

**Testimony for the Record
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The Nuclear Energy Institute (NEI), on behalf of the commercial nuclear industry, appreciates the opportunity to provide testimony on H.R. 4979, the Advanced Nuclear Technology Development Act of 2016, introduced by Mr. Latta and Mr. McNerney. We also offer our views on the discussion draft of the Nuclear Utilization of Keynote Energy Policies Act.

I am Marvin S. Fertel, 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.

I am pleased to represent the owners and operators of nuclear power plants, as nuclear energy is the largest and most efficient source of carbon-free electricity in the United States. Ninety-nine reactors 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 communities in which they operate. The typical nuclear power plant generates \$470 million each year in the sale of goods and services in the local community, and employs between 500 and 700 workers. Looking to the future, 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.

Notwithstanding the significant environmental, economic and national security benefits that nuclear energy generation provides, the current regulatory requirements and licensing processes challenge the industry's ability to build new, technologically advanced reactors. As such, we wish to express our appreciation to this Committee for its effort to prompt the NRC to accelerate its preparation for licensing advanced reactor technologies. More specifically, NEI supports an all-of-the-above future that includes subsequent license renewal of existing reactors, advanced large light water reactors (LWRs), small modular light water reactors (SMRs), and advanced non-light water reactors. We support Congress' direction to the NRC to modernize its regulatory framework to accommodate a range of innovative nuclear technologies and to offer a phased licensing process as an option to relieve developers of the need to obtain billions of dollars in capital early in the licensing process.

We also believe this Committee should consider three issues: reforming the NRC's fee recovery structure; increasing regulatory efficiencies to minimize licensing delays; and creating a more efficient regulatory framework for nuclear plants entering the decommissioning process. We appreciate Congressman Kinzinger's effort to address these important issues in the draft Nuclear Utilization of Keynote Energy Policies Act.

Congressional action is necessary if the United States is to maintain its leadership role in nuclear technology and safety.

The prospect of developing advanced reactors has become attractive in the U.S. and abroad. In this country, approximately 126 gigawatts of generation will be retired over the next 15 years. Given our country's commitment to meet clean air goals and the forecasts for future electricity demand, advanced reactor designs must be commercially available by the early 2030s. Even with the less than 1 percent projected 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. That is in addition to the electric capacity that will be needed to replace retired power plants.

Focusing only on the domestic need for additional electricity in the coming decades would overlook the likelihood of a significant increase in electricity demand worldwide. Many other countries are looking to a rapid expansion of nuclear energy to address their growing electricity needs, making it imperative that U.S. nuclear technology be available for international development. Advanced nuclear reactor designs offer many technological advantages (*e.g.*, reactor 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 disposal issues). These attributes make advanced reactors particularly appropriate for placement in developing economies. However, without strong federal leadership and direction, the U.S. industry runs the risk of falling behind its international competitors, as other countries have substantial, state-funded advanced reactor technology

programs.

The Advanced Nuclear Technology Development Act affirms Congress' commitment to retaining U.S. leadership in nuclear technology and safety. Enactment of the bill would advance Congress' and the industry's vision in the following important ways:

1. The bill directs NRC and DOE to enter into a memorandum of understanding to ensure DOE has sufficient technical expertise to support timely development and commercial deployment of advanced reactor technologies and the NRC has sufficient technical expertise to support licensing. Additionally, DOE is directed to maintain and make available to the NRC facilities to support the commercial industry's development of these technologies.
2. The bill requires DOE to report to Congress on the status of its activities to facilitate testing and demonstration of advanced reactors on DOE land and at DOE facilities. DOE would also be required to report on the use of private land for testing and demonstration of advanced reactor designs.
3. The bill directs the NRC to establish a plan "for developing an efficient, risk informed, technology-neutral framework for advanced reactor licensing." The plan should include an evaluation of the unique aspects of advanced reactor licensing, regulatory framework options for licensing, and means of streamlining regulatory processes to minimize the time from application submittal to final approval. The plan also is to consider NRC use of "phased review processes," through which the NRC could conditionally approve early

design information, and submittals containing design criteria that would support a later phase of the design review.

4. The bill requires the NRC to seek input from DOE and stakeholders as it develops the plan for advanced reactor licensing and to include in the plan cost estimates, budgets, and milestones that must be achieved to implement an advanced reactor regulatory framework by 2019.
5. The bill recognizes that it is a government function to develop the regulatory infrastructure to license advanced reactor technologies and, therefore, authorizes federal funding to support those activities.

A requirement for the NRC to implement the option of a phased license review process will allow developers and advanced reactor license applicants to demonstrate to investors and other project participants that they are making progress toward eventual licensing of these first-of-a-kind projects. The phased approach will allow financing to be coordinated with achievement of each milestone, which significantly improves the funding paradigm for advanced reactor projects. Perceptions regarding regulatory risk already are impeding new reactor development in the U.S. and prompting technology companies to pursue their projects overseas. The ability to successfully complete specific licensing milestones should reduce broader concerns about regulatory uncertainty.

We commend Congress for mandating that the NRC and DOE support the use of federal facilities

and, potentially, private land to test advanced reactor designs. Successful testing is important to provide credible proof that the technology is sound, can be used for the intended application, and can be economically competitive.

It is timely to direct the NRC to modernize its regulatory framework to accommodate advanced reactor technologies and to increase the use of risk-informed, performance-based licensing techniques as it does so. The NRC imposes stringent safety requirements that all nuclear facilities must meet to maintain public health and safety. As we look to the details of how innovative advanced reactor technologies can meet these requirements, it is important for the NRC regulatory framework to acknowledge that there will be a variety of effective ways to achieve the desired performance.

Congress should reform the NRC’s fee recovery structure to make fees more equitable and transparent.

