

Testimony for the Record
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Good afternoon. I thank Chairman Wilson and the Senate Energy and Public Utilities 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 Ohio and the nation. I have spent over 30 years in the nuclear industry operating and managing these plants. I have lived in the communities that proudly support these plants. For three years I was the site vice president for the Ginna plant in upstate New York. Ginna is a single-unit plant located on a Great Lake – a lot like Davis-Besse and Perry here in Ohio. I know these plants are vital parts of their communities and the region’s infrastructure. This Senate has an opportunity to preserve these valuable assets for the benefit of these towns and the entire state.

Ohio’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. The Davis-Besse Nuclear Power Station in Oak Harbor and the Perry Nuclear Generating Station in North Perry combine to employ over 1,300 Ohioans. The plants generate over \$500 million each year in economic value to the state, concentrated in these communities. This economic activity supports almost 3,000 additional Ohio jobs.

Losing a nuclear plant can have devastating impacts on their communities. When the Kewaunee Plant closed in 2013, the host town of Carlton, Wisconsin, lost 70 percent of its operating budget. Following the closure of the Crystal River plant in Florida, Citrus County raised property taxes by over 30 percent. The tax revenue generated by Perry and Davis-Besse has been a vital source of funding for the local education systems. My children attended schools just like these.

Closing nuclear plants will create dramatic changes in the communities that support them and also the market for electricity. Unsurprisingly, those who stand to benefit from these changes are anxious to make the case that there is no reason for this legislature to act. Surprisingly, they have done so by making the argument that these plants are profitable and therefore not facing closure.

Let me start by making the fairly obvious observation that the company that owns Davis-Besse and Perry is currently in bankruptcy protection. Companies are not allowed to enter bankruptcy just because they feel like it; they have to demonstrate to a judge that they are unable to generate the revenues to cover their costs. FirstEnergy would not have entered bankruptcy if its plants were profitable. Furthermore, in case there is any mystery about which part of the business was financially stressed, it is only FirstEnergy Solutions that is still in bankruptcy – this is the subsidiary that operates plants in the wholesale electricity markets and owns the two nuclear plants.

The API report that tried to make the case that the state’s nuclear plants are not in peril actually provides a pretty good set of reasons to understand that they are facing imminent closure without action. The most obvious place to look is the capacity market. The API report figures that the plants will be in line to receive capacity payments worth \$128 per megawatt-day a few years from now. This would be worth around \$100 million per year across the two plants. In the most recent capacity auction, however, neither Davis-Besse nor Perry “cleared” even though the capacity price was \$171 per megawatt-day, meaning the plants would have needed to see capacity prices greater than that to remain in operation. If the plants were not able to make the economics work in the previous auction, it is difficult to understand how a capacity price that is 25 percent lower would solve the problem. A policy that values nuclear’s attributes can change this calculus.

The API report attempts to estimate the cost of operating Davis-Besse and Perry but this plant-level data is not publicly available. Specifically, the report identifies Davis-Besse as having lower costs and higher net revenues than the Perry plant. To reach this conclusion, the author is forced to draw from modeling assumptions used by federal agencies, notably the Energy Information Administration (EIA) of the Department of Energy. The EIA report describes methodology it uses to project the U.S. electricity sector costs. EIA explains that its assumptions of nuclear operation costs were updated in response to a detailed report by the Idaho National Laboratory (INL).¹ This same INL report estimates Davis-Besse to be cash-flow negative across the full range of examined operating costs.²

We also have a very straight-forward comparison to check whether there is reason to believe Davis-Besse might be under economic stress. Davis-Besse is a single-unit, pressurized water reactor with fewer than 900 megawatts of capacity that began operation in the mid-1970s. One

¹ “EIA compared the INL data with the average unit cost data previously used in the EMM for these plant types and found that for multiple-unit plants the EIA data were close to the reported INL costs. However, for the single-unit plants, the costs were substantially lower than the INL estimates, particularly for small single-unit nuclear plants. The input nuclear O&M cost assumptions were updated to be consistent with the INL costs, and additional endogenous nuclear unit retirements are projected for AEO2018 Reference case beyond the announced nuclear unit retirements and derates mentioned above.”

<https://www.eia.gov/outlooks/archive/aeo18/assumptions/pdf/electricity.pdf>, page 13.

² <https://gain.inl.gov/Shared%20Documents/Economics-Nuclear-Fleet.pdf>, pages 26-28.

state over, there is a single-unit, pressurized water reactor with fewer than 900 megawatts of capacity that began operation in the mid-1970s. Both operate in the PJM market. Three Mile Island will cease operations in September because it is not economical to continue. Indeed, an API report on nuclear plants in Pennsylvania concluded that Three Mile Island would not be profitable. Although there is no reason to believe that the economics of Davis-Besse would be notably different than those of Three Mile Island, the Ohio legislature has the opportunity to ensure that Davis-Besse does not share the same fate.

