

**Testimony for the Record**

Nuclear Energy Institute

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Pennsylvania House of Representatives

Consumer Affairs Committee

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Good morning. I would like to thank Chairman Roae, Chairman Matzie and the Consumer Affairs Committee for giving me the opportunity to speak today. I am Maria Korsnick, President of the Nuclear Energy Institute. I am proud to represent this industry and excited about the role nuclear power can play in Pennsylvania and nation. I have spent my entire career in the nuclear industry operating and managing these plants. I have lived in the communities that proudly support these plants. I know these plants are vital parts of their communities and the region's infrastructure. I applaud the Committee for your consideration of House Bill 11. This legislature has an opportunity to preserve these valuable assets for the benefit of these towns and the entire state.

Pennsylvania's nuclear plants are economic engines for their communities and the state. They provide baseload power that runs around the clock, every day, under all weather conditions, to provide reliable electricity to the state's homes and businesses. Their continued operation will keep electricity prices low. Pennsylvania is at risk of losing thousands of jobs and millions of dollars in economic support to the state if House Bill 11 is not passed.

Losing a nuclear plant can have devastating impacts on a surrounding community. When the Kewaunee Plant in Wisconsin closed in 2013, the host town of Carlton lost 70 percent of its operating budget. Following the closure of the Crystal River plant in Florida, Citrus County laid off 100 workers and raised property taxes by over 30 percent.

If these plants close, the downstream consequences of premature plant closures are dire and irrevocable. Electricity prices will rise. This is a consequence of how electricity prices are set in competitive wholesale markets such as the PJM market that covers Pennsylvania. After lining up all of the plants from lowest to highest bid, the market price is set by the most expensive plant needed to meet demand. If nuclear plants close, the replacement power will come from plants that were previously too expensive to be called. The Brattle Group estimates that this would cost Pennsylvania consumers an additional \$788 million in higher electricity bills. Mr. Chairman, I would ask to submit the Brattle Group report to the record. This is consistent with what we have seen in other parts of the country. California consumers in the state paid \$350 million more for their electricity after the San Onofre Nuclear Generating Station shut down. Estimates for losing

nuclear plants in Illinois, New York, New Jersey and Ohio show costs increasing by hundreds of millions of dollars for consumers in those states.

Maintaining nuclear as a major contributor to the nation's electric generation capacity enhances fuel diversity. This provides important economic benefits and protects the grid from becoming too dependent on any one fuel source. A diverse portfolio of fuels and technologies serves as a hedge against price volatility and supply disruptions, and is critical to resilience.

When nuclear plants close, their generation is immediately replaced by fossil-fuel plants that have excess capacity. When Vermont Yankee closed in 2014, its electricity was replaced by natural gas and as a result New England's emissions increased for the first time in over a decade. Pennsylvania's nuclear plants provide over 90 percent of the state's clean electricity. They do not emit air pollutants such as sulfur dioxide and nitrogen oxides, which lead to acid rain, smog, and asthma.

Reducing carbon emissions is a real challenge. Even as coal plants closed last year at a record pace, carbon emissions increased more than three percent, the second-largest increase in two decades. Against this backdrop, Governor Wolf has put forward a goal for Pennsylvania to reduce its carbon emissions 80 percent by 2050. He also put forward an interim goal to reduce emissions by 26 percent by 2025, relative to 2005. Pennsylvania has made a great deal of progress in reducing its emissions, but the Commonwealth will still need to reduce its emissions by another 9 million tons to reach this 2025 goal. Now consider what would happen if Beaver Valley and TMI were to close. That 9-million-ton reduction instead turns into the challenge of cutting 31 million tons in just 6 years.

Pennsylvania's nuclear plants, much like the U.S. nuclear fleet as a whole, continue to show strong performance. Nuclear plants operate more than 90 percent of the hours in the year, much more than any other generation technology. The nuclear industry invests over \$5 billion each year to ensure that the plants run efficiently, securely and safely and that they can do so for decades to come. As a manager of these plants, I oversaw how these investments support their long-term operation, and bolstered security as threats evolved. They went into preserving system backups that support safety and reliability, and major components that will maintain and improve plant performance.

