October 28, 2022

VIA EMAIL
New England States Transmission Initiative
Request for Information to Integrate Clean Energy Resources
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I. Introduction

Ørsted Wind Power North America LLC ("Ørsted") respectfully submits the following comments in response to the Request for Information ("RFI") issued by the states of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island (hereafter collectively referred to a "New England States" or "States") seeking comment on the upgrades needed to the regional electric transmission system to integrate renewable resources, including offshore wind.[1] Ørsted appreciates the opportunity to comment and shares the joint initiative's goal of facilitating the energy transition in a cost-effective, reliable, and efficient manner.

Ørsted, either directly or through its affiliates, develops, constructs, owns, and operates offshore and onshore wind resources, solar farms, battery storage and offshore transmission facilities. Ørsted is among the world's largest renewable energy companies and is the global leader in establishing utility-scale energy projects at sea, including developing more than 28 offshore wind farms and 17 offshore transmission systems. This portfolio includes the world's first offshore wind farm (Vindeby, 1991); America's first offshore wind farm (Block Island); and the world's largest (Hornsea 2). Ørsted's current installed offshore wind capacity is 7.6GW with another 2.3GW under construction. Ørsted has been awarded about 5GW of offshore wind capacity on the east coast of the United States including Revolution Wind (724MW) which will supply clean power to customers in Rhode Island and Connecticut from 2025 onwards.

To support and integrate this extensive portfolio of offshore generation, Ørsted has designed and built associated transmission assets including on- and offshore substations and converter stations. We have also designed, permitted, and constructed over 1,000 miles of subsea export cables; and more than 1,700 miles of subsea array cables. Ørsted has more experience designing and installing offshore wind transmission facilities than any other company in the world. This experience extends to the U.S. where Ørsted and its partner PSEG were one of the bidders into the New Jersey State Agreement Approach with the Coastal Wind Link[2] shared transmission proposal.

The questions posed in the RFI raise important issues regarding how the New England States should proactively plan transmission to achieve the regional energy transition goals. Orsted applauds the New England States for taking a coordinated approach to evaluating and planning for the significant amount of transmission investment that will be required for the region to achieve

[1] Regional Transmission Initiative, Notice of Request for Information and Scoping Meeting (September 1, 2022)
[2] Ørsted and PSEG's Coastal Wind Link project proposal for New Jersey can be found at coastalwindlink.com

its energy and climate goals. A coordinated transmission planning process that includes the pricing of externalities (including but not limited to economic development and fuel emission savings) and which culminates in the competitive solicitation of transmission solutions that best serve regional ratepayers while facilitating a transition towards a reliable low-carbon grid will best serve the New England States.

To that end, Ørsted recommends that the New England States consider the following principles as they work to study, design, and solicit transmission solutions that include offshore scope:

- Effectively integrating large volumes of offshore wind is critical to achieving state climate and clean energy targets in New England, increasing grid resiliency and energy security, and providing a hedge against fossil fuel volatility
- Land use and onshore siting are two of New England's key challenges in achieving ambitious energy goals, including for the development of new transmission[3].
- Offshore transmission solutions can solve land use and siting constraints while integrating new large renewable projects (including Offshore Wind)
- There is significant federal funding available, and the New England States have the potential to unlock funding by issuing an ambitious request for proposal ("RFP") that reiterates the need for coordinated holistic future-proofed grid design
- The States should be engaged in the planning process and use available DOE funds to support this state involvement
- The planning process should be structured to avoid disruption and delays to the development timelines of approved and proposed near-term offshore wind projects. Significant delays to currently approved projects could create reliability concerns, disrupt greenhouse gas emissions reductions goals, and increase costs to ratepayers.
- The States should utilize a competitive process to solicit transmission proposals in order to review, compare and select from a broad array of industry-originated solutions and to drive cost efficiencies
- Costs of any solicited transmission projects should be allocated broadly to all beneficiaries within the region. ISO-NE should be encouraged to develop and file a cost allocation method with FERC.

