

Testimony for the Record
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The Nuclear Energy Institute (NEI) appreciates the opportunity to provide testimony on S. 2795, the Nuclear Energy Innovation and Modernization Act, introduced on April 13, 2016.

I am Maria Korsnick, Chief Operating 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. Before joining NEI in 2015, I held a number of senior positions in industry. I have been an NRC-licensed senior reactor operator, a site vice president responsible for all aspects of reactor operations, and a chief nuclear officer responsible for a fleet of reactors.

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 of 91.9 percent—higher than all other electricity sources. Nuclear energy facilities are essential to the country's economy and the communities in which they operate. The typical plant generates \$470 million each year in the sale of goods and services in the local community, and employs between 500 and 700 workers. Importantly, an additional five reactors are under construction in the United States. While under construction, a new nuclear plant project creates up to 3,500 jobs at peak periods.

Despite the environmental and economic benefits nuclear plants provide, time consuming and outdated U.S. Nuclear Regulatory Commission (NRC) regulatory processes and excessive fees challenge continued operation of the current nuclear fleet and impede our ability to build new, technologically advanced reactors.

On behalf of NEI and its members, I wish to express our deep appreciation to the bill's sponsors for working together to create legislation to tackle these issues. We support this bill and Congress' efforts to help maintain existing nuclear power plants, and to set the stage for developing and deploying innovative nuclear reactor technologies. My testimony will explain how the bill advances these objectives by (1) reforming the NRC fee recovery structure, and (2) directing the NRC to modernize its regulatory regime to facilitate licensing of new nuclear technologies. In addition to offering the industry's views on why this legislation is important and timely, I will offer additional ways the bill can further enhance safety by honing the focus and efficiency of the NRC's regulatory processes.

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

The Omnibus Budget Reconciliation Act of 1990, as amended (OBRA-90), requires the NRC to recover approximately 90 percent of its budget through fees charged to licensees and applicants.¹ Congress provides the 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 \$268 per hour, as well as annual fees, which are fees apportioned among licensee classes to cover the remainder of the agency's budget.

For the past several years, the NRC's annual budget has hovered in the one billion dollar range. The industry has expressed increasing concern about the magnitude of NRC fees and the failure of the agency to reduce its budget given its decreasing workload. For example, one licensee reports that it paid NRC \$7.9 million in fees in 2015, which constituted almost 10 percent of its annual non-outage operations and maintenance budget. Because the NRC's budget has not correspondingly declined as the number of operating reactors and materials licensees has declined, remaining licensees are responsible for paying higher annual fees to fund the NRC's corporate support, generic rulemaking activities, and even certain international activities. The magnitude of these fees is exacerbated by the fact that the NRC's budgeting and fee invoicing are not transparent, predictable, or timely. These concerns have been the focus of extensive industry comments on the NRC's proposed fee rules, and have been highlighted in various forums to authorizers and appropriators in Congress.

Notably, in June 2014 the NRC recognized the need to right-size the agency and refocus its work on higher priority matters. Project Aim, instituted to accomplish those goals, has made some progress. There have been reductions in staff, a program was implemented to prioritize work on generic issues and rulemakings, and there have been reductions in the budget. Although we commend the agency for its initial efforts in this regard, progress is not being made quickly enough, and the limited reductions in the budget evidence continued inefficiencies in agency management and operations.

We appreciate Congress' efforts to encourage the NRC to implement Project Aim more aggressively. Despite those efforts, there are systemic problems with the agency's fee recovery structure that require legislation to ensure durable reform. We call your attention to the following problems with the status quo:

- The NRC's overhead costs remain excessive and higher than peer agencies. In April 2015, Ernst and Young provided the NRC with an Overhead Assessment Report. Ernst and Young found that the NRC spends 37 percent of its budget on mission support costs.² The NRC's

¹ 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.

² As listed in the report, mission support includes corporate support (acquisitions, administrative services, financial management, human resources, information management, information technology, international activities, outreach,

peer agencies spend only 20, 25, and 32 percent of their total budgets on mission support. Ernst and Young also found that “[w]ith the exceptions of FY 2015 and FY 2016, NRC’s mission support costs as a percentage of total outlays have increased year-over-year for the last decade.” To help roll back this decade-long increase in overhead costs, appropriators in 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 recently 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 longstanding increases in corporate support costs, the NRC’s FY 2017 budget would *increase* corporate support spending both in real dollars (an additional \$3.3 million) and as percent of the agency’s total budget (bringing it to 33 percent). This proposed increase is especially troubling because the NRC’s FY 2017 request removed more than \$23 million from the corporate support category. In other words, the NRC simply “realigned” (*i.e.*, re-categorized) certain activities that previously would have been listed as corporate support.

