NUCLEAR INNOVATION ALLIANCE

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Subcommittee Hearing on:
American Energy Dominance: Dawn of the New Nuclear Era

Testimony of Judi Greenwald,

President and CEO, Nuclear Innovation Alliance

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Chairman Latta, Ranking Member Castor, and Members of the Committee,

Thank you for the opportunity to testify before this Committee and for holding this hearing. My name is Judi Greenwald, and I am the President and CEO of the Nuclear Innovation Alliance. Over the last several decades, I have worked on energy and environmental policy in the public and nonprofit sectors, including the U.S. Congress, the White House, the Nuclear Regulatory Commission, the Department of Energy, the Environmental Protection Agency, the Center for Climate and Energy Solutions, and the Princeton University Andlinger Center for Energy and Environment. I also serve on the Idaho National Laboratory's Nuclear Science & Technology advisory committee. My testimony draws on my expertise and NIA's nuclear energy policy work, and I am honored to share these insights with you today.

Summary of Testimony:

This testimony highlights the opportunity for new nuclear energy to play a major role as an energy security and climate solution. It opens with an introduction of the Nuclear Innovation Alliance (NIA), background on nuclear energy, and an overview of recent legislation, statutory authorities, and executive actions. It then highlights the U.S. Nuclear Regulatory Commission (NRC)'s recent progress in regulatory reform, and the importance of safeguarding regulatory integrity and public trust. It also addresses the nuclear energy responsibilities and programs at the Department of Energy (DOE), including staffing, funding, and fuel supply challenges, and the nexus between DOE and NRC. It provides recommendations for the Energy and Commerce Committee to help create the conditions for success for new nuclear energy.

As nuclear energy commercialization accelerates, the U.S. government must reinforce the technology's credibility through strong regulatory oversight, adequate resources and staffing, and effective implementation of federal programs. DOE's loan guarantees, reactor demonstration projects, and fuels programs merit particular attention. The scale, pace and ambition of new DOE and Department of Defense (DoD) reactor initiatives must be matched with robust oversight.

The next few years are pivotal for maintaining momentum, executing early mover projects, and laying the foundation for nuclear energy commercialization at scale. Success depends on industry-led innovation, public-private coordination, community engagement, and federal policies that spur investment and deployment. Responsible domestic deployment also strengthens U.S. leadership abroad, sets high standards, and counters strategic competitors—making commercialization not only an energy imperative but a competitiveness strategy.

Key Priorities for Congressional Action:

- Maintain bipartisan support to ensure stable policy and predictable investment environments that withstand political cycles.
- Ensure the U.S. government has sufficient staffing and resources to match the ambition of recent legislation and executive orders.
- Safeguard the NRC's regulatory integrity, transparency, and public trust.

These actions are essential to enable nuclear energy to deliver an affordable, reliable, and clean energy future for the United States.

About NIA

NIA is a non-profit, non-partisan, "think-and-do" tank, whose mission is to help create the conditions for success for new nuclear energy so it can play a major role as an energy security and climate solution.

NIA identifies key barriers to new reactor deployment and engages with a wide range of stakeholders including policymakers, regulators, the financial community, industry,[1] and local and other non-government organizations to overcome these barriers. Through technical and policy analysis, policymaker education, and stakeholder engagement, we focus on three key areas to drive new nuclear commercialization. First, Nuclear Regulatory Commission (NRC) modernization to achieve efficient and effective licensing. Second, federal and state policy. Third and finally, attracting private investment and strengthening the workforce pipeline.

About Nuclear Energy

Nuclear energy helps us achieve a U.S. energy system that is affordable, reliable and clean. It also takes up very little land, requires minimal transmission build out, has

[1] For example, NIA works closely with, while remaining independent of, our Industry Innovation Leadership Council, made up of leading new nuclear reactor developers. The Nuclear Innovation Alliance's Industry Innovation Leadership Council (IILC) members can be found here: https://nuclearinnovationalliance.org/industry-innovation-leadership-council-1

concentrated local economic benefits, and can be used to provide industrial heat and power while reducing emissions.

While people may prioritize these attributes differently, everyone can agree that having them all has clear advantages. In the face of rapidly growing power demand for data centers and other economic engines, nuclear energy is a clean, firm option that can ensure 24/7 energy reliability as well as climate progress, despite recent federal efforts to reduce support for other climate solutions.

Existing nuclear reactors supply roughly 19% of U.S. electricity, and nuclear innovators are pursuing multiple strategies – from restarting and uprating existing plants to creating a panoply of new improved reactor technologies – to meet our ever-growing demand for clean firm power.[2]

New reactor designs include inherent safety features, making them even safer than traditional nuclear power plants, which are already one of the safest forms of electricity generation.[3] Many of these designs, including small modular reactors (SMRs) and micro reactors, come in smaller sizes that can lower upfront capital costs, shorten construction timelines, and decrease financing risk. By building plants more quickly, developers can achieve rapid innovation cycles and continuous technological

[2] World Nuclear Association, Nuclear Power in the USA https://world-nuclear.org/information-library/country-profiles/countries-t-z/usa-nuclear-power
[3] Our World in Data, Nuclear Energy; U.S. Department of Energy, "Enhanced Safety of Advanced Reactors" https://www.energy.gov/ne/enhanced-safety-advanced-reactors

learning to reduce costs. Together, these innovations mean that new reactors can be more economically viable, versatile, and safe.

Over the past several years, advanced reactor developers have made significant progress toward commercializing first-of-a-kind nuclear technologies through private-sector innovation and public-private partnerships. This includes the completion of Vogtle Unit 3 and Unit 4 in 2023 and 2024, respectively. These reactors were the first advanced light water reactors (LWRs) built in the United States.

