

**Testimony for the Record**  
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**Before the**  
**Senate Environment and Public Works Committee**  
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The Nuclear Energy Institute (NEI) appreciates the opportunity to provide testimony on the Nuclear Energy Innovation and Modernization Act, introduced on March 2, 2017.

I am Maria Korsnick, President and Chief Executive Officer of the Nuclear Energy Institute. NEI is responsible for establishing unified industry policy on regulatory, financial, technical, and legislative issues affecting the commercial nuclear energy industry. NEI has more than 350 members, including all U.S. companies licensed to operate commercial nuclear power plants, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, materials licensees, labor organizations, universities, and other organizations involved in the nuclear energy sector.

Nuclear energy is the largest and most efficient source of carbon-free electricity in the United States. Currently, 99 reactors in 30 states produce nearly 20 percent of our nation's electricity and approximately 63 percent of our carbon-free electricity. Nuclear energy facilities demonstrate unmatched reliability by operating with an average capacity factor greater than 90 percent—higher than all other electricity sources. Nuclear produces electricity 24/7, regardless of weather and with all its fuel on site for 18-to-24 months. The long horizon for nuclear fuel procurements also means nuclear generation is not subject to price spikes occasionally experienced by other generation sources in recent years.

Nuclear energy facilities are essential to the country's economy and the local communities in which they operate. The typical operating plant generates \$470 million each year in the sale of goods and services in the local community, and employs 700 to 1000 workers. Construction of a new nuclear plant provides in the range of 3500 jobs at peak periods. Collectively, the nuclear industry contributes about \$60 billion every year to the U.S. economy, through supporting over 475,000 jobs and producing over \$12 billion annually in federal and state tax revenues.

I am proud to report that, since I testified before this Committee last year, a new 1150-megawatt reactor has begun to operate in Tennessee. As you know, an additional four reactors are now under construction—two reactors in Georgia and two in South Carolina. Those reactors are expected to begin production in 2019 and 2020. At this point, the detailed design and engineering has been completed for the AP1000 reactors now being built, and the lessons learned from those projects should be applied by future applicants and licensees as well as the Nuclear Regulatory Commission (NRC). Certainly the authors of the Energy Policy Act of 1992 contemplated that applying the more streamlined NRC combined license process to these first-of-a-kind projects would pave the way for even more efficient regulatory reviews, in turn leading to lower costs and shorter time to market for subsequent projects.

The current nuclear fleet is an integral cog in and significant contributor to the nation's infrastructure given its environmental benefits, local and national economic value, grid support, reliability, and price stability. The newly constructed plants will likely provide this valuable energy for 80 years. And, future nuclear innovations in the form of various advanced design reactors are being developed to meet the needs of our society well into the next century and beyond.

Current operating plants, units now under construction, and plants of the future all must be able to rely on a safety focused, efficient, and technically expert regulator. It is imminently reasonable from the perspective of the industry as well as our nation's energy consumers to expect a regulatory process with those attributes. Those regulatory attributes are also a national imperative, as they directly affect the ability to maintain the diversity of America's energy portfolio. The industry believes that the NRC's untimely, somewhat outdated, and unnecessarily costly regulatory regime needs updating. The need for congressional action directing regulatory reform has become more urgent as companies are beginning to submit to the NRC applications for certification of small modular reactor (SMR) designs, which will be deployed in the mid-2020s, and developers of advanced non-light-water reactors are beginning interactions with the NRC and are looking to deploy their technologies around 2030.

The establishment and implementation of sound regulatory processes requires strong and focused NRC leadership. As the Senate is responsible for confirming qualified candidates to serve on federal agencies, we wish to emphasize the importance of maintaining a five-member Nuclear Regulatory Commission. The work of this agency should be conducted as Congress intended when it enacted the Atomic Energy Act, with five commissioners who each bring to their position knowledge and a commitment to sound agency decision-making. As the Commission currently has two open seats, and potentially faces the lack of a quorum by the end of June, we urge the Senate to act swiftly on Administration nominations. We also urge the Senate to consider adding to its bill a "holdover" provision to avoid the issues that arise when there is a delay in nominating or voting on Commission candidates. In doing so, the Commission could continue (*e.g.*, under a provision that would permit continuation at least until the next Congress) to perform its functions without disruption.

On behalf of NEI and its members, I would like to thank the bill's sponsors for recognizing the need for legislation to reform the NRC fee recovery structure for existing nuclear power plants, and to set the stage for developing and deploying innovative nuclear reactor technologies. I hope you will also consider acting to ensure that all Commission seats are filled.

