

## **Testimony of the Nuclear Energy Institute**

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Senate Consumer Protection and Professional Licensure and

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Joint Public Hearing on Grid Reliability and the Response to Winter Storm Elliott

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Good morning. I would like to thank Chairman Stefano, Chairman Yaw and Committee members for giving me the opportunity to speak today. I am Matt Crozat, Executive Director for Strategy and Policy Development at the Nuclear Energy Institute. I am proud to represent this industry and discuss the role of nuclear energy in maintaining a reliable energy system for Pennsylvania.

NEI is the trade association for the commercial nuclear technologies industry. NEI's mission is to promote the use and growth of nuclear energy through efficient operations and effective policy. NEI has hundreds of members, and its membership includes companies licensed to own or operate commercial nuclear power plants in the United States, as well as nuclear plant designers, major architectural and engineering firms, entities that process nuclear fuel, and other organizations involved in the nuclear industry.

Just as the residents of Pennsylvania, I also live in the PJM footprint. While I still haven't gotten used to naming winter storms, I was quite concerned about the state of the power system as we weathered brutally cold conditions brought on by Winter Storm Elliott. Given my peculiar view of the world, I was checking PJM's phone app to see just how stressed the system was before deciding to run the clothes dryer in the days before Christmas. We held off because the data made it clear that the grid was being pushed to its limits. In spite of the challenges, we did

not lose power. The performance of the nuclear plants in Pennsylvania and across PJM were a big part of the reason why.

We have since learned that part of the challenge that grid operators were facing was that many generators were unable to perform when called upon to meet rising power demand. Indeed, PJM has reported that over 23 percent of generating capacity was not available to meet the growing demand for power to provide heating and other needs. During this Elliott, Pennsylvania's eight nuclear reactors operated at their maximum capability throughout the event. Across the wider PJM area, the nuclear fleet operated at 96 percent of its potential. In a moment when the power system was being pushed to its limits, nuclear energy was a vital resource to maintain the reliability of the grid.

This was not unusual performance for nuclear plants under these conditions. During the Polar Vortex event in 2019, nuclear plants operated at 95 percent of their potential. In the 2014 Polar Vortex, nuclear again operated at a 95 percent rate. This track record is the reason that PJM assumes the nuclear plants will have the lowest outage rates of any technology when it does its capacity planning.

The reason for nuclear's unique ability to maintain reliable operations is in its different approach to fuel availability. Unlike natural gas or coal generation, nuclear plants do not need to be continually fed new fuel supplies to produce electricity. Nuclear plants are only refueled every 18 to 24 months. During these refuelings, the plants are shut down for a number of days to replace used fuel with fresh assemblies and perform any needed maintenance. These refuelings are scheduled for the spring or fall months, precisely because these are the times of year when the power system is not subject to the stresses of running air conditioners through the summer heat waves or keeping homes warm in winter storms. In those moments nuclear plants are ready because their fuel is already in the reactor.

It is also worth noting that these nuclear plants are providing this reliable, around-the-clock power without releasing carbon emissions. Nuclear energy's

combination of being able to provide electricity 24 hours a day, 7 days a week while also being a carbon-free source of generation has led to a broad reconsideration of the role nuclear energy could play as part of the future energy mix. Six or seven years ago we were working with state policymakers to ensure that these very power plants were not allowed to close prematurely in the face of low power prices. These efforts were largely successful, and the performance of those plants during Elliott was a testament to the wisdom of those policies, but some of those efforts were unsuccessful and plants such as Three Mile Island unit 2 were not available in this moment.

Now we increasingly see the operation nuclear plants as a foundation for a portfolio of technologies to address customer expectations for a lower carbon electric grid. These plants are a starting point with wind, solar, and other technologies – including new nuclear plant designs – to ensure the future power system is clean, affordable and reliable. State governments have been leading the policy development to help shape the direction of the power system of the future and nuclear energy's role in it. Minnesota, for example, recently enacted a clean electricity standard that will enable nuclear energy as part of reaching the state's goals. A number of other states are looking at similar approaches. Over 100 bills are being considered across the states that will impact the role of nuclear energy. This level of interest is a sign that the previously-held expectations of nuclear's future are being reevaluated.

These conversations that have been taking place in state capitals have made their way to Washington. Two major pieces of legislation have been signed into law that create pathways for nuclear energy to remain an important part of the evolving energy system. The Infrastructure Investment and Jobs Act and the Inflation Reduction Act each included tools to ensure that the nuclear plants operating today will be able to withstand short-term economic challenges and remain in operation. The laws help to bring advanced nuclear technologies to commercial readiness and provide the same tax incentives to encourage their deployment that wind and solar receive. These laws also help to chart a road for carbon-free technologies, including nuclear energy, to provide cleaner options for

industrial and other uses. These federal policies are building upon the work that state governments have been addressing in recent years.

The U.S. energy system is likely to look quite different in twenty years than it does today. It will include more low-carbon technologies and it will likely be a system in which more of the economy uses electricity. Events like Winter Storm Elliott are a stark reminder that this evolution will need to be predicated upon reliable operations. Pennsylvania's nuclear plants represent an important starting point for that transition.