In addition to the completion of Vogtle, multiple advanced reactor developers have initiated domestic demonstration projects to be completed in the 2020s and early 2030s including next-generation LWRs, non-light water reactors (non-LWRs), small modular reactors (SMRs), demonstration and test microreactors, and university research microreactors. Reactor developers are already engaging with customers, local and state governments, and NRC to secure the regulatory approvals necessary for construction, commissioning and operation. Several developers have already begun construction, are actively pouring concrete, and are putting shovels in the ground as we speak. These first-mover projects are providing the licensing, construction, and operational experience that will enable rapid commercial deployment of new nuclear energy.[4]

[4] Nuclear Innovation Alliance, "Progress of Early Mover Nuclear Projects: Key Indicators to Watch" https://nuclearinnovationalliance.org/index.php/progress-early-mover-nuclear-projects-key-indicators-watch

Recent Progress Through Nuclear Legislation

Over the last decade, Congress has strengthened U.S. nuclear energy leadership through a series of major pieces of legislation. Building on the cornerstone Atomic Energy Act of 1954 (AEA) and the Energy Reorganization Act (ERA) of 1974, Congress enacted the Nuclear Energy Innovation and Modernization Act (NEIMA) and the Nuclear Energy Innovation Capabilities Act (NEICA) in 2018. NEIMA included reforms to enhance the NRC's ability to review advanced designs. This law also led to the NRC's ongoing performance-based, risk-informed licensing rulemaking for advanced reactors under 10 CFR Part 53. NEICA improved DOE's research and development capabilities (e.g., establishing the National Reactor Innovation Center) to partner with the emerging advanced nuclear industry.

Two years later, Congress enacted the Energy Policy Act of 2020, the most comprehensive energy legislation in over a decade and included two key provisions related to new nuclear reactors: (1) advanced nuclear fuel availability[5] and (2) nuclear energy research, development, demonstration, and commercialization (RDD&C).[6] In July of 2024, Congress took another major step forward in nuclear innovation by

[5] In terms of advanced nuclear fuel availability, many advanced designs utilize high-assay low-enriched uranium (HA-LEU) for operational, economic, efficiency and other advantages. This section requires the U.S. Department of Energy (DOE) to support the availability of HA-LEU for demonstration and commercial projects. It also directs the Nuclear Regulatory Commission (NRC) to identify requirements for HA-LEU in preparation for future regulatory development.

[6] By reauthorizing DOE's RDD&C activities for advanced reactors, fuels, and other advanced concepts, this section provides continued government basic and applied research. It also authorizes funding for the Advanced Reactor Demonstration Program (ARDP) and the Versatile Test Reactor (VTR). The RDD&C section also authorizes a nuclear integrated energy systems program, directing DOE to carry out RDD&C activities related to using nuclear for desalination, hydro, industrial heat, or other non-conventional purposes.

enacting the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy (ADVANCE) Act, which accelerates NRC licensing modernization and helps to re-establish U.S. international nuclear energy leadership.[7]

The enactment of the aforementioned laws over the past decade reflects a shared commitment to innovation, energy security, safety, and environmental protection. NIA deeply appreciates the dedication of multiple Presidential administrations, Senators, Members of Congress, and their staff in advancing U.S. nuclear innovation leadership. At this critical inflection point for commercializing advanced reactors, continued bipartisan support is essential.

Statutory Authorities for Nuclear Energy

The Atomic Energy Act of 1946 created the Atomic Energy Commission (AEC) to foster and control the peacetime development of atomic science and technology. The Atomic Energy Act (AEA) of 1954 covers the development, regulation, and disposal of nuclear materials and facilities in the United States.

The Energy Reorganization Act (ERA) of 1974 separated the AEC into two agencies: the NRC and the Energy Research and Development Administration (ERDA). The NRC became the sole regulator for civilian nuclear reactors while ERDA took on the

[7] Since its enactment of the ADVANCE Act, the NRC has made steady progress implementing it. The NRC is tracking its ADVANCE Act deliverables for 36 milestones on a public dashboard. As of the end of November 2025, the NRC has completed 30 of the 36 identified ADVANCE Act actions and deliverables. This brief summarizes NRC's progress: https://nuclearinnovationalliance.org/regulatory-implementation-summary-nrc-progress-under-advance-act

promotional and research aspects. ERDA later became what is now known as the Department of Energy (DOE). Splitting the AEC was agreed upon by critics and supporters of nuclear power to separate the NRC from the promotional past of the AEC.

Federal oversight of nuclear reactors in the United States sits at the complex intersection of law, national security imperatives, and civilian regulatory independence.[8] Under the AEA as amended by the ERA, anyone other than DOE, DOD, or their contractors must have a federal license issued by the NRC for activities involving a nuclear reactor.[9] Therefore, over the past five decades, a framework has developed that distinguishes between commercial reactor projects that are licensed by NRC and reactor projects for government purposes that can be authorized by DOE and DoD (when directed by the President). The NRC was created to be an independent regulatory agency, while DOE and DoD have historically exercised oversight of reactors for defense, research, and experimental purposes.

[8] See NIA's brief on the "U.S. Federal Oversight of Nuclear Reactors by NRC, DOE and DoD": https://nuclearinnovationalliance.org/us-federal-oversight-nuclear-reactors-across-nrc-doe-and-dod. The brief examines the legal and historical context, tracing the statutes that assign authority for NRC to license and regulate commercial nuclear reactors, DOE to "authorize" nuclear reactors for research activities, and DoD to permit the operation of nuclear reactors for military use. It also explores interagency interfaces, agreements, and delegations, which shape the coordination of nuclear reactor oversight.

[9] This testimony uses the official designation "Department of Defense" to maintain consistency with statutory references and cited authorities. [Note that DOD reactor must have Presidential direction to be exempt from NRC licensing. Some DOD elements, like the Armed Forces Radiobiology Research Institute, do NRC licensing. See https://afrri.usuhs.edu/ and Armed Forces Radiobiology Research Institute Research Reactor - TRTR https://www.trtr.org/afrri/]

Given the scale of current federal programs for nuclear reactor development, the respective roles and interfaces among the three agencies have recently attracted heightened attention – and, at times, significant confusion.