### **Reform of the NRC's fee recovery structure is necessary and overdue.**

Industry's concerns with the NRC's fee structure date back to the passage of the Omnibus Budget Reconciliation Act of 1990 (OBRA-90). Both NRC and industry identified equity issues with this fee recovery framework. OBRA-90 requires the NRC to recover approximately 90 percent of its budget through fees charged to licensees and applicants.<sup>1</sup> Congress provides the

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<sup>1</sup> This fee-recovery requirement excludes amounts appropriated for waste incidental to reprocessing, generic homeland security activities, and inspector general services for the Defense Nuclear Facilities Safety Board, as well as any amounts appropriated from the Nuclear Waste Fund.

remaining 10 percent of the agency's budget authority through appropriations, which covers the costs for some of the NRC's activities that are not attributable to existing NRC licensees (*e.g.*, international assistance activities and Agreement State oversight). This arrangement requires the industry to pay for "fees-for-services" at a current rate of \$265 per hour. The industry is also charged annual fees, which are apportioned among licensee classes to cover the remainder of the agency's budget. This means industry is required to pay fees for many activities that provide no direct benefit to licensees.

Congress attempted to address these fairness and equity issues in the FY 2001 Energy and Water Development Appropriations Act but, by the late 2000s, significant problems with the NRC's fee recovery framework began to surface. Each year since then, in response to the NRC's proposed fee rule, NEI has raised concerns related to the level of fees to be collected and the issues caused by the fee structure. NEI has consistently emphasized the industry's concerns regarding: significant increases in overhead costs, large increases in the NRC's budgets, the failure to account for premature plant closures, and additional states becoming Agreement States without corresponding reductions in the materials program budget. Further, we have identified the need for a firewall between fee-recovery and fee-relief activities.

The NRC has responded to these comments by indicating that its "hands are tied" by the current statutory framework. Fundamental change to the NRC's fee recovery structure is long overdue, and the NRC is not on course to accomplish that change absent congressional direction.

The Nuclear Energy Innovation and Modernization Act would make several necessary changes. It would repeal the relevant provisions of OBRA-90 and replace them with a rational fee recovery process that will also ensure that the agency continues to be sufficiently funded to effectively carry out its mission to protect public health, safety, and security. The fee recovery process envisioned by the bill would create greater accountability and transparency by requiring the NRC to expressly identify annual expenditures anticipated for licensing and other activities requested by applicants (*i.e.*, fees-for-services). The bill further directs that funds allocated to those activities can be used only for those purposes, thus avoiding diversion of agency resources to other accounts, including corporate support.

The legislation also would help drive greater efficiency in agency operation and, in turn, drive down annual fees by establishing that corporate support costs can be no more than 30 percent of the agency's budget authority beginning in FY 2020 and FY 2021. The percentage cap on corporate support is to be reduced by 1 percent every two years until reaching 28 percent in FY 2024. The bill thus would help to bring the NRC's spending on corporate support in line with other federal agencies. In an April 2015 congressionally-mandated report, Ernst and Young found that the NRC spends 37 percent of its budget on mission support costs, whereas the NRC's peer agencies spend only 20, 25, and 32 percent of their total budgets on mission support. In response to these excessive overhead costs, Congress limited the portion of the NRC's FY 2016 budget allocated to corporate support (which constitutes the bulk of NRC's mission support costs) to roughly one-third (34 percent) of the agency's total budget. The NRC indicated in its FY 2017 budget justification that it would remain below this cap in FY 2016, spending about 32 percent of its budget on corporate support. Notwithstanding this recent effort to limit the NRC's longstanding increases in corporate support costs, the NRC's FY 2017 budget proposed

increasing the agency's corporate support costs to more than \$319 million—an *increase* both in real dollars (an additional \$3.3 million) and as a percent of the agency's total budget (bringing it to 33 percent). The bill would preclude this type of backsliding by placing the NRC on a glide path to reduce its corporate support to 28 percent gradually by implementing cost reductions such as those already identified by the agency's Project Aim efforts.

Complementing the upper limit on corporate support, the bill would cap annual fees for operating power reactors at the FY 2015 level (adjusted to reflect changes in the Consumer Price Index). The misalignment between the NRC's budget and its workload has recently resulted in an annual fee structure that essentially penalizes reactor licensees that continue to operate for another licensee's decision to discontinue operation. The cap on annual fees should mitigate the potential for excessive fees, which will be particularly important if the NRC does not adequately adjust its budget to reflect the declining workload with fewer operating reactors.

