

DATE: June 6, 2025

TO: President Lisa Marshall, Members of the Board of Directors

FROM: Craig Piercy, Executive Director/CEO

RE: Findings of the ANS Executive Order Expert Advisory Group

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On May 23, President Donald Trump signed four Executive Orders (EOs) designed to “usher in a nuclear energy renaissance” by building on federal policies and programs and directing efficiencies in the licensing, siting, development, and deployment of advanced reactor technologies.

In order to evaluate the specific proposals contained in the EOs, I convened a group of experts from various sectors of the U.S. nuclear technology enterprise, under the auspices of the ANS External Affairs Committee, to compare the EOs against existing, Board-approved Position Statements and to offer constructive input for subsequent implementation by the Trump Administration.

I am pleased to present the group’s findings and feedback below, grouped by individual EO.

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### **“Reinvigorating the Nuclear Industrial Base”**

Overall, the ANS Expert Advisory Group found significant merit in the whole-of-government approach to supporting nuclear energy deployment, innovation, workforce, and supply chain development. Notably, Section 3, “Strengthening the Domestic Nuclear Fuel Cycle,” essentially makes the recycling of spent nuclear fuel the official policy of the U.S. government. This action is consistent with ANS Position Statement #3,<sup>1</sup> which calls for a “clear energy policy on used nuclear fuel recycling.”

The group also commended the directive to produce a report with a recommended national policy “...to support the management of spent nuclear fuel and high-level waste and the development and deployment of advanced fuel cycle capabilities to establish a safe, secure, and sustainable long-term fuel cycle” that identifies legislative changes needed to achieve that policy.

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<sup>1</sup> ANS Position Statement #3, *Management of the Nation’s Used Nuclear Fuel and High-Level Waste*, June 2023.

Section 3 also halts the Department of Energy’s (DOE) surplus plutonium dilute and dispose program and instead directs the Secretary of Energy to make surplus material, “available to industry in a form that can be utilized for the fabrication of fuel for advanced nuclear technologies.” This too is in general alignment with ANS Position Statement #47.<sup>2</sup> However, several members of the Expert Advisory Group advised that the DOE, to maintain strong safeguards and high levels of material accountability, focus on providing surplus material to reactors that are intended to be deployed at national labs and other government facilities instead of providing general availability to industry.

The Expert Advisory Group also applauded Section 4 of the EO, “Funding for Restart, Completion, Uprate, or Construction of Nuclear Plants,” which directs the DOE Loan Programs Office (LPO) to prioritize in its activities those that support new nuclear plant construction, uprates of existing plants, and strengthening of the U.S. supply chain. While some group members found the deadlines in this section to be aspirational, the goal of 5 gigawatts of uprates and 10 new large reactors with complete designs under construction by 2030 is nonetheless a laudable one. Group members noted, however, that success in achieving this milestone will ultimately depend on whether Congress preserves the current 45Y production and 48E investment tax credits for nuclear energy. Maintaining the LPO credit subsidy, while not required for LPO to function, would also be necessary to support this goal.

Conversely, the policy landscape before the EOs and current reconciliation discussion (i.e., the 45Y/48E tax credits and LPO) was not enough to spur the deployment of additional projects, as evidenced by discussions around reducing risk for early-of-a-kind projects and cost overruns. Thus, even if the outcome of the reconciliation bill is essentially maintaining the status quo of the policy environment, this goal is unlikely to be met without additional policy support.

The Expert Advisory Group was overwhelmingly supportive of the actions contained in Section 5, “Expanding the Nuclear Energy Workforce.” Group members agreed that “nuclear engineering and other careers and education pathways that support the nuclear energy industry shall be considered areas of focus and priority” and noted that, while skilled trades will certainly make up the lion’s share of new workforce entrants, there is still an urgent need for more highly skilled positions in health physics, nuclear and radiochemistry, and criticality safety, among others. The group also emphasized that university-based and investigator-led research are essential critical drivers of nuclear innovation in the U.S. and are vital to sustaining national competitiveness. As outlined in ANS Position Statement #85,<sup>3</sup> sustained investment in workforce development and across the supply chain is essential – not only to maintain U.S. leadership in nuclear science and

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<sup>2</sup> ANS Position Statement #47, [Disposition of Surplus Weapons Plutonium](#), May 2021.

<sup>3</sup> ANS Position Statement #85, [Education, Training, and Workforce Development for Nuclear Science, Engineering, and Technology](#), October 2024.

engineering but also to ensure a robust talent pipeline capable of meeting the sector's future needs.