NRC Authorities:

The authority to license civilian nuclear reactors in the United States is granted to the NRC by the AEA and ERA. Furthermore, the NRC's independence is affirmed under ERA Section 201, which states: "the Commission shall not be responsible to or subject to the supervision or direction of any other officer, employee, or agency of the Government."[10] This insulation has been central to preserving NRC's credibility as a nuclear safety regulator domestically as well as internationally. Sections 103 and 104 of the AEA establish the NRC's exclusive authority to issue licenses for commercial nuclear facilities. Section 103 covers commercial "utilization and production facilities," such as nuclear power reactors, allowing licenses for terms up to 40 years.[11] Section 104 covers the licensing of research and test reactors, often operated by universities, laboratories, or hospitals, for experimental and medical purposes.[12] These statutory provisions are implemented through NRC regulations in Title 10 of the Code of Federal Regulations (10 CFR).

[10] Energy Reorganization Act of 1974, Pub. L. No. 93-438, § 201, 88 Stat. 1233 (1974): https://uscode.house.gov/statutes/pl/93/438.pdf

[11] Atomic Energy Act of 1954, § 103. https:/www.govinfo.gov/content/pkg/COMPS-1630/pdf/COMPS-1630.pdf

[12] Atomic Energy Act of 1954, § 104. https:/www.govinfo.gov/content/pkg/COMPS-1630/pdf/COMPS-1630.pdf

DOE Authorities:

The Department of Energy (DOE), established under the Department of Energy Organization Act of 1977, assumed responsibility for nuclear reactor research, development, and management functions previously carried out by AEC and its short-lived successor, ERDA.[13] While the NRC was created to independently license civilian (including commercial) nuclear facilities, DOE retained responsibility to authorize and operate government-owned reactors and their contractors for research or defense purposes.[14] Under AEA Section 91(c), DOE also has the authority to produce special nuclear material in its facilities if the President deems it necessary for the common defense and security.[15] Section 123(b), while primarily governing international nuclear cooperation, also affirms DOE's role in managing research and defense-related activities.[16] In effect, DOE maintains full oversight of its research, test, and defense reactors through internal standards and regulations. This includes 10 CFR Part 830, Nuclear Safety Management, which sets requirements for safety bases, technical safety specifications, and quality assurance,[17] as well as directives such as DOE Order 420.2C[18] and DOE safety standards (e.g., DOE-STD-1189[19] and DOE-

[13] Department of Energy Organization Act of 1977 https:/www.energy.gov/sites/prod/files/2017/10/f38/DOE%20Organization%20Act%20in%20U.S.C..pdf
[14] Atomic Energy Act of 1954, Pub. L. 83-703, 68 Stat. 919, as amended. https:/www.govinfo.gov/content/pkg/COMPS-1630/pdf/COMPS-1630.pdf
[15] Atomic Energy Act of 1954, §91(c). https:/www.govinfo.gov/content/pkg/COMPS-1630/pdf/COMPS-1630.pdf
[16] Atomic Energy Act of 1954, §123(b). https:/www.govinfo.gov/content/pkg/COMPS-1630/pdf/COMPS-1630.pdf
[17] 10 CFR Part 830 | Nuclear Safety Management https://www.ecfr.gov/current/title-10/chapter-III/part-830
[18] Department of Energy | Order 420.2C | Safety of Accelerator Facilities https://www.directives.doe.gov/directives-documents/400-series/0420.2-BOrder-c
[19] Department of Energy | STD-1189 | Integration of Safety into the Design Process https:/www.standards.doe.gov/standards-documents/1100/1189-astd-2016/@@images/file

STD-1237[20]) that integrate safety into reactor design and authorization. Each DOE nuclear reactor project is authorized on an individual basis for a specific purpose, typically for research and testing. These tend to be smaller than commercial reactors licensed through NRC. Examples include the High Flux Isotope Reactor at Oak Ridge National Laboratory[21] and the Advanced Test Reactor at Idaho National Laboratory, two research reactors that have never undergone NRC licensing.[22]

In August 2025, DOE announced it would work to authorize 11 reactor projects from 10 new nuclear reactor companies through its Reactor Pilot Program[23] by July 4, 2026, pursuant to President Trump's July 2025 executive orders — a pace and scale unprecedented in DOE's reactor authorization history.

Path Forward on Reactor Oversight Authorities:

The interface among the NRC, DOE, and DoD is not a new concept; they have collaborated on numerous projects over the years. The scale, pace, and ambition of the new DOE and DoD efforts must be matched with robust oversight. This means having personnel with sufficient expertise, adequate resources, and a collaborative relationship between DOE, DOD, and NRC to achieve technical integration. The three agencies have begun to collaborate with each other to promote consistent safety

[20] Department of Energy | STD-1237 | Documented Safety Analysis for DOE Reactor Facilities https://www.standards.doe.gov/standards-documents/1200/1237-astd-2021
[21] Oak Ridge National Laboratory | High Flux Isotope Reactor https://neutrons.ornl.gov/hfir
[22] Idaho National Laboratory | Advanced Test Reactor https://inl.gov/advanced-test-reactor/
[23] Department of Energy | Unleash American Energy Innovation | Department of Energy Announces Initial Selections for New Reactor Pilot Program https://www.energy.gov/articles/department-energy-announces-initial-selections-new-reactor-pilot-program

standards and minimize duplication of effort. NIA recommends a concerted effort by all three agencies to ensure that technically mature, new nuclear reactors are deployed with appropriate federal oversight and regulatory clarity to inspire public confidence.

Recent Executive Orders

The current federal policy landscape presents a major opportunity to help unlock the potential of clean, safe, firm nuclear energy. On May 23, 2025, President Trump signed four Executive Orders (EOs) intended to strengthen U.S. nuclear energy leadership and facilitate increased deployment of new nuclear reactor technologies. This has positioned nuclear energy as a bright spot at an otherwise polarizing moment for clean energy technologies.

Overall, the EOs send a strong support signal for new nuclear energy, and the high-level direction and general thrust of the EOs are quite positive. NIA has long supported the ambitious EO goals of tripling nuclear energy capacity by 2050; making NRC more effective and efficient; increasing public investment and public-private-partnerships in nuclear reactors, fuels, and supply chains; increasing U.S. technology exports; and implementing a whole-of-government approach to achieving U.S. nuclear energy leadership.