- A reduction in the number of licensees increases the fee burden on the remaining licensees. The number of operating reactors and materials licensees has declined in recent years. Because the NRC must collect 90 percent of its budget from licensees and the NRC’s budget has not correspondingly declined, remaining licensees are responsible for paying higher annual fees. With several recent premature power reactor shutdowns—and additional reactors planning or considering decommissioning in the coming years—the current fee structure virtually guarantees that remaining licensees will continue to bear even higher annual fees. Materials licensees face an even more significant problem because Agreement States and their licensees do not pay NRC fees. With more than 86 percent of all material licensees now under Agreement State jurisdiction, the remaining 14 percent of NRC material licensees are left to fund an extremely disproportionate share of the NRC’s generic materials program. For example, when the number of uranium recovery facilities dropped from twelve to nine for FY 2016, the NRC proposed an 11 percent increase in the annual fee for the remaining licensees. This situation will worsen when seven current licensees become part of the developing Wyoming Agreement State program.
- The costs of licensing actions have unnecessarily increased over time. The costs of licensing actions continue to increase well beyond cost-of-living increases. For example, since 2000 the NRC review fees for operating reactor license renewals have increased annually at a rate of almost 17 percent despite the agency’s extensive experience with the review process. This represents an *eight-fold increase* in review costs for license renewals rather than the decrease that would be expected based on efficiencies that should have been developed for reviewing later applications. Similarly disturbing increases have occurred with new reactor licensing as early site permit review fees have increased at an annual rate of 15 percent since 2007. Worse, these increases often are accompanied by extended delays in the completion of the licensing actions and add to the NRC’s licensing backlog.

policy support, training, and travel) and office support (acquisitions, administrative services, financial management, human resources management, information management, information technology, support staff, training, and travel).

- The industry pays for unjustified generic activities. Despite Congress' direction in the FY 2016 Consolidated Appropriations Act to include in the NRC's budget submittal all planned rulemakings, it is unclear how many existing rulemakings remain on the NRC's docket and how much the NRC plans to spend on each of its rulemakings. Although the NRC's report to the House and Senate Appropriations Committees on January 15, 2016, listed 43 proposed rules pending before the Commission, the NRC's 2015-2016 Rulemaking Activity Plan included prioritization results for 93 rulemakings. Of these 93 rulemakings, the NRC ranked only nine with a LOW priority, meaning 84 rulemakings were ranked with a MEDIUM or HIGH priority. A February 22, 2016 Commission letter to the House and Senate Appropriations Committees attempted to clarify this discrepancy by providing another list with 89 rulemakings: 55 proposed rules in development or published for public comments or final rules under Commission consideration; 12 rulemakings identified for possible termination; and 22 petitions for rulemaking pending before the agency. Putting aside the lack of transparency associated with how the agency counts "active" rulemakings, the fact remains that the NRC should not be pursuing 50+ rulemakings after more than 60 years of intensive regulation of an industry that operates at the highest levels of safety and reliability. This level of activity suggests that the NRC is pursuing rulemakings that are unlikely to be necessary to accomplish its public health, safety, and security mission.
- The NRC budget and fee processes are not transparent. The industry also pays for other unjustified generic activities (*e.g.*, international activities) not covered by the 10 percent fee-relief offset. Because the breakdown of fee recoverable items and fee relief is not discernable from agency documents, it is effectively impossible for the industry to determine the extent to which it pays for activities that are not attributable to and do not benefit a class of NRC licensees. For example, a comparison between the NRC's congressional budget justification and the FY 2016 proposed fee rule indicates that the NRC will spend \$23.2 million for international activities but will only credit licensees with \$12.6 million in so-called fee relief. The NRC provided no explanation for why licensees should be assessed fees to pay for the remaining \$10.6 million. Unquestionably, NRC engagement in the international arena advances U.S. foreign policy objectives, but it also is the case that those efforts provide no direct benefit to the regulated community.

The bottom line is that fundamental change to the NRC's fee recovery structure is needed, and the NRC is not on course to accomplish that change in the absence of congressional direction. The Nuclear Energy Innovation and Modernization Act would effect that change. It would repeal the relevant provisions of OBRA-90 and replace them with a rational fee recovery process that will also ensure 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 S. 2795 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 2019 and FY 2020. The percentage cap on corporate support is to be reduced by 1 percent every two years until reaching 28 percent in FY 2023. 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). Finally, the bill would appropriately prevent the NRC from recovering fees for activities that are not attributable to an existing NRC licensee or class of licensees, and provide for federal funding via appropriations for the development of regulatory infrastructure for advanced reactor licensing.