### **“Deploying Advanced Nuclear Reactor Technologies for National Security”**

The Expert Advisory Group supports the president's overall objective of “ensuring the rapid development, deployment, and use of advanced nuclear technologies to support national security objectives.” This includes the establishment of a “program of record” within the U.S. Army for the utilization of nuclear energy and the designation of DOE owned-or-controlled sites for the purpose of powering AI infrastructure for defense needs.

The group also noted with approval the EO's direction to the Secretary of Energy to “release into a readily available fuel bank not less than 20 metric tons of high-assay low-enriched uranium (HALEU) for any project from the private sector which receives authorization to construct and operate at a Department of Energy owned-or-controlled site and that is regulated by the Department of Energy for the purpose of powering AI and other infrastructure.”

As to the provisions in Section 5 related to Department of Defense (DOD) authority in regulating the design, construction, and operation of reactors and fuel cycle facilities, the group had some substantive input but chose to include it in their response to the “Reforming Nuclear Reactor Testing at the Department of Energy” EO, which can be found below.

Lastly, the Expert Advisory Group praised the intent expressed in Section 8, “Promoting American Nuclear Exports,” to “aggressively pursue” new and renewed bilateral civil nuclear cooperation arrangements, commonly known as 123 Agreements. However, while the goal of pursuing 20 new 123 Agreements by the end of 2028 is laudable, it will be critically important that the Departments of State and Energy have sufficient experienced personnel tasked with negotiating them.

### **“Reforming Nuclear Reactor Testing at the Department of Energy”**

This EO deals primarily with usage of the authorities granted to the DOE in the Atomic Energy Act to regulate and deploy test reactors, both within and outside the National Laboratory system.

Existing ANS Position Statements do not make any direct pronouncements on the advisability of DOE (or DOD) authorization, oversight, and inspection of facilities that are not small-scale research or test reactors. Considering this, the Expert Advisory Group would like to see further clarification on the scope and role of the DOD's and DOE's authority in regulating reactors.

The DOD/DOE can play a constructive role in spurring construction of advanced reactors, having approved similar designs for military installations (recognizing this has not been done recently) and ongoing work with projects like MARVEL, Project Pele, and the proposed reactors at the National Reactor Innovation Center (NRIC) DOME test bed. However, it is unclear whether either the DOD or the DOE have the capacity to support a significantly expanded pipeline of projects, especially with the lack of recent authorization experience at the DOD. Furthermore, it is unclear if either department has frameworks and capacity to support the inspection and oversight of facilities that are seeking to operate longer.

As such, any DOD or DOE efforts must be well coordinated with the U.S. Nuclear Regulatory Commission (NRC). That said, it is important to avoid duplicative regulatory requirements, conflicting standards across agencies, and a burdensome licensing process or even legal concerns that inject uncertainty into nuclear investments.

Expert Advisory Group members questioned whether these pathways are intended as optional mechanisms for DOE or defense-specific applications, or as parallel and/or additional licensing routes to the NRC process – particularly because neither the DOE nor the DOD has the ability to license reactors serving dual-use or commercial purposes. While there is legal precedent for alternative regulatory frameworks, it must be made clear that any DOD or DOE licensing routes are voluntary, not mandatory. Developers must not be placed in a position where they are pressured to pursue DOE or DOD authorization only to later find NRC licensing for their commercial facilities is also required, resulting in delays or duplicative reviews. Moreover, the NRC’s regulatory standards serve as the foundation for nuclear deployment abroad, and it is essential that the agency remain fully engaged in reactor design and approval processes to maintain U.S. leadership in civil nuclear exports.

Given current staffing constraints, successful implementation of DOD and DOE licensing processes will likely require leveraging NRC technical expertise to support licensing review and oversight activities. Additional resources and information-sharing can lead to a shortened licensing and review process. Ultimately, the implementation of this EO should result in an improved process; otherwise DOE and National Lab resources would be better spent directly supporting companies moving through the NRC’s licensing process.

### **“Ordering the Reform of the Nuclear Regulatory Commission”**

As in ANS Position Statement #51,<sup>4</sup> ANS has long recognized a need for “well-staffed, well-funded safety regulatory authorities, which are responsible for *independently* assuring operational safety and protection of the environment by utilizing performance-based goals and risk insights derived from analysis and experience.” (emphasis added)

The Expert Advisory Group supports the intent of this EO to modernize NRC processes and align regulatory action with the timeframes required by today’s realities, as this relates to

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<sup>4</sup> ANS Position Statement #51, [Safety of Nuclear Power](#), rev. October 2021.

the *Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy* (ADVANCE) Act. ANS Position Statement #46<sup>5</sup> on risk-informed, performance-based regulation acknowledges that the NRC's processes can be "cumbersome" and "prescriptive" and that the "lack of integrated decision-making often leads to focus on isolated objectives that may not optimize overall outcomes."

