Part 53). This increased funding is responsive to the current pace and progression of the US advanced nuclear sector and the high importance of this sector's success to America's climate, energy, economic, and national security objectives.

At the end of the day, additional funding for the NRC and a more fundamental alteration of the agency's fee structure may be necessary to resolve all of the staffing and capacity challenges the agency presently faces. Non-year funding figures in excess of \$100 million may be required for the NRC to secure all the resources and staff it needs to handle the myriad of challenges on the horizon.

TOPICS

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