The EOs reflect a high level of federal support for nuclear energy at a moment when demand for reliable, clean power is growing rapidly. They underscore a commitment to revitalizing the U.S. nuclear energy sector and acknowledge the urgent need to act now. With the clear priorities established by these EOs, the nuclear energy sector has a unique opportunity to move forward, and now is the time for the United States to meet the moment and ensure nuclear energy reaches its full potential.

The EOs present a big opportunity, but implementation will be key. The DOE, NRC, and DoD have been tasked with a large number of ambitious directives in a very short amount of time. Implementation efforts must match the ambition of the directives. This means building upon existing progress, marshalling sufficient resources, and ensuring federal agencies have the tools they need to succeed. Key challenges include maintaining staffing levels at various federal agencies, preserving the NRC's status as a trusted independent regulator, ensuring transparency of government oversight, and aligning EO implementation with ongoing reforms to prevent duplicative efforts.

Failing to deliver on the EOs' high expectations or eroding public trust in agencies like NRC and DOE would set industry back, not spur it forward. For example, in the past, missed deployment targets and cost overruns damaged the industry's credibility and eroded public support. In recent years, industry, advocates, policymakers, and stakeholders have worked hard to rebuild that credibility through technology and commercial innovation, setting more realistic expectations, implementing federal programs and regulatory reforms, and demonstrating steady progress. Public

support for nuclear energy is growing again, but successful early mover projects and maintaining public trust are essential to sustain that momentum.

U.S. Nuclear Regulatory Commission

Overview

The NRC is responsible for the licensing of nuclear reactors in the United States and conducting a comprehensive review of all stages of nuclear power operations, from initial site selection and nuclear materials handling to decommissioning. The NRC regulatory process ensures that all aspects of nuclear reactor design, construction, operation, and maintenance adhere to strict safety and environmental standards, providing reasonable assurance of adequate protection for workers, the public, and the environment. This objective serves as the basis for all NRC reactor licensing and regulatory activities.

The NRC has been making progress on regulatory reform since the enactment of NEIMA in 2019, and especially over the last year and a half with direction from the 2024 ADVANCE Act and 2025 Executive Orders.

NRC Recent Progress

Over the last five years, the NRC has made licensing more risk-informed, performance-based, technology-inclusive, and efficient in alignment with NIA's

regulatory reform vision.[24] Some of this progress has been through rulemaking. But most of it has resulted from the efforts of more than a dozen advanced reactor developers engaging one-on-one with the NRC to obtain approvals under the existing rules, as well as broader industry and stakeholder engagement. While current licensing pathways have been tailored to conventional, large, light water reactors, NRC staff and applicants continue to make progress in licensing of new nuclear technology, as evidenced by recent approvals and expedited timelines.[25] NRC staff and applicants are incorporating lessons learned through ongoing experience with mundane but important practices like disciplined project management and clear communication. In 2019, NEIMA directed NRC to develop a new framework for licensing advanced reactors by 2026. It turned out early mover advanced reactor developers were moving much faster.

Kairos Power and Abilene Christian University were awarded construction permits for their test and research reactors in 2024. Both of these approvals occurred quickly, and a significant acceleration occurred between Kairos Power's Hermes 1 and Hermes 2 approvals. Hermes 1 took approximately 2 years while Hermes 2 was accelerated to a 16-month schedule, with a 60 percent reduction in resources between the two reviews. Another significant acceleration has been the TerraPower application for the Natrium reactor project. Initially estimated to take 27 months, the

[24] See NIA's Urgency of NRC Reform https://nuclearinnovationalliance.org/index.php/urgency-nrc-reform
[25] NRC has published its year accomplishments for 2023, 2024, and 2025. Links respectively are: https://www.nrc.gov/docs/ML2335/ML23350A004.pdf, https://www.nrc.gov/docs/ML2433/ML24334A056.pdf, https://www.nrc.gov/sites/default/files/cdn/doc-collection-news/2025/25-071.pdf

NRC completed it in 18 months and 11 percent under budget. The schedule change was accelerated by the 2025 executive orders but made possible through earlier efficient interactions between the NRC and the applicant. The NRC estimated NuScale's US460 Standard Design Approval would take 24 months but was able to complete it in 22 months and 13 percent under budget. The NRC is now estimating two new construction permit application reviews for Long Mott Energy's X-Energy project and Tennessee Valley Authority's Clinch River project will take 18 and 17 months, respectively.

The ADVANCE Act has been a critical driver of progress over the past year and a half. NRC developed and has consistently updated an ADVANCE Act implementation website, and hosted public meetings to showcase progress, ensure transparency, and solicit feedback.[26] Examples of key NRC accomplishments under the ADVANCE Act include a new mission statement that increased NRC's focus on efficiency while maintaining their core safety mission, as well as updated guidance for efficient reactor license application review. NRC also finalized the licensing fee reform rule, reducing hourly rates for advanced nuclear reactor applicants. The licensing fee reform went into effect on October 1st, 2025 and reduced the fees by over 50% for advanced reactor applicants and pre-applicants.

[26] (1) NIA "Regulatory Implementation Summary: NRC Progress Under the ADVANCE Act": https://nuclearinnovationalliance.org/regulatory-implementation-summary-nrc-progress-under-advance-act (2) NIA "Progress in Implementation of the ADVANCE Act and Executive Orders": https://nuclearinnovationalliance.org/progress-implementation-advance-act-and-executive-orders

Under NEIMA, the NRC has nearly completed the multi-year "Part 53" rulemaking on risk-informed, performance-based and technology-inclusive licensing.

The Commission is also making progress on other rulemakings and guidance. For example, in 2023, NRC promulgated a risk-informed approach for rightsizing emergency planning zones.[27] The Commission also recently extended the lifetime of reactor design certifications from 15 to 40 years, applying this extension retroactively to already approved designs.