However, Expert Advisory Group members urge caution against initiating indiscriminate reductions in personnel through existing reduction-in-force processes. This approach would likely jeopardize NRC timeline commitments to existing applicants and create a chilled environment within the NRC – and an environment of regulatory uncertainty within the nuclear industry. Technical expertise is the key driver behind the NRC's and the United States' nuclear successes. As one group member stated, "You don't make a car go faster by giving it a smaller engine."

In general, the group expressed support for NRC reforms that Congress enacted in the recently passed ADVANCE Act, many of which are enumerated in the EOs. The group also agrees with the general thrust of Section 3, "Reforming the NRC's culture." The NRC has already acted to ensure the agency considers the benefits as well as the risks in the licensing and regulatory decisions it makes. Ultimately, changing the NRC's staff culture is best done by an engaged Commission leadership.

Reform should not come at the cost of slowing the licensing process or weakening the agency's capability for effective safety oversight. It should focus on strengthening capabilities – not reducing staff. Section 5, "Reforming and Modernizing the NRC's Regulations," which proposes "a review and wholesale revision of its regulations and guidance documents," is likely unworkable and counterproductive because of staff time requirements and the regulatory (or even legal) uncertainty that could result. Fixed licensing deadlines also risk unintended consequences, such as rushed reviews or outright denials based on procedural limits rather than technical merit. Coupling these with any NRC staffing reductions would further seriously damage the agency's technical capacity, especially among newer staff with experience in advanced reactor technologies. The NRC must avoid overwhelming its workforce with revision demands that divert attention from ongoing reactor oversight and approvals.

The Expert Advisory Group agreed with the need to "adopt science-based radiation limits" expressed in Section 5. Simply put, there is no epidemiological evidence to suggest that radiation exposures at or near background levels present a meaningful risk to the public. However, several participants felt that the NRC relitigating the linear no-threshold (LNT) theory would be a fruitless exercise, as more than 70 years of research have yielded no strong alternative models for estimating health effects from radiation exposure at the levels current regulations contemplate. Instead of reigniting an esoteric scientific debate, the

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<sup>5</sup> ANS Position Statement #46, *Risk-Informed and Performance-Based Regulations for Nuclear Power Plants*, February 2021.

group believes that the NRC and other federal agencies should focus on applying the “as low as reasonably achievable” (ALARA) principle in the manner it was originally intended. Specifically, ANS states in Position Statement #41,<sup>6</sup> “ALARA is intended to be an optimization process in which the costs associated with any potential dose reduction are balanced against the benefits in a risk-informed decision-making process considering all appropriate factors. Unfortunately, current implementation of ALARA often results in a practice of dose minimization rather than a risk-informed optimization, which can lead to more harm than benefit.”

Finally, any changes to either the real or perceived independence of the NRC would undermine the credibility of the regulatory process and the industry, both domestically and internationally. This would include a lack of transparency on rulemakings, Commission votes, or safety findings.

Decades of cumulative operational experience demonstrate that nuclear power is a safe and dependable energy source. NRC decisions concerning the use of nuclear energy should appropriately balance risks and benefits. The NRC should adopt a holistic approach to regulation that aligns with how we treat risk across various hazards. Implementation of this EO must be thoughtful; otherwise, it may severely impact the stated goals of the Trump Administration and industry to deploy new nuclear power.

## **Conclusion**

Overall, the ANS Expert Advisory Group found the EOs to be a significant step forward toward the deployment of advanced reactors and recognized the extraordinary policy commitment by the Trump Administration to advancing U.S. nuclear technology. The group also acknowledged that implementing the EOs will present a challenge via a constrained budget and may in some cases require legislative changes to the *Atomic Energy Act* and *Energy Reorganization Act*. In the worst case, some aspects of the EOs would have a counterproductive effect on the speed of new nuclear deployment.

The Expert Advisory Group agreed that successful implementation will require deliberate policy supported by the federal budget, strong interagency coordination, sustained investment in people and infrastructure, and regulatory modernization grounded in scientific research.

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<sup>6</sup> ANS Position Statement #41, [Risks of Exposure to Low-Level Ionizing Radiation](#), November 2020.