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In Support of Senate Bill No. 882
An Act Concerning Climate Change Mitigation and Home Energy Affordability

In Support of Senate Bill No. 952
An Act Concerning Certain Solar Energy Projects

Chairmen Needleman and Arconti, Ranking Members Formica and Ferraro, and distinguished members of the Energy and Technology Committee,

Dominion Energy Nuclear Connecticut, Inc. ("Dominion Energy") appreciates the opportunity to submit written testimony in support of Senate Bill No. 882, *An Act Concerning Climate Change Mitigation and Home Energy Affordability*, and Senate Bill No. 952, *An Act Concerning Certain Solar Energy Projects*.

Dominion Energy is owner and operator of Millstone Nuclear Power Station ("Millstone") in Waterford, Connecticut. With 2,100 megawatts ("MW") of installed generating capacity, Millstone is one of the largest generating stations in New England and the largest source of carbon-free electricity in the region. Millstone's two nuclear units, licensed to operate through 2035 and 2045, produce approximately 16 to 17 million megawatt-hours of carbon-free energy each year, representing more than half of the electricity consumed in Connecticut on an annual basis and more than 90% of the state's carbon-free power. Their continued operation prevents more than four million tons of carbon dioxide from being released into the atmosphere each year.

By extending the life of Millstone's two nuclear units, partnering with sources of renewable generation, and exploring the potential for other clean energy technologies, like storage, Dominion Energy sees Millstone as not only continuing but expanding its role as the clean energy hub of Connecticut and New England.

SB 882, *An Act Concerning Climate Change Mitigation and Home Energy Affordability*

Dominion Energy supports Senate Bill 882, specifically its provision codifying Governor Lamont's goal to achieve a 100% zero-carbon electric sector by 2040. Governor Lamont's Executive Order No. 3, issued in September 2019, tasked the Connecticut Department of Energy and Environmental Protection ("DEEP" or "the Department") with evaluating strategies and analyzing pathways to achieve a 100% zero-carbon electric sector by 2040 through its Integrated

Resources Plan ("IRP"). DEEP released its 2020 Draft IRP in December 2020, including its analysis of pathways to achieve a 100% zero-carbon electric sector by 2040.

The Department's draft report underscores the progress Connecticut has already made towards decarbonizing its electricity supplies, particularly through preservation of Millstone.[1] The draft report also makes clear that continued operation of Millstone through 2040 allows Connecticut to achieve its 100% zero-carbon electric sector goal in the most cost-effective way possible, saving Connecticut ratepayers $5 billion compared to other zero-carbon pathways.

In comments filed with the Department last month, Dominion Energy highlighted several other key findings from the analysis.

Key Findings from Connecticut's 2020 IRP Pathways Analysis
The pathways analysis included in the 2020 IRP models four different scenarios to evaluate the potential costs, fossil fuel retirements, and new resources needed to meet Connecticut's 100% zero-carbon electric sector goal while maintaining system reliability. The analysis also models a "business-as-usual" reference scenario, which assumes a continuation of existing energy policies (whereupon the state does *not* achieve its 100% zero-carbon electric sector goal by 2040).[2]

One of the four scenarios modeled to meet the state's 100% zero-carbon electric sector goal is a Millstone Extension scenario, which assumes the current power purchase agreements between Dominion Energy and Connecticut's investor-owned utilities are extended through 2040. All other scenarios assume that Millstone retires at the end of the current contracts in 2029. With regard to the Millstone Extension scenario, DEEP notes that –

> A 2018 appraisal of nuclear power-generating facilities' financial circumstances found that Millstone was at risk of early retirement based on the generator's disclosed financial statements and insufficient expected market revenues. In order to retain Millstone's efficient and reliable zero carbon energy, Connecticut has entered into a contract through 2029. For these reasons, the modeling assumes that Millstone will continue to be at-risk at the end of its contract and will retire in all scenarios except the Millstone Extension.[3]

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[1] After a competitive procurement process for zero-carbon resources, Dominion Energy executed long-term power purchase agreements with the state's investor-owned utilities for nine million megawatt-hours of carbon-free electricity from Millstone each year for a ten-year period. Delivery under the contracts commenced in October 2019.

Millstone's carbon-free energy and 100% of the plant's environmental attributes are locked in at a low, fixed-price of 4.999 cents per kilowatt-hour. This procurement continues to be one of the lowest cost grid-scale resources procured by Connecticut to date. See 2020 Draft IRP, Appendix 6 – Procurement Selections and Pricing, https://portal.ct.gov/-/media/DEEP/energy/IRP/2020-IRP/Appendix-A6--Procurement-Selections-and-Pricing.pdf.