The 2019 NRC-DOE memorandum of understanding (MOU) on NEICA implementation bolstered interagency cooperation and both agencies' readiness to review new nuclear technologies. Most recently, the MOU was updated in 2025 to describe the roles, responsibilities, and processes for coordination of activities to implement EOs 14299, 14300, 14301, and 14302[28]. They also signed an addendum supporting agency cooperation on DOE programs. Additionally, NRC has engaged with DoD and DOE on Project Pele under MOUs over several years. In 2022, the NRC highlighted that the "work on these projects continues to yield information that

[27] Another example is when the NRC issued a revision to Regulatory Guide (RG) 1.233, Revision 0 in 2020 (https://www.nrc.gov/docs/ML2009/ML20091L698.pdf), which endorsed NEI's "Risk-Informed Performance-Based Technology-Inclusive Guidance for Non-Light Water Reactor Licensing Basis Development", Report Revision 1. This revision marked a change in how the NRC evaluates risk. A year later in 2021, the NRC implemented Be riskSMART, combining "traditional concepts, such as the risk triplet, risk management, the risk heat map and risk appetite, into a plain language framework that gives the staff confidence to apply and communicate risk-insights" (https://www.nrc.gov/docs/ML2107/ML21071A238.pdf).

[28] Executive Order (E.O.) 14301, Reforming Nuclear Reactor Testing at the Department of Energy, E.O. 14302, Reinvigorating the Nuclear Industrial Base, E.O. 14299, Deploying Advanced Nuclear Reactor Technologies for National Security, and E.O. 14300, Ordering the Reform of the Nuclear Regulatory Commission

supports the NRC's ability to carry out its mission with respect to new, developing technologies."[29]

Safeguarding Regulatory Integrity and Public Trust at the NRC

The NRC's job is to license new reactors and oversee existing ones to ensure the public can safely benefit from nuclear energy. The NRC boasts a dedicated, highly technical staff and a legacy of overseeing a remarkably safe nuclear industry. As an independent, bipartisan Commission, the NRC has a long-standing history of remaining mission-focused and relatively insulated from political pressure, strengthening its technical credibility, international respect, and public trust.

Nuclear energy is among the safest forms of energy and has an exemplary safety record. Strong regulatory oversight is essential to continuing this enviable safety record. NIA has long been an advocate for NRC to improve its efficiency while maintaining robust nuclear safety. We believe NRC can and must do both.

Historically, public debate around the NRC was 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 have injected a new message into this conversation: that there is a public

[29] In SECY-22-0008: Advanced Reactor Program Status
https://www.nrc.gov/docs/ML2133/ML21337A376.pdf

interest in effective and efficient licensing because there is a public interest in achieving energy security while reducing carbon emissions as quickly as possible.[30]

The NRC has a long-standing history of operating both transparently and as an independent agency relatively insulated from political pressure. Some recent actions are undermining NRC's transparency and independence, although in NIA's view it is not too late for a course correction. These actions include (1) changes in leadership, including the firing of Chairman Chris Hanson against both law and precedent[31] as well as the exodus of many of the agency's most senior civil service managers; and (2) revised NRC rulemaking procedures with reduced transparency.

Independence

The nature and function of independent executive agencies in general and of NRC in particular has lately become a hot topic.

The nature of NRC independence is multifaceted. One aspect is the separation or independence of NRC as a safety regulator from the promotional responsibilities for nuclear energy, as required under the ERA and reflected in the international Convention on Nuclear Safety (IAEA Doc. No. INFCIRC/449) that was adopted after the Chernobyl accident and to which the United States is a party. As stated in Article 8 of the Convention, member states adhering to the Convention "shall take the

[30] See the recommendations in NIA's 2023 licensing efficiency report https://nuclearinnovationalliance.org/index.php/nuclear-innovation-alliance-licensing-efficiency-workshop-summary-report

[31] The firing violated the specific terms of the Atomic Energy Act. The legislation states "any member of the Commission may be removed by the President for inefficiency, neglect of duty, or malfeasance in office."

appropriate steps to ensure an effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy."

Another aspect of independence is political appointments. Historically and statutorily, the President designates the NRC Chair, as President Trump did almost immediately upon assuming office. The President also nominates and the Senate confirms the five NRC commissioners, with two stipulations: that no more than three commissioners can be from the same political party, and that the President cannot fire any of the commissioners without cause.

A third aspect is regulatory independence. Over the past few decades, the Office of Information and Regulatory Affairs (OIRA) of the White House Office of Management Budget has reviewed most federal regulatory agencies' rulemakings. Independent agencies like NRC have been excluded from this oversight for several reasons: (1) their rulemakings require highly specialized expertise, and the consequences of errors are potentially high, (2) changes in rules due to changing political winds could have potentially high consequences for critical infrastructure, and (3) maintaining public trust in these rulemaking decisions is in the national interest.

NRC's rulemaking independence is clearly in the national interest because it provides nuclear energy – which has enormously important security, environmental, and energy reliability benefits – with the social license to operate. NRC also advances U.S. nuclear energy leadership and competitiveness, because an NRC license

provides a credible seal of approval for U.S. technology exports and technology cooperation.

In most other ways, NRC is similar to other executive branch agencies. For example, as with any federal agency – independent or not - the President oversees the NRC budget.

Transparency

The NRC's organizational values are integrity, service, openness, commitment, cooperation, excellence, and respect. The organizational values go hand in hand with the NRC's Principles of Good Regulation: independence, openness, efficiency, clarity, and reliability[32]. The common theme across these values and principles is openness. A trusted and competent safety regulator is required to achieve the ambitious nuclear power expansion goals set forth by presidents from both parties and supported by bipartisan majorities in Congress.

The priorities set forth in EO 14300 on NRC reform align with what industry and advocates have been working on for years, and effective implementation is imperative to achieve the Administration's nuclear energy goals. Success depends on maintaining the transparency that the NRC has maintained for decades. In addition to the nuclear-focused executive orders, another executive order, "Ensuring Accountability for All Agencies" (EO 14215) could reduce the public transparency of NRC actions because of the newly implemented OIRA process. Under EO 14215,

[32] NRC's official Principles of Good Regulation https://www.nrc.gov/about-nrc/values

OIRA will receive all draft proposed rules from the NRC staff for a significance review before the Commission receives them for voting. If determined to be significant, a proposed rule would go through the EO 12866 review process that has governed all historically non-independent agencies since 1993. The final rule approved by the Commission would then go back to OIRA for review before publication by the NRC. Under this process, the following would no longer be public: the draft proposed rule sent to the Commission for voting, Commission votes on the draft proposed rule, the draft final rule sent to the Commission for voting, and Commission votes on the draft final rule. This risks undermining the openness embodied in the organizational values and Principles of Good Regulation.