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 The fees are accounted for in two categories: “fees-for-services,” which are currently charged at \$268 per hour, and annual fees, which are fees apportioned among licensee classes to cover the remainder of the agency’s budget.

For the past several years, the industry has expressed its increasing concern regarding 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.

annual budget, which has been in the range of \$1 billion for more a decade. The budget has remained at this level despite the fact that the agency's workload has decreased. In turn, industry fees have become excessive. We recognize the NRC's Project Aim is intended to right-size the agency and refocus its work on priority matters. We note that this effort has made some progress to achieve these goals (*e.g.*, reductions in staff and budget, and prioritizing work on generic issues and rulemakings). Despite the agency's commendable efforts, these reductions are not sufficient and the industry continues to see regulatory inefficiencies.

The following problems illustrate the pressing need for Congress to take action to ensure that the regulatory process and costs do not limit the potential benefits that current and future nuclear energy technologies can provide.

- 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 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

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, 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).

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 n 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. 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 12 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 NRC 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 in subsequent renewal 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.
- 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 rulemakings remain on the NRC's docket and how much the NRC plans to spend on each one. 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 a LOW priority, meaning 84 rulemakings were ranked 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-plus 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 pays for other 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 draft Nuclear Utilization of Keynote Energy Policies Act adopts a straightforward approach to making NRC fees more equitable. It would continue to require the industry to pay for all

agency activity attributable to a licensee or a class of licensees but disallow collection of fees associated with the agency's corporate support. This approach would require the NRC to justify corporate support costs to Congress in order to receive appropriations and, in turn, prompt the NRC to control its budget and reduce or eliminate wasteful spending. While there are larger federal budget questions that arise with regard to the proposed need to increase net NRC appropriations, this approach, like that reflected in the Senate legislation, seeks to address the problem that members of Congress and industry have identified. The draft bill's proposal is eminently fair to the regulated community, which has no ability to require the NRC to exercise fiscal responsibility or ensure accountability.

Notably, however, the proposal retains licensee funding for rulemakings and other generic activities. As such, we suggest that the draft bill include a provision to minimize the industry's obligation to pay for generic activities unless their cost is disclosed and they are justified based on their contribution to safety. Thus, the NRC should be required to expressly identify in its budget request to Congress the anticipated expenditures for each rulemaking and for other generic activities. Offering a clear picture of what the NRC intends to spend on specific matters would significantly improve accountability and transparency.

Direction to streamline NRC regulatory processes will increase the agency's efficiency and focus on matters of safety significance.

It is important to reduce regulatory inefficiency to avoid unnecessarily extending the time required to obtain a license or otherwise receive an NRC approval. License renewal proceedings

that previously took two years to complete now may take five or more years. Some new nuclear plant applications have been pending before the NRC for more than six years. The legislation would add efficiency to the licensing process in several ways.

1. The draft bill recognizes the value of allowing international investment in U.S. nuclear plants. Foreign ownership, control or domination limitations in the Atomic Energy Act (sections 103d. and 104d.) are a relic of the 1950s. These outdated restrictions ignore the realities of today's global nuclear energy market. The Comptroller General, in consultation with the Secretary of Energy, is to submit a report to Congress on the feasibility and implications of repealing this restriction. We would expect the report to conclude that the foreign ownership, control or domination limitation unduly restricts investment in otherwise worthy projects and ultimately adds no value to nuclear safety or the protection of national security.
2. The draft bill eliminates the uncontested "mandatory" NRC 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, members of the public can request a hearing, 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. The NRC's Advisory Committee on Reactor Safety also provides an independent safety review of reactor license applications. As the public does not participate in a mandatory hearing, its elimination will have no impact on the public's opportunity to participate in the licensing process.

3. The draft bill clarifies that the NRC may use informal APA-sanctioned procedures when conducting hearings under section 189 of the Atomic Energy Act unless the Commission determines that formal proceedings are necessary to develop a sufficient record or achieve fairness. This clarification will eliminate previously-litigated questions regarding the legality of the NRC's hearing procedures.
4. The draft bill would help to ensure that NRC hearings on inspections, tests, analyses and acceptance criteria (ITAAC) for new reactors do not unduly delay the startup of the new plants. While the Commission has recently approved hearing procedures that attempt to minimize the potential for unnecessary delay, Congress should set more 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.
5. The draft bill recognizes the delay experienced by NRC applicants and directs the agency to streamline its license application review process to achieve milestones by specified deadlines. Since 2011, the NRC has, on average, nearly doubled the time it takes to review license renewal and power uprate applications. The draft bill requires the NRC to develop streamlined procedures that will eliminate its licensing backlog.
6. The draft bill would require that the NRC improve the regulatory framework for decommissioning nuclear power reactors. Because many regulations applicable to operating

reactors do not recognize the reduction in risk as facilities defuel and advance through the decommissioning process, reactors being decommissioned must either comply with requirements that were developed for operating reactors or request relief from those requirements through the exemption or license amendment process. While the NRC has already taken an initial step by issuing an advanced notice of proposed rulemaking on decommissioning, a more efficient regulatory framework for plants entering the decommissioning process is needed to address the fact that the existing regulatory framework does not appropriately account for the reduction in risk that results when a power reactor ceases operation, defuels and decommissions.

Conclusion

In closing, on behalf of NEI and its members, I wish to thank Congressmen Latta and McNerney for introducing important advanced reactor legislation. We support passage of this bill, which will provide environmental and economic benefits to all Americans by setting the stage for the development of innovative commercial reactor technologies and helping to retain the energy source responsible for 63 percent of the nation's carbon-free electricity. We also appreciate Congressman Kinzinger's work to reform NRC fees and the regulatory process and look forward to working with members of Congress to advance these reforms.