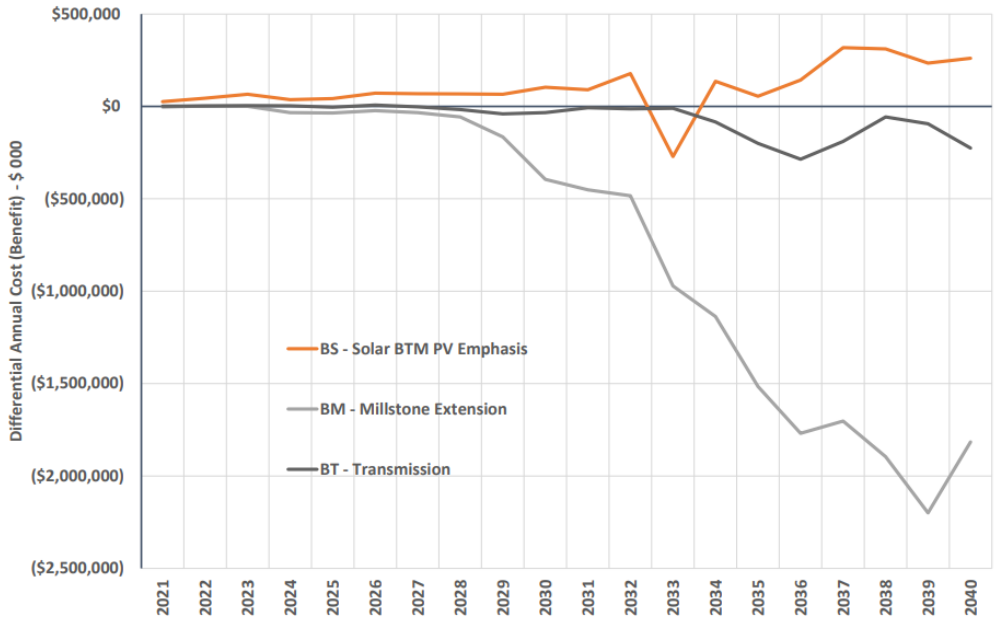
[2] All scenarios are evaluated against two different load cases—under the "base" load case, electricity consumption continues on the existing trajectory based on current energy policies; under the "electrification" load case, the deployment of electric vehicles and heat pumps triples by 2040, increasing electricity consumption by 18,800 gigawatt-hours in 2040 relative to the base load case.

[3] 2020 Draft IRP, page 23.

Dominion Energy is pleased the Department has analyzed a pathway where Millstone continues to operate beyond its current contracts, extending the economic, reliability, and emissions benefits of the station. The Millstone Extension scenario demonstrates that if Millstone continues to operate through 2040, it will (1) reduce the total cost of meeting the state's 100% zero-carbon electric sector goal by offsetting the need for new incremental carbon-free resources, (2) allow Connecticut to meet its emission reduction targets in all of the modeled years through its continued generation of zero-carbon electricity, and (3) enable more fossil fuel retirements throughout the region compared to other scenarios.[4]

Most important, the Millstone Extension scenario reveals $5 billion in total ratepayer savings compared to other zero-carbon pathways—mainly because it reduces the need to procure new, more-expensive, carbon-free resources to achieve the state's 100% zero-carbon electric sector goal.[5] According to Appendix 4 of the draft report, the Millstone Extension scenario "shows substantial economic benefits attributable to the avoidance of more expensive zero carbon resources." These benefits are illustrated in Figure 21 of Appendix 4, which compares annual ratepayer costs across the three policy scenarios relative to the Balanced Blend scenario, which assumes Millstone retires at the end of its current contracts in 2029. Similar economic benefits are illustrated in Figure 24 for the electrification load case.[6]

Figure 21. Annual Ratepayer Cost Comparison - Base Load Case



In addition, the Millstone Extension scenario enables more than 8,000 MW of fossil fuel retirements across the region by 2040. Under the Millstone Extension scenario's electrification load case, this number is closer to 9,000 MW. According to the draft report –

[4] 2020 Draft IRP, page 29.

[5] 2020 Draft IRP, page 44.

[6] 2020 Draft IRP, Appendix 4 – Financial Analysis Results, https://portal.ct.gov/-/media/DEEP/energy/IRP/2020-IRP/Appendix-A4--Financial-Analysis-Results.pdf.