EO 14300 requires a major revision of current NRC regulations and significant new regulations by the end of 2026[33]. While this is a significant reform opportunity, it introduces new priorities and very tight deadlines at the same time that EO14215 introduces a new OIRA rule review process. OIRA has never reviewed NRC rules before and has thus never built up the expertise to do so. The Commission will need to ensure this set of rules, including the low consequence reactor rule and Part 53, work as a system to further risk-informed, performance-based, and technology-inclusive licensing. If done incorrectly, new nuclear energy progress could be hindered by rushed rulemaking that does not improve efficiency. In contrast to past rulemaking efforts, industry and key stakeholders have no insight into the work being

[33] NIA advised the NRC to focus on 19 regulatory reform recommendations in the near term, given the ambitious nuclear energy directive timelines delineated in recent executive orders and the NRC's constrained resources. https://nuclearinnovationalliance.org/priorities-near-term-nrc-reforms

done on these new rulemakings. While NIA sees significant value in a focused effort to improve and innovate NRC's regulations, reactor developers and operators need well-vetted and clearly written rules and guidance.

Industry and other stakeholders have historically played an important role in rulemaking by engaging with NRC staff and providing input during public comment periods. Effective NRC staff incorporation of public comments is always critical to creating a useful set of rules. Given EO 14300's tight deadlines for these new rulemakings, and the additional time required for OIRA review, NIA and others are concerned that either key stakeholders will not be given sufficient time to comment, or the ambitious timelines will not be met, especially given the large number of significant rules being released in parallel and in rapid succession[34].

It is important to make the new rulemakings processes more transparent to enable NRC to receive meaningful industry and expert input, to ensure the rules are technically sound and to maintain public trust. The cascade of new rules, coupled with a new and unclear OIRA process, risk slowing progress on meeting the Administration's goals. The NRC workload is at a historic high with about thirty[35] application and pre-application engagements in addition to the wholesale revision of NRC regulations. There is opportunity to accelerate the NRC's regulatory reform process, but it must be done carefully and transparently.

[34] NIA created a rulemaking timeline based off the information on the NRC's rulemaking site https://nuclearinnovationalliance.org/expected-nrc-executive-order-14300-rulemaking-timeline
[35] NRC "Pre-Application Activities for Advanced Reactors": https://www.nrc.gov/reactors/new-reactors/advanced/who-were-working-with/pre-application-activities

In addition to the reduced transparency due to EO 14215, there is also now reduced transparency in NRC's internal rule rewriting process. NRC's status as a gold standard regulator is based on having rules drafted by technical staff, having those draft rules transparently transmitted to the Commission, having the Commission transparently deliberate and decide on the rules to be proposed and finalized, and having the Presidentially-appointed and Senate-confirmed Commissioners be accountable to Congress for faithfully executing NRC's regulatory responsibilities. This Committee has a key role to play in reinforcing the importance of NRC transparency and accountability to the future of nuclear power in the United States.

Staffing

After new reactor development activities declined in the early 2010s, the NRC did not actively recruit for many years due to budget restrictions and the decrease of interest in nuclear reactors. After years of little to no hiring, the agency needed to bring in younger employees to replace those aging out[36]. In preparation for increasing new reactor licensing requests, the NRC aimed to hire 400 new employees in FY 2023[37]. The NRC hired 281 and had 199 separations, which resulted in only 82 net additional hires. The effort to increase early to mid-career level employees continued in the

[36] GAO Strategic Human Capital Management NRC Could Better Manage the Size and Composition of Its Workforce by Further Incorporating Leading Practices (https://www.gao.gov/assets/gao-17-233.pdf) states "NRC has reduced its staff by 587 FTEs since its peak in 2011 (see figure), but if not carefully managed, imprecise reductions could lead NRC to miss efficiencies in matching its workforce with expected demand for services."

[37] Audit of the U.S. Nuclear Regulatory Commission's Recruiting and Retention Activities https://www.oversight.gov/sites/default/files/documents/reports/2024-12/ROA_OIG-NRC-25-A-03_12.18.24_RJF.pdf

subsequent years. In 2020 the NRC started the biannual program, the Nuclear Regulator Apprenticeship Network, to begin recruiting young talent. Later, this program was directed by the ADVANCE Act to become an annual program. Now the agency faces a new challenge where employees across the board are leaving the federal workforce.

Over the course of 2025, over 300 staff have left the agency[38]. The agency had roughly 2800 FTE at the beginning of the year. Many of the positions vacated were senior- level employees who had been with the agency for over a decade. The agency has always relied on the expertise of the staff to license and inspect both reactors and nuclear materials. At a time when the NRC is experiencing an influx of applicant engagements, losing senior personnel can cause delays. Insufficient training of newer staff and the departure of experienced staff pose a risk of delaying project timelines and creating communication challenges. Various leadership positions were vacated as well including the NRC Executive Director of Operations, General Counsel, and other high-ranking agency positions. The exodus of these experienced personnel is highly concerning.

In spring 2025, the Nuclear Innovation Alliance (NIA) held a workshop and conducted one-on-one interviews to discuss internal dynamics in NRC's organizational workplace culture. The workshop participants and interviewees included former NRC

[38] As of July the NRC reported 296 employees had left in their response to an EPW request(https://www.nrc.gov/docs/ML2523/ML25239A090.pdf). Since July the NRC Weekly Information Reports (https://www.nrc.gov/reading-rm/doc-collections/commission/recent/2025/index) indicate this number is above 300 now

Commissioners, senior leadership, and staff. Based on these discussions, in *Improving Nuclear Regulatory Commission Organizational Culture*, NIA synthesized the findings into five pillars, each containing actionable recommendations. The five pillars include:

- Accountability, Autonomy, and Alignment
- Leadership Development and Qualifications
- Differing Professional Opinions, Concurrence Processes, and Interactions with the Office of General Counsel
- Employee Retention, and
- Recruitment.