It is important to ensure that the NRC and the public understand that a cap on annual fees would not adversely affect safety. The cap in the bill is set at the 2015 fee rule level—among the highest in the NRC's history. This assures that the NRC would have significant resources to carry out its safety and security mission. The annual fee cap also does not affect “fee-for-service” activities, which the NRC recovers separately through 10 C.F.R. Part 170 fees. As a result, the NRC will continue to recover fees necessary to support the NRC resident inspector program, force-on-force exercises, security plan reviews, and emerging issues that may require NRC resources to perform additional safety or security inspections at specific facilities. The cap on annual fees would not constrain the NRC's resources in a way that would compromise the agency's safety and security mission, and it appropriately provides for a waiver of the cap in the case of unforeseen and unlikely circumstances. In short, the bill gives the Commission authority to ensure that the cap on annual fees does not impede its mission.

The bill also would provide relief based on equitable considerations. For example, it appropriately prevents the NRC from recovering fees for activities that are not attributable to an existing NRC licensee or class of licensees. Additionally, the bill provides for federal funding for the development of regulatory infrastructure for advanced reactor licensing.

While these fee reforms go a long way toward addressing the problems the industry has identified, we suggest that the Committee add a few additional provisions.

1. The cap on annual fees should be applicable to decommissioning reactors, fuel cycle facilities, and other materials licensees. This would ensure that a reduction in the number of licensees does not increase the fee burden on the remaining licensees, as has been the case for these licensees in recent years. For example, the annual fee for a basic in-situ uranium recovery facility will increase by nearly 80 percent from FY 2012 (\$29,900) to FY 2017 (\$53,600).
2. The Committee should consider whether to further reduce the 28 percent cap on corporate support to ensure the NRC's overhead is consistent with its peer agencies. A lower cap would limit expenditures on corporate support, thereby encouraging the NRC to sharpen its safety focus and become more efficient. The Ernst and Young report found that some of the

NRC's peer agencies operate with levels of corporate support as low as 20 and 25 percent. Additional opportunities for corporate support savings by the NRC are not speculative. A February 22, 2017, letter from the NRC Chairman to the Committee identified \$8.4 million in corporate support savings the Commission has already approved under Project Aim. The letter also listed nearly a dozen other cost saving activities the NRC could implement in FY 2018 and beyond.

3. The NRC should be required to expressly identify in its budget request anticipated expenditures necessary for each rulemaking and other generic activities. Offering a clear picture of proposed NRC expenditures on each of these activities would significantly improve accountability and transparency.

**Congressional action is necessary to accelerate licensing and deployment of advanced nuclear reactor technologies.**

NEI supports an “all-of-the-above” nuclear future that includes additional large light water reactors (LWRs), SMRs, and advanced non-light water reactors. Advanced LWR designs are already commercially available with four units under construction; SMRs are expected to be available by the mid-2020s; and advanced non-LWRs are being developed to complement the suite of nuclear generating options available in the future. It is critically important that the U.S. nuclear industry maintain a leadership role in nuclear technology development and contribute to worldwide safety enhancements by continuing to design and build new nuclear plants.

Advanced non-LWR designs must be commercially available by the early 2030s to meet global energy needs. This is a challenging task but one that is necessary to accomplish if the U.S. is to maintain the reliable electricity service Americans now enjoy and meet its clean air commitments. Even at less than 1 percent annual growth in electricity demand, the U.S. Energy Information Administration forecasts a need for 285 gigawatts of new electric capacity by 2040 in the U.S.

Focusing only on the need for additional electricity in the U.S. in the upcoming decades would mistakenly overlook the likelihood of a significant increase in electricity demand worldwide. Many countries are looking to a rapid expansion of nuclear generation to address their growing electricity needs making it imperative that the U.S. industry's technology be available for international deployment. Advanced nuclear reactor designs have many potential technological advantages making them particularly appropriate for placement in developing economies (*e.g.*, passive cooling even in the absence of an external energy supply; operation at or near atmospheric pressure, which reduces the likelihood of a rapid loss of coolant; and extended operations between refueling and consumption of nuclear waste as fuel, reducing disposal issues). However, without strong federal leadership and direction, the U.S. industry runs the risk of falling behind, as other countries have substantial, state-funded advanced reactor technology programs. The strategic importance of U.S. nuclear technology development and sales should not be underestimated. A nuclear power plant is an enduring asset that forges a special century-long relationship between the host country and the nation that supplies the reactor and later the fuel, major components, operations, maintenance, and security services.

The Nuclear Energy Innovation and Modernization Act will bring us a step closer to realizing the

enormous potential of advanced reactor technologies. The bill represents Congress' affirmation of the need to accelerate the development, licensing, and deployment of these innovations by establishing a path the NRC is to follow to develop an efficient and timely licensing framework. We commend the bill's sponsors for their leadership on this issue.