> This is because even under an increased regional energy load, the consistent availability of reliable nuclear energy reduces the overall amount of resource additions needed to meet capacity requirements, and reduces the amount of "fast-ramping" (usually fossil fuel-powered) resources needed to be retained for peak demand periods in order to balance the clean energy resource additions.[7]

It is worth noting that preservation of in-state nuclear power reduces but does not eliminate the need and opportunity for Connecticut to procure new carbon-free resources. Under the Millstone Extension scenario, Connecticut still needs to procure approximately 5,000 – 7,000 MW of additional zero-carbon resources by 2040 to achieve its 100% zero-carbon electric sector goal. As Dominion Energy has stated in previous comments, the resources needed to achieve Connecticut's electric sector goal and other state decarbonization goals will require the addition and retention of significant quantities of zero-carbon resources across the region. This includes wind, solar, nuclear, hydropower, and others. There is an important role to play and a unique set of benefits associated with all of these resources.

Preservation of in-state nuclear power does, however, reduce the total cost associated with achieving the state's 100% zero-carbon electric sector goal, which is of utmost importance for Connecticut ratepayers. The Millstone Extension scenario is a worthy pathway for policymakers to consider—one that still leaves room for significant renewables development but that puts Connecticut ratepayers first.

Conclusion
Dominion Energy supports Senate Bill 882 and codification of Governor Lamont's goal to achieve a zero-carbon grid by 2040. As the draft IRP makes clear, achieving Connecticut's 100% zero-carbon electric sector goal by 2040 is feasible, and continued operation of Millstone can help the state reach that goal in the most cost-effective way possible.

SB 952*, An Act Concerning Certain Solar Energy Projects*

Dominion Energy supports Senate Bill 952 calling for the deployment of 1,000 MW of energy storage by 2030. A robust energy storage program can help facilitate several state policy goals, including increased resilience and reliability, as well as reduced greenhouse gas emissions in furtherance of a zero-carbon electric sector, particularly when energy storage systems are paired with carbon-free resources like nuclear, wind, and solar.

Dominion Energy's Net-Zero Goal
Much like Connecticut, Dominion Energy has committed to achieving net-zero carbon dioxide and methane emissions from its electric and gas operations by 2050. The company has made notable progress to date – a 57 percent reduction in carbon emissions since 2005 and a 25 percent reduction in methane emissions since 2010.

Dominion Energy is employing a number of strategies to achieve its net-zero goal. Chief among them is significant investment in renewable energy, like wind and solar. Dominion Energy is developing a 2,600 MW offshore wind farm 27 miles off the coast of Virginia Beach, the first

[7] 2020 Draft IRP, page 45.

utility owned offshore wind farm in the country. To ensure compliance with federal law and protect against project delays, Dominion Energy is leading a consortium of industry participants in the construction of the nation's first Jones Act-compliant offshore wind turbine installation vessel. The vessel is expected to be available to support offshore wind turbine installations by the end of 2023, in time for many of the projects planned for New England.

With regard to other strategies, Dominion Energy is working to extend the operating licenses of its carbon-free nuclear facilities, a process that has already begun for nuclear power stations in Virginia. In addition, Dominion Energy is working to achieve net-zero methane emissions from its natural gas operations by expanding leak detection and repair programs, replacing targeted infrastructure with new lower-emission equipment, and investing in renewable natural gas projects to capture methane from hog and dairy farms and convert it into clean, renewable energy to heat homes, power local businesses, and fuel transportation fleets.

Further, Dominion Energy is exploring new and emerging technologies, like battery storage and small modular reactors, as well as collaborative efforts to help reduce greenhouse gas emissions from other sectors of the economy. In December, Dominion Energy announced a new partnership with the Connecticut Green Bank and electric vehicle (EV) pioneers Volta, Blink Charging, Proterra, and EvStructure, among others, to help accelerate the deployment of EV charging infrastructure across the country. Expanding EV charging infrastructure will get more EVs on the road and help reduce emissions from the transportation sector, which has become the largest source of greenhouse gas emissions in the United States.

Conclusion

By expanding the deployment of energy storage, Connecticut reinforces its leadership role in building a clean and sustainable energy future. Dominion Energy is committed to helping the state achieve its ambitious carbon-reduction goals and stands ready to partner on clean energy solutions. With its abundant supply of carbon-free power, Millstone is already the clean energy hub of Connecticut and New England, but it can be more. It can be an installation site for solar and storage, an interconnection location for offshore wind, and, perhaps one day, an opportunity to invest in small modular reactors or the production of hydrogen.

Pairing battery storage with carbon-free resources like nuclear, wind, and solar will not only improve the resilience of our energy system but it will get us one step closer to our shared clean energy goals. We commend the state for its continued pursuit of a cleaner, more reliable, and more affordable energy system.