To quote from the report, "The credibility of the NRC stems from the commitment of its staff and its strong sense of mission. The NRC must preserve and reinforce its technical excellence and improve its role as an effective regulator. Its ability to meet new licensing demands will depend on a workforce that is capable, accountable, motivated, and aligned at every level."

This Committee has a crucial role to play in ensuring the NRC has the tools it needs to attract and retain excellent staff and maintain its organizational effectiveness.

Path forward for NRC

As advocates for new nuclear energy, NIA is focused on the NRC's role in re-establishing U.S. nuclear energy leadership. A bipartisan set of independent commissioners, experienced civil service leaders, and a dedicated, accountable, and

empowered staff are the essential conditions for successful nuclear technology regulation. It is also essential to ensure that leadership and staffing decisions are based on competence and performance, and that regulations are written and reviewed by technical experts. Safeguarding NRC's regulatory integrity is essential to the public, the industry, and potential customers of U.S. nuclear technology both here and abroad.

DOE

Overview

Over the past several years, DOE has made major progress in partnering with private industry to work towards the successful deployment of first-of-a-kind new nuclear energy technologies. In particular, DOE's Office of Nuclear Energy (NE), which supports research, development, and commercialization of nuclear technologies across the U.S. energy system, and the DOE's loan office (now called the Office of Energy Dominance Financing (EDF)), have successfully implemented a wide range of initiatives that have strengthened U.S. nuclear technology capabilities and commercialization readiness.

One of NE's most significant achievements has been the Advanced Reactor Demonstration Program (ARDP), which is providing funding to multiple reactor demonstration projects. Several ARDP awardees have started construction at their sites, received licenses or submitted applications to the NRC, completed critical

design and engineering milestones, and attracted private investment. For example, TerraPower and Kairos have both entered the construction phase of their projects with shovels in the ground, and X-energy and TerraPower have raised over $500 million each in private capital in 2025. The ARDP accomplishments underscore NE's ability to manage complex, multiyear, public-private partnerships and support private industry as they seek to commercialize their reactor designs. Continued investment in ARDP, like the funding that is in the proposed appropriations package, is essential to sustain this momentum and carry these advanced reactor designs through to successful deployment.[39]

Outside of ARDP, DOE continues to advance several existing programs, including the Generation III+ Small Modular Reactor Program, the Demonstration of Operational Microreactor Experiments (DOME), and ongoing efforts to support fuel qualification, materials testing, spent fuel recycling, and other R&D across the national laboratories. These programs have helped multiple developers mature designs, work toward their first-of-a-kind deployment, and spur innovation. In parallel, the May 2025 EOs have kickstarted a set of new initiatives, most notably the Reactor Pilot Program, the Fuel Line Pilot Program, and DOE's updated authorization process, all of which were created specifically to fulfill the EO's directives. Together, these efforts reflect DOE's broader accomplishments to partner with industry to deploy first-of-a-kind reactors, build a more robust nuclear fuel supply chain, strengthen the nuclear workforce

[39] Nuclear Innovation Alliance, "The Case for Continued Investment in the Advanced Reactor Demonstration Program": https://nuclearinnovationalliance.org/case-continued-investment-advanced-reactor-demonstration-program

pipeline, and more. It is imperative that all of these programs be adequately staffed and continue to receive adequate funding from Congress.

In parallel, DOE loans have played a critical role in advancing U.S. nuclear energy commercialization by providing financing for major early mover nuclear projects. DOE's most consequential debt financing to date has been its loan guarantees for the Vogtle Units 3 and 4 project in Waynesboro, Georgia, which are the first newly constructed commercial reactors in the United States in more than three decades. DOE loan guarantees have helped enable construction, supported thousands of jobs, and demonstrated that federal financing can successfully derisk large, capital-intensive nuclear projects. Notably, EDF operates with a significantly limited operating budget, one that is substantially lower than that of most private-sector lenders. Despite these constraints, the office consistently executes its responsibilities with exceptional efficiency and effectiveness while maintaining rigorous due diligence.

As DOE's office responsible for issuing loans for large-scale energy and manufacturing projects, EDF's role is central to enabling nuclear energy commercialization at scale and has been repeatedly recognized by policymakers from both parties. For example, Secretary Wright recently said at an American Nuclear Society conference in November of 2025 that "by far, the most important use of these dollars will be to build the first nuclear power plants," and in May 2025, during a congressional budget hearing that EDF is "the most efficient tool we have in

the department to help emerging energy technologies."[40] These statements reflect the Administration's broader view that DOE's financing and technology offices are central to achieving U.S. energy leadership, strengthening U.S. industrial competitiveness, and accelerating innovation across the energy system.

Together, NE's programmatic support and EDF's loan authority have created a strong foundation for the commercialization of advanced nuclear technologies across the country.

Staffing/Funding

In NIA's view, President Trump's four recent executive orders on nuclear energy are appropriately ambitious. But many offices within DOE are short of staff to implement the directives and may be facing further reductions in their administrative budgets and staffing levels. This disconnect means the goals can only be achieved with the addition of more staff, resources, and strong leadership.

Over the past decade, and in particular over the last year, DOE has taken on a rapidly expanding portfolio of nuclear energy programs and public-private partnerships. However, the number of staff available to implement these programs has dramatically declined. According to news reports at the end of April,[41] close to 3,500 DOE

[40] Reuters, "US energy secretary says biggest use of loan office will be for nuclear power plants" https://www.reuters.com/business/energy/us-energy-secretary-says-biggest-use-loan-office-will-be-nuclear-power-plants-2025-11-10/ ; E&E News, "Chris Wright tells Republicans to keep loan office funding" https://www.eenews.net/articles/chris-wright-tells-republicans-to-keep-loan-office-funding-2/

[41] (1) E&E Politico "Details emerge on surging DOE departures": https://www.eenews.net/articles/details-emerge-on-surging-doe-departures/ (2) Canary Media, "A mass exodus begins at the Energy Department": https://www.canarymedia.com/articles/politics/a-mass-exodus-begins-at-the-energy-department (2)

staff (about 20% of its authorized positions) had left the agency. That means DOE is being asked to run more programs, manage more partnerships, and deliver more results, but with fewer people and less operational support. These reductions in staff run counter to the vision of U.S. energy leadership laid out by the Trump Administration and supported by Congress.

