

Testimony for the Record
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Before the Oregon House Committee On Energy and Environment
May 23, 2017

The Nuclear Energy Institute (NEI) appreciates the opportunity to provide testimony on Senate Bill 990 (SB 990), introduced on March 2, 2017.

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 1,000 workers. Construction of a new nuclear plant provides in the range of 3,500 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.

Of course, the electricity markets in which the existing fleet of commercial nuclear power reactors came into existence were very different than the dynamic and highly competitive marketplace that is emerging today—driven by rapid innovation across a wide spectrum of energy technologies. At NEI, we recognize that innovation will also be vital to maintaining nuclear energy's contribution to the nation's economic and environmental health. During the first half of the 21st century, we envision technologically advanced new nuclear plants that are cost-competitive with other energy sources will be built in substantial numbers, supplementing the current fleet and leading to a continued strong nuclear presence in the U.S. energy mix.

Small modular reactors (SMRs) such as those being designed by NuScale Power—right here in Oregon—are expected to be a significant part of the innovative new nuclear industry of the future. We believe that SMRs offer important and unique benefits in generating reliable, safe, carbon-free electricity that will be well suited to the electricity marketplace of tomorrow. Our goal is to ensure that SMRs are a cost-competitive option in the future, with the first units operating by the mid-2020s.

The Nuclear Regulatory Commission's (NRC) ongoing review of NuScale's SMR design certification application represents a good start towards achieving this vision.

Of course, the citizens of Oregon should also be able to look forward to the day that SMRs are not just designed in their home state, but built and operated there as well. This is why SB 990 is so important. We understand that this proposed legislation would exempt SMRs from some of the siting restrictions that currently would impede their deployment in Oregon. Key among these would be the elimination of a requirement for a permanent repository for used nuclear fuel to be in place prior to issuing a site certificate for a nuclear plant.

This body's reconsideration of the repository prerequisite is timely because the used fuel management landscape has also significantly advanced since this requirement was put in place. The U.S. nuclear industry has now accumulated over 50 years of experience with the storage of used nuclear fuel—without a single instance of harmful radiation release. Innovative new dry cask storage technologies have been deployed that extend both the capacity and time horizon of our storage capabilities while we await the development of a permanent repository. Over 2,500 dry storage systems are safely in use at 70 sites across the country. Licenses for these systems have now been renewed to provide for up to 60 years of safe storage. If need be, these licenses can be renewed for even longer periods. NRC's 2014 Continued Storage rulemaking concluded that these systems could safely remain in operation for at least 100 years.

We recognize that indefinite storage is not the ultimate solution for managing used nuclear fuel. International scientific consensus continues to back disposal in a deep geologic repository as a safe and permanent answer. And science has brought us much closer to making that a reality today. In 2015, Finnish regulators approved the license application for a repository to dispose of that nation's used nuclear fuel. That facility is now under construction and should be operational within a decade. Here in the U.S., the scientific and technical basis for completing the Yucca Mountain repository has also advanced significantly. Despite efforts by the project's opponents to cancel it, the courts ordered NRC to complete their review of the Department of Energy's license application. The result is a completed safety evaluation report and environmental impact statement that demonstrates that the proposed Yucca Mountain repository is capable of protecting public health and safety for a million years into the future.

Yucca Mountain is there for us if only we have the political will to build it. And even if we choose not to, the over \$10 billion scientific effort that went into demonstrating its safety should not be considered wasted. This effort, along with similar studies of facilities in other nations such as Finland, Sweden, France and Switzerland gives us a level of confidence in the viability of geologic disposal that simply did not exist at the time your predecessors enacted the existing repository prerequisite.

And there is something else that is new. Progress is being made on the development of consolidated interim storage (CIS) facilities that would allow for used fuel currently stored in numerous locations, in a variety of environments, to be centralized in a few remote locations better suited to this purpose. There it could be more efficiently managed and kept secure. Such facilities are on the drawing board in Texas and New Mexico. Both of these facilities have strong local support and have submitted license applications to the NRC. CIS provides another option for

assuring that, by the time that SMRs can be deployed in Oregon, the used fuel they generate will have a place it can be shipped to in a timely manner.

Finally, and most importantly, our belief that a permanent repository and consolidated storage facilities will be available when needed is founded on far more than empty promises. Over \$38 billion has been already collected from electricity consumers to pay for a permanent repository. We believe that a portion of these funds could also be devoted to building and operating a CIS facility as necessary. Also, NRC's stringent financial assurance requirements mandate that reactor owners must put aside sufficient funds to provide for the decommissioning of the reactors when they shut down. The safe management of used nuclear fuel at decommissioning sites has already been demonstrated at 18 locations. The citizens of Oregon should not worry that, by embracing new reactor technology, they are opening themselves up to being saddled with future waste dumps (e.g., superfund sites). The resources to prevent that from happening are already in place along with a regulatory structure that assures sufficient resources will always be available.

Oregon has been widely recognized as a leader among states in creating forward-looking policies to protect the environment. SMRs could be a critical component of a clean energy future for this state. It is in this spirit that we commend this committee for its consideration of SB 990.