One final point about this API report: The author asserts that these plants will not close, implying that warnings from the company are false alarms as part of a game to play politics. No nuclear plant operator would think this way. Making this kind of an announcement will have an inevitable toll on the morale of the workforce. Our employees have worked to develop highly-specialized expertise that has enabled them to establish careers running these plants. The threat of closure is stressful for them and may force them to begin to look for other positions, making it incredibly difficult to maintain our workforce. This is not something we would undermine to game a political process.

If these plants close, the downstream consequences of premature plant closures are dire and irrevocable. First, electricity prices rise. This is a consequence of how electricity prices are set in competitive wholesale markets such as the PJM market that covers Ohio. 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.

PJM just released its own analysis that shows keeping Davis-Besse and Perry will reduce the electricity costs to Ohio consumers by \$95 million per year.³ If neighboring Beaver Valley is also preserved, then the savings to Ohio customers grows to \$155 million annually. The Brattle Group made some different assumptions about which fossil fuel plants may be opened or closed, and its estimates show that losing Davis-Besse and Perry would cost Ohio consumers an additional \$177 million in higher electricity bills. These estimates are 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 Pennsylvania show costs increasing by hundreds of millions of dollars for consumers in those states.

Second, when nuclear plants close, their generation is immediately replaced by fossil fuel plants that have excess capacity. When Vermont Yankee was closed in 2014, its electricity was replaced by natural gas and, as a result, New England's emissions increased for the first time in

³ <https://www.pjm.com/~media/library/reports-notice/special-reports/20190605-pjm-response-to-ppuc-ohio-consumers-requests-to-analyze-certain-impacts-of-nuclear-power-plant-retirements.ashx>

over a decade. Ohio'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 that lead to acid rain, smog, and asthma. PJM's analysis found that preserving the state's nuclear plants would lower Ohio's carbon emissions by 2.3 million tons per year. It would also reduce sulfur dioxide emissions by 26,000 tons and nitrogen oxide emissions by 17,000 tons annually.

Replacing Ohio's nuclear plants with other non-emitting generation would be prohibitively expensive. Producing the same amount of electricity with wind turbines would require around 6,200 megawatts of new wind capacity which would cost more than \$11 billion to build. Doing so with utility-scale solar power would require around 12,800 megawatts of new solar capacity, which would cost more than \$34 billion to construct.

Increasing unease about carbon emissions has led environmental groups to rethink how they look at nuclear energy. The Union of Concerned Scientists, which hasn't always been so sympathetic to nuclear, now agrees that keeping today's nuclear reactors running is vital to the emissions fight.

The Intergovernmental Panel on Climate Change, which is the world expert on the topic, identified nuclear as one of the technologies necessary to hold warming to 1.5 degrees C. The Nature Conservancy, which is the world's largest environmental organization, has explored the role of nuclear in creating a sustainable energy future.

Ohio'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 as a whole invests billions each year with a long-term perspective to ensure that the plants run efficiently and securely. I oversaw the investments we made into the Ginna plant when I was its Site Vice President. That plant was originally operational in 1969, but with all of the components that have been replaced over the years, it looks like it is a teenager.

These improvements are showing up in our costs. The nuclear industry has come together to share best practices and seek opportunities for improving our efficiency without sacrificing safety or reliability. We call it 'Delivering the Nuclear Promise.' Our investment in new equipment combined with the ingenuity of our workforce 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. 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 Ohio. Over the last seven years, eight reactors have closed before the end of their useful lives and nine more are slated do so in the coming years, in addition to Perry and Davis-Besse. Two of these closures stemmed from mechanical failures, but the rest 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 Ohio 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 or environmental protection, the market will not provide these attributes.

We have seen state governments provide leadership. New York, Illinois, Connecticut, and New Jersey have put policies in place to value important attributes provided by nuclear generators that were not being recognized by the market. Because of their actions, 12 nuclear plants that were facing early closure will instead operate for at least another decade. These policies will preserve nuclear generation as the largest source of clean electricity in those states and the thousands of jobs of those who support their operation.

Beyond the state level, others are seeking solutions but they will take much longer to implement. 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. U.S. Secretary of Energy 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. The challenges are being recognized and analyzed in Washington, but it is the states that have shown the ability to lead on this issue.

Getting this right is important for our country. An electricity system that is overly-reliant upon a single fuel can leave us vulnerable to attacks or other disruptions. A robust nuclear fleet 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 provide jobs for Ohioans, and it doesn't support our energy and national security. Ohio has the opportunity to preserve these plants and I strongly encourage you to do so.

Thank you.