DOE-NE and DOE's EDF are the offices we are counting on most.

Since 2012, NE's overall budget has increased by 133%. Over that same period, NE's administrative funding (the dollars that pay for staff, program management, and basic operations) has actually fallen by 3%. For NE to build and sustain effective public-private partnerships, accelerate the commercialization of next-generation nuclear technologies, and meet the directives laid forth in the EOs, it needs adequate funding and staffing to match its expanding mission. Staffing levels for some key programs are reportedly down significantly.

The goals outlined in the Executive Orders will require EDF to issue a significant number of new loan guarantees to accelerate high-impact energy and manufacturing investments to advance America's economic future. However, EDF's staffing levels have been reduced by roughly 60% over the past year.[42] In addition to being understaffed, the office's administrative budget has not kept pace with the scale or complexity of the work now expected of it. A series of major legislative efforts including the Inflation Reduction Act, Infrastructure Investment and Jobs Act and One

[42] Washington Examiner, "DOE Loan Programs Office poised to lose nearly 60% of staff amid DOGE cuts"

Big Beautiful Bill Act mean that DOE's Title 17 program now has over $250 billion in lending authority.

Managing this expanded portfolio requires administrative resources that grow proportionally with the program's responsibilities. It is in Congress's interest to ensure that EDF has the personnel and funding necessary to responsibly distribute these loan guarantees, conduct rigorous due diligence, and maximize the public value of every dollar invested. Without adequate administrative capacity, the nation risks underutilizing one of the very tools Congress created and strengthened to accelerate U.S. energy leadership. And these loans, which are paid back to the U.S. treasury with interest, are an especially good deal for the U.S. taxpayer in comparison to other forms of federal assistance.

Effective public-private partnerships between DOE and industry require staff to negotiate contracts, oversee projects, implement programs, execute contracts, and safeguard taxpayer dollars. Those responsibilities grow as DOE's portfolio grows, and over the past year we have seen DOE's nuclear energy portfolio grow to unprecedented levels.

HALEU

One key condition for successful nuclear energy commercialization is access to a reliable supply of nuclear fuel, but the United States is currently dependent on a global nuclear fuel supply chain that includes Russian state-owned entities. Ever since

the 2022 Russian invasion of Ukraine, it has become abundantly clear that this dependence is no longer acceptable, and that it is critical to strengthen a domestic nuclear fuel supply chain to meet our future fuel demand.

In particular, Russia is the only commercial supplier of High-Assay Low-Enriched Uranium (HALEU), which is a more highly enriched type of uranium that is needed to fuel many advanced nuclear reactor designs. Without domestic or allied HALEU production, the future of nuclear innovation and many advanced reactors in the U.S. is subject to geopolitical uncertainty.

Congress, recognizing these vulnerabilities in our nuclear fuel supply, enacted several pieces of legislation to strengthen a domestic nuclear fuel supply chain including the Nuclear Fuel Security Act, the Prohibiting Russian Uranium Imports Act, and provisions in the Inflation Reduction Act and the FY2024 Consolidated Appropriations Act. As a result, DOE was appropriated a total of $3.4 billion to expand domestic enrichment and deconversion capacity. To carry out the direction provided by Congress and utilize the $3.4 billion, DOE established the HALEU Availability Program, designed to competitively award contracts for enrichment and deconversion services needed to supply advanced reactor developers with the fuel required for deployment.[43]

[43] DOE issued two separate requests for proposals under the HALEU Availability Program, one for deconversion in November 2023 and a second for enrichment in January 2024, to competitively select companies and begin distributing federal funding to build domestic enrichment and deconversion capabilities. DOE named an initial set of awardees many months later, in October 2024, for both RFPs.

Just recently, on January 5, 2026, DOE selected the final awardees for the enrichment portion of the HALEU Availability Program, and awarded them a total of $2.7 billion, marking a major step forward in the implementation of the program. Now industry must deliver on its commitments, and DOE must closely track awardee progress to maximize the program's success and ensure responsible stewardship of taxpayer dollars.

Notably, DOE has still not distributed the remainder of the $3.4 billion. In particular, DOE has not yet selected final awardees for the deconversion portion of the HALEU Availability Program. Deconversion is the process of turning enriched uranium into the solid material that eventually goes into the core of a nuclear reactor. It is an essential step in the nuclear fuel cycle, and U.S. capacity to deconvert uranium must match U.S. capacity to enrich uranium. Therefore, while DOE's distribution of $2.7 billion is major step in the right direction, DOE must also distribute the remaining funds without delay.

Any additional delay in distributing the remaining funding would be detrimental to the United States' ability to secure our nuclear fuel supply chain, specifically, our deconversion capacity. Without timely action from DOE, companies face avoidable costs, stalled supply chain buildout, and increased risk that projects slip beyond their intended timelines.

Conclusion

This is a pivotal moment for nuclear energy. Major technological advances across public, private and academic sectors have driven progress in the nuclear energy ecosystem. New reactor developers are introducing significant commercial innovations. Private financiers, along with industrial and data center users, are making major investments. Public support for nuclear energy is growing as an energy security and climate solution. Finally, we are in the midst of a remarkably positive policy environment.

The U.S. secret sauce for successful energy innovation and commercialization has always been a whole-of-society effort, with private sector leadership and effective government enabling. Congress's enactment of a series of major pieces of legislation over the past seven years, together with recent ambitious nuclear energy executive orders, have set the stage.

I urge Congress to ensure the U.S. government has the people, the resources, and the public trust essential to enable new nuclear energy to play a major role in an affordable, reliable, and clean U.S. energy system.

Thank you for this opportunity to testify and I look forward to your questions.