While these fee reforms go a long way to addressing the problems the industry has identified, we suggest that the Committee also include several additional provisions in this legislation:

1. To ensure that a reduction in the number of licensees does not increase the fee burden on the remaining licensees, the cap on annual fees should be applicable to decommissioning reactors, fuel cycle facilities, and other materials licensees. Excessive annual fees have been imposed on these categories of licensees in recent years. For example, in addition to the materials licensee fees referenced earlier in my testimony, the annual fee for high-enriched uranium facilities has increased by 55 percent from FY 2005 (\$5.45 million) to FY 2015 (\$8.47 million).
2. To ensure the NRC's overhead costs are consistent with its peer agencies, the Committee should consider whether the 28 percent cap on corporate support is sufficient. A lower cap would limit expenditures on corporate support and encourage 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. The bill also should prohibit the NRC from simply redefining corporate support activities to circumvent the cap and avoid making the improvements that Congress demands.
3. To minimize the industry's obligation to pay for unjustified generic activities, the NRC should be required to expressly identify in its budget request anticipated expenditures necessary for each rulemaking and for other generic activities. Offering a clear picture of what the NRC intends to spend on each rulemaking and international activity 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), small modular light water reactors (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. NEI's all-of-the-above vision recognizes that the U.S. nuclear industry can best maintain a leadership role in nuclear technology development and contribute to worldwide safety enhancements by designing and building new nuclear plants.

Advanced non-LWR designs must be commercially available by the early 2030s to meet global energy needs. This is a daunting task but one that is necessary to accomplish if the U.S. is to meet its clean air commitments and maintain the reliable electricity service Americans now enjoy. Even at less than 1 percent annual growth in electricity demand, the U.S. Energy Information Administration forecasts a need for 287 gigawatts of *new* electric capacity by 2040 in the U.S.— *in addition to the electric capacity that will need to be replaced because of retirements.*

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 consumption of nuclear waste as fuel, reducing or eliminating 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 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 particularly appreciate Congress' recognition of the challenges facing advanced reactor development. This legislation serves as a necessary "wake-up call" to the NRC. 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, planning for advanced reactors must begin today. We highlight several of the ways in which the bill can advance Congress' and the industry's vision.

- By requiring the NRC to develop and implement enhanced strategies for establishing stages in the licensing process, there will be 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 relieves developers from the need to seek a multibillion-dollar capital investment in the very early stages of design development because financing can be coordinated with achievement of each stage. Further, because perceptions regarding regulatory risk increasingly have become an impediment to new reactor development, being able to successfully complete specific licensing milestones should reduce concerns about regulatory uncertainty. 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 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 to licensing advanced reactors. It directs the agency to develop and implement strategies to increase the use of risk-informed, performance-based licensing evaluation techniques and guidance within the NRC’s existing regulatory framework.
- Because advanced reactor technologies will need to be available for licensing 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 2023. While this should lead to an efficient regulatory paradigm that will encourage private-sector investment in advanced reactor development, the seven-year deadline to complete this rulemaking is too long. 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 because it provides a mechanism for DOE to provide its imprimatur and support for technologies with which the Department and its national laboratories have decades of experience.

Additional action is necessary to improve the focus and timeliness of NRC regulatory processes.

The bill removes a long-standing inefficiency in the NRC’s hearing process by eliminating the need for an uncontested, mandatory hearing on construction permit and combined license applications. The mandatory hearing is an artifact of early licensing proceedings and no longer serves a useful purpose. Today, in addition to having the opportunity to request a hearing, members of the public can access extensive information about a license application on the NRC’s website, attend the numerous public meetings the NRC holds in their community, and submit comments to the NRC through its environmental review process. There is no need for a mandatory hearing at which issues are uncontested and the public does not participate.

Although the bill appropriately removes the requirement for the mandatory hearing, it should go further and eliminate or streamline other outdated and unnecessary procedures:

1. The legislation should allow for international investment in nuclear plants by eliminating the Atomic Energy Act prohibition on foreign ownership, control, or domination (FOCD) of nuclear power plants. As NEI has repeatedly argued in recent years, FOCD restrictions relating to U.S. nuclear reactors are outdated, unnecessary, overly broad, and ignore the realities of today’s global nuclear energy market. This prohibition is a relic of the 1950s when effective means to address concerns about nuclear technology transfers and the proliferation of special nuclear material were lacking. The FOCD provision unduly restricts foreign investment in otherwise worthy projects and ultimately adds no value to nuclear safety or protecting national security.

2. The bill should ensure that hearings on inspections, tests, analyses, and acceptance criteria (ITAAC) do not delay the startup of new plants. While the Commission has recently approved hearing procedures that attempt to minimize the potential for delay, Congress should set aggressive hearing deadlines, mandate the use of streamlined informal hearing procedures, and ensure that a future Commission does not narrowly construe its authority to authorize interim operations while conducting an ITAAC hearing.

Conclusion

In closing, on behalf of NEI and its members, I wish to thank the bill's sponsors for introducing this important legislation. Passage of S. 2795 will provide environmental and economic benefits to all Americans by helping to retain the generation source responsible for 63 percent of the nation's carbon-free electricity and setting the stage for development and deployment of innovative nuclear reactor technologies. We look forward to working with members of Congress to obtain its enactment into law.