

Maryland Senate Education, Energy, and the Environment Committee
Nuclear Energy Institute
Public Testimony in Support of SB0805 – Nuclear Energy Development Task Force

February 29, 2024

Good afternoon, Chairman Feldman, Vice Chair Kagan, and members of the committee. The Nuclear Energy Institute (NEI) applauds you for your consideration of SB0805, which establishes a nuclear energy development task force, responsible for studying and making recommendations on the deployment of nuclear power generation resources in the state as well as the establishment of a permanent state nuclear energy commission. As you know, Maryland currently has two nuclear reactors, producing over 38% of the state's energy and accounting for over 78% of the state's carbon-free generation.

This is an important piece of legislation that will not only help achieve its goal of net zero greenhouse gas emissions by 2045, but also help to accelerate the development, demonstration, and deployment of advanced nuclear power systems. SB0805 builds upon the efforts the state recently took in 2022, with the passage of the Maryland Climate Action Now Act, which recognizes nuclear's ability to produce carbon-free energy and the Maryland Energy Administration's study of advanced nuclear deployment.

Maryland won't be going it alone

The energy sector in the United States has undergone significant transformation over the last decade and that transformation will continue. NEI recently conducted a survey of its member utilities and found that these utilities anticipated needing more than 100 gigawatts, equivalent to more than 300 advanced reactors of new nuclear power by 2050 in order to guarantee reliable access to clean energy. Non-electric sectors such as industrial heat and transportation are also considering nuclear energy to transition to a reliable, clean and affordable energy supply. Ensuring that state energy policies are in place that enable commercial deployment of advanced reactors by the early 2030s is essential to ensuring an affordable, secure, and resilient energy sector well into the future.

To that end Idaho, Illinois, Kentucky, Michigan, Montana, Nebraska, New Hampshire, Ohio, Pennsylvania, Texas, Tennessee, Virginia, Washington, West Virginia, and Wyoming among others have set up task forces, working groups, and or commissions to study and implement nuclear energy policy. And the momentum continues to grow -- Last year was a historic year, with 20 states passing legislation to support nuclear energy adding to the 12 states from 2022. Last session Michigan and Minnesota both passed 100 percent clean energy standards that explicitly included nuclear.

Nuclear power is vital to the energy system

New advanced reactor designs are being developed by entrepreneurial U.S. companies seeking to expand the value of nuclear technology to our energy system. These designs will be commercially operational this decade and will be ready for large-scale deployment by the early 2030s to meet domestic and global clean energy needs. Enacting state policies that encourage the use of these new nuclear technologies is particularly timely, as the U.S. Energy Information Administration forecasts the retirement of 140 gigawatts of capacity by 2040 across the U.S. A key focus of the energy sector will be to replace this retired generation with sources that are clean, reliable and affordable.

In a recent study¹, Vibrant Clean Energy found that pairing nuclear with wind and solar is the most cost-effective means to decarbonize electricity generation. This lowest cost scenario projects nuclear energy could provide nearly 43% of all generation in 2050 with wind and solar producing almost 50%. A significant portion of the anticipated 300 GWe of advanced nuclear capacity that is needed could repurpose hundreds of retired fossil generation sites. A second scenario where solar and wind generate 77% of all generation in 2050 and the use of nuclear energy declines would result in over \$400 billion in higher costs to consumers.

Focusing only on the need for additional electricity in the U.S. in the upcoming decades would mistakenly overlook the likelihood of and the need for more energy in other sectors, such as transportation, industrial heat and hydrogen. Nuclear is the only clean, reliable and affordable energy source that can produce heat and steam that is needed for many of these processes.

Nuclear energy is poised to expand in the U.S.

NEI believes our nuclear energy future will include safe long-term operation of our existing nuclear power reactors through subsequent license renewals to allow operation out to eighty years or more.

The existing domestic nuclear fleet is a central part of our nation's critical infrastructure and should not be taken for granted. Policymakers in state capitals and Washington DC have taken action to preserve eighteen reactors that were at risk of closing prematurely, by valuing those reactors for their emissions-free generation. These actions have had the added benefit of preserving more than ten thousand family-wage jobs.