We appreciate Congress' recognition of the challenges facing advanced reactor development. Given the lead times necessary to obtain approval for a new reactor design, license a nuclear power plant, and fabricate and build new generating capacity, activities needed to license advanced reactors must be a high priority. We highlight several of the ways in which the bill can advance Congress' and the industry's vision.

- The bill would require the Commission to establish performance metrics for licensing activities and would require that the NRC staff inform the Commission of delays in issuance of final safety evaluations.
- The bill would require the NRC to develop and implement enhanced strategies within 270 days for establishing stages in the licensing process for design approval. This will establish a clear means by which developers of advanced technologies can demonstrate to investors and other project participants progress toward eventual licensing of their first-of-a-kind projects. A staged licensing approach enables developers to coordinate financing and capital investments with achievement of each stage. Further, because perceptions regarding regulatory risk increasingly have become an impediment to new reactor development, successful completion of specific licensing milestones should reduce concerns about regulatory uncertainty. While a staged licensing process could provide significant benefits for some developers, its use should be optional, not mandatory. Similarly, Congress' mandate that the NRC develop and implement strategies to prepare a regulatory framework for licensing a research and test reactor will help advanced reactor developers that choose to build a research or test reactor before a commercial reactor achieve greater regulatory certainty. Successful demonstration via testing provides credible proof that a technology or design is sound, can be used for the intended application, and can be economically competitive.
- The bill would require the NRC to modernize aspects of its regulatory approach. It directs the agency to develop and implement strategies within two years to increase the use of risk-informed, performance-based licensing evaluation techniques and guidance within the NRC's existing regulatory framework. This should lead to a more efficient regulatory process that will encourage continued private sector investment in advanced reactor development.
- Because advanced reactor technologies will need to be commercially available in the 2030-2035 timeframe, the bill requires that the NRC complete a rulemaking to establish a technology-inclusive licensing framework by the end of 2024. The bill appropriately allows applicants the option of choosing the regulatory approach most appropriate to their particular designs.

- The bill would establish and authorize appropriations for a U.S. Department of Energy (DOE) Advanced Nuclear Energy Cost-Share Grant Program to make grants to applicants to fund a portion of the NRC fees for pre-application and application reviews. This provision is critically important to support the development of advanced technologies. As proposed, however, this program only addresses NRC-fees. We support the establishment of a broader cost-share program that would also support development of the license applications for advanced technologies.

### **Baffle bolt and emergency preparedness**

The industry recommends that the Committee reconsider the need for the baffle bolt and emergency preparedness provisions. With regard to the baffle bolt issues that arose in 2016, the NRC has independently reviewed the affected units' analyses, inspections, and bolt-replacement plans to ensure safety. Ultimately, the NRC determined that the reactors were safe to operate. With regard to the emergency preparedness provision, we note that all nuclear power plants have comprehensive on-site and off-site emergency response plans and licensees routinely incorporate lessons learned from data and events. Further, this area already is closely regulated by NRC and the Federal Emergency Management Agency.

### **Uranium recovery, transfers, and sales**

The bill directs the NRC to study the safety and feasibility of increasing the length of uranium recovery licenses from 10 to 20 years. This will reduce the costly burden of renewing the license every 10 years to continue operation. As uranium recovery is the lowest risk sector of the nuclear fuel cycle, consideration should be provided to increase the license length up to 40 years. A 40-year license period is consistent with other fuel cycle facilities and operating power reactors.

The bill also directs the NRC to evaluate the duration of licensing actions and areas to improve the efficiency and transparency of licensing reviews. This is a necessary step because the uranium recovery industry has faced excessive costs and lengthy reviews on issues not related to technical concerns but, rather, due to reinterpreted safety standards and increased costs of environmental and cultural resource reviews.

We support the initiation of a pilot program to establish a flat-fee structure for uranium recovery licensees. The flat-fee structure is a welcome first step and should be quickly implemented to help resolve invoicing and other issues.

The bill also addresses DOE's excess uranium inventory. The industry supports the timely and efficient cleanup of all of the Department's facilities, including the gaseous diffusion plants. We have previously recommended that the cleanup efforts be fully funded through congressional appropriations rather than a combination of congressional appropriations and bartering of excess uranium inventory, and have urged the Department to request sufficient funding for the cleanup efforts to proceed on the Department's desired schedule.

## **Conclusion**

On behalf of NEI and its members, I wish to thank the bill's sponsors for reintroducing this important legislation. Passage of the Nuclear Energy Innovation and Modernization Act will benefit all Americans by helping to retain the energy diversity and clean air benefits nuclear plants provide. The legislation also will ensure that these economic engines can continue to be the backbone of the nation's electric infrastructure and, looking forward, will facilitate the development and deployment of innovative nuclear reactor technologies. We look forward to working with members of Congress to obtain enactment of this bill into law.