This improvement is showing up in our costs. The nuclear industry has come together to share best practices and seek opportunities for lowering our costs without sacrificing safety or reliability. We call it Delivering the Nuclear Promise. We brought together hundreds of our experts from across our nuclear fleet to look for more efficient approaches to run and maintain our plants. To date, we have issued 68 separate bulletins that identify cost reduction opportunities for our members.

The ingenuity of our workforce and our persistent investment in new equipment and technology has led to notable cost savings. The average cost to generate a megawatt-hour of nuclear electricity was \$31.83 in 2018. This is a 25 percent decline from 2012 and our lowest cost in over a decade. These savings have been seen across our capital, fuel and operational cost categories.

The economic challenges facing nuclear plants say more about the flaws in the markets in which they operate than they do about the performance of the plants. These market challenges are being felt beyond Pennsylvania. Over the last six years, seven reactors have closed before the end of their useful life and eight more are slated to do so in the coming years, in addition to Three Mile Island and Beaver Valley. These closures are the result of markets that only price short-term costs without public policies in place that would broaden the scope of what is valuable to the electricity system. Nuclear plants in Pennsylvania are operating in these markets and are facing the same economic pressures. Unless the markets are reformed – or policies are enacted by governments – to value diversity, resilience and environmental protection, the market will not provide these attributes.

Pennsylvania needs to act before it is too late. Nuclear plants can't be mothballed and reopened at a later date. Once a nuclear plant closes, it is gone for good.

NEI and Management Information Services (MISI) looked into various types of support for energy technologies and found that, not surprisingly the federal government has provided incentives across the board. If we look back over almost 60 years of data, we see that about 65 percent of support has been directed to oil, gas and coal. Nuclear has received 8 percent of that total, mostly in the form of R&D funding. Over the past six years covered by the MISI report, 2011 through 2016, renewable energy received more than three times as much as other technologies.

Beyond the state level, others are seeking solutions but they take much longer. Regional market operators, state and federal regulators are all working to figure out how to ensure that markets are structured to produce the generation mix we need today and into the future. Energy Secretary Rick Perry has drawn attention to the issue that closing nuclear and coal plants will lead to increasing reliance on a natural gas pipeline system that may bear risks for energy security.

Last year, NEI sponsored a study to assess the role that PJM's nuclear fleet plays in maintaining a resilient electricity system. ICF modeled the impact that a significant natural gas disruption could have on the region's ability to provide power to all customers. The study found that in the face of widespread nuclear closures, the region could face over 200 hours in which customers in the eastern part of the region would not receive electricity. The study also found, however, that there was no expected loss of service when the nuclear fleet was retained.

Preserving nuclear generation helps to create a resilient power system. Late last year, PJM published a study that examined the ability of the grid to provide power under future scenarios. In the cases with significant nuclear and coal closures, they found that they could face shortages on very cold days, even without a pipeline issue, just from the competing need for natural gas to provide home heating.

The North American Electric Reliability Corporation, America's reliability watchdog organization, has said, "Reliable operation of the BPS (Bulk Power System) requires dependable capacity with fuel assurance to address consumer needs, impacts of extreme weather conditions, and sudden disturbances on the system" and policymakers should "consider the reliability and resilience attributes provided by coal and nuclear generation to ensure that the generation resource mix continues evolving in a manner that maintains a reliable and resilient BPS." Numerous reports and analyses, as well as common sense, demonstrate that fuel diversity within a region or market is important for the ability of the electric grid to withstand and recover from stresses caused by weather or man-made disruptions.

Getting this right is important for our country. An electricity system that is overly-reliant on a single fuel can leave us vulnerable to attacks or other disruptions. A robust nuclear fleet also allows the U.S. to maintain international leadership on nuclear issues. Allowing well-run nuclear plants to close doesn't help the communities that have grown up around them, it doesn't make electricity more affordable for consumers, it doesn't help Pennsylvania reduce its emissions, and it doesn't support our energy security and national security. This legislature has the opportunity to preserve these plants and I urge you to do so.

Thank you.