Most recently, the U.S. Congress passed two consequential pieces of legislation, the Bipartisan Infrastructure Law and Inflation Reduction Act, that explicitly recognize advanced nuclear as a critical solution to our energy problems and provide significant financial incentives for the

¹<https://www.vibrantcleanenergy.com/wp-content/uploads/2022/06/VCE-NEI-17June2022.pdf>

deployment of advanced reactors.² States are also taking action to pass policies to support advanced reactors, similar to the options identified in a recent NEI report.³

The United States, fueled by private capital and innovation, has recently experienced a surge in advanced reactor technologies with dozens of projects worth billions of dollars being announced over the past year. One thing is clear, states that have policies that support and encourage the deployment of advanced reactors, also have companies planning projects, which lead to future jobs and economic growth, in addition to reliable, clean and affordable energy.

Advanced reactors are an economic powerhouse

The electric utility sector in the United States is rapidly evolving. NEI believes it is in the best interest of the U.S. that nuclear power remains a significant and growing supply of clean energy as this evolution continues. Therefore, it is imperative that the commercial nuclear industry in the U.S. continue to rapidly innovate new products and designs so that these products are available when the market needs them.

According to a recent SMR Start report⁴, advanced reactors can be a cost competitive and highly valuable part of our future energy system. The report also outlines the tremendous benefits to jobs and the economy, stating:

“Construction and operation of a 600 megawatt SMR plant with multiple reactors is estimated to employ about 900 manufacturing and construction workers for about 4 years and about 300 permanent positions for the 60+ years the SMR operates.” The data shows that each permanent position creates a multiplier effect resulting in 1.66 additional jobs in the local community and 2.36 additional jobs in the rest of the state. Nuclear jobs pay 36 percent more than average salaries in the local area.

“Based upon experience with a 1,000 MWe nuclear facility, a 600 MWe SMR plant is expected to generate over \$500M in direct and indirect economic output annually. This includes over \$270M in the plant’s electricity sales and induced spending at the local, state and national levels of \$10M, \$48M, and \$236M, respectively. The SMR plant is expected to pay about \$10M in state and local taxes and \$40M in federal taxes annually.” The advanced reactor supply chain could also create thousands of jobs to support a domestic and international market.”

²<https://www.nei.org/CorporateSite/media/filefolder/advantages/Current-Policy-Tools-to-Support-New-Nuclear.pdf>

³https://www.nei.org/CorporateSite/media/filefolder/resources/reports-and-briefs/State-Policy-Options-to-Support-New-Nuclear-Energy_NEI.pdf

⁴<https://smrstart.org/wp-content/uploads/2021/03/SMR-Start-Economic-Analysis-2021-APPROVED-2021-03-22.pdf>

According to a recent NEI report⁵, micro-reactors can also be a cost competitive and highly valuable part of our future energy system. These micro-reactors are highly resilient and reliable, clean and environmentally friendly, simple and safe, and are capable of producing electricity and heat through flexible on-demand operations.

Likewise, other reports, such as the aforementioned SMR Start report⁴, similarly conclude that slightly larger advanced reactors can be a cost competitive and highly valuable part of our future energy system. The report also outlines the tremendous benefits to jobs and the economy that an advanced reactor can bring.

Conclusion

We appreciate and applaud Maryland's support for nuclear energy. With this continued support and the dedication of the industry, NEI is confident that the U.S. will regain its leadership role in advanced nuclear technology and generation.

SB0805 will facilitate the development and deployment of innovative nuclear reactor technologies in Maryland and across the nation.

Sincerely,

Christine Csizmadia
Senior Director, State Government Affairs & Advocacy
Nuclear Energy Institute
1201 F Street, Suite 1100
Washington, DC 20004
(202) 739-8000
cmc@nei.org

⁵<https://www.nei.org/CorporateSite/media/filefolder/resources/reports-and-briefs/Report-Cost-Competitiveness-of-Micro-Reactors-for-Remote-Markets.pdf>