[3] Massachusetts Zero Carbon Roadmap. https://www.mass.gov/info-details/ma-decarbonization-roadmap#final-reports-

II. Comments on Changes and Upgrades to the Regional Electric Transmission System Needed to Integrate Renewable Energy Resources:

1. Comment on how individual states, Participating States, or the region can best position themselves to access U.S. DOE funding or other DOE project participation options relating to transmission, including but not limited to funding, financing, technical support, and other opportunities available through the federal Infrastructure and Investment Jobs Act.

The New England States should create a coordinated transmission plan that is tailored to meet the needs of the region and fulfills NERC requirements. The States should work quickly to develop this plan, vet projects, and produce a priority list of projects. With the passage of the Infrastructure Investment and Jobs Act of 2021 ("IIJA") and the Inflation Reduction Act of 2022 ("IRA"), there are significant opportunities for individual states, participating states, or the region to access funding for the planning and development of these projects.

It will also be important to have states and regional planners (in this case ISO-NE) unified in support of the proposal submitted to the Department of Energy (DOE) for funding. The more the New England States, and other stakeholders such as labor unions and environmental groups can coordinate, reach agreements, and frame their proposals as coordinated regional approaches, the better positioned the region will be when seeking federal funding.

Decarbonizing the New England grid will be challenging under the current regional and state transmission policy regimes. For example, resource adequacy concerns related to winter peaking and gas import capacity will only grow as state decarbonization targets grow more stringent. Given these challenges, the New England States have clear arguments to support requests for federal funding related to energy security, resiliency, and regional integration of renewables.

In Appendix A, Ørsted has provided a detailed list of which programs in the IIJA and the IRA that the New England States may be most applicable and suggested arguments.

2. Comment on ways to minimize adverse impacts to ratepayers including, but not limited to, risk sharing, ownership and/or contracting structures including cost caps, modular designs, cost sharing, etc.

Ørsted believes that proactively planning the integration of the region's renewable needs and then soliciting proposals via a competitive process is the best way of ensuring ratepayer interests are protected.

Transparent and competitive processes that are evaluated according to a comprehensive cost/benefit basis and contain the opportunity for developers to propose cost containment provisions are the best way to generate ratepayer value. In addition, Orsted believes that any evaluation criteria should also account for externalities including, but not limited to, economic development and emission savings.

FERC Order 1000 was introduced to create more competition in transmission development and we encourage the New England States and ISO-NE to explore competitive processes and work with stakeholders to define evaluation criteria that can enable the effective comparison of a wide array of potential solutions.

3. Identify the advantages and disadvantages of utilizing different types of transmission lines, like alternating current (AC) and direct current (DC) options for transmission lines and transmission solutions. Should 1200MW/525kV HVDC lines be a preferred standard in any potential procurement involving offshore transmission lines?

The question of preferred standard is dependent on factors including distance, costs, and the operational requirements of the regional power market. Generally, a 525kV system should be in a bipolar configuration (where the system consists of two links where one conductor is positive and the other is negative), and generally does not make economic sense at shorter routes due to cable and converter costs. This is particularly relevant when considering a 1200MW system configuration. If 1200MW remains the single largest infeed limit within New England, then 320kV would be recommended, as 320kV is the most cost-effective configuration on a system with a 1200MW infeed limit.

HVDC lines should continue to be used as they have several advantages over HVAC options. The current maximum voltage for an HVDC line is higher than HVAC and it does not have power loss issues due to harmonics and can therefore be used over much greater distances. HVDC lines also require less cable to be laid, reducing environmental impact, and HVDC converter stations can provide ancillary grid services, which are discussed further in Response Five.

4. Comment on whether certain projects should be prioritized and why. For example, should a HVDC offshore project that eliminates the need for major land-based upgrades be prioritized over another HVDC offshore project that does not eliminate such upgrades?

Project prioritization should be based around a holistic cost-benefit analysis that selects for the types of characteristics that policy makers and other evaluators determine to be most beneficial for ratepayers and the New England energy system. Ørsted recommends that evaluation is conducted according to an approach that selects for total net benefits rather than a traditional cost-benefit ratio—as this will lead to a more comprehensive set of benefits accrued to the region. For example, a small line might have a high benefit-cost ratio but only have small net benefits compared to an optimally sized line. The analysis should be neutral with respect to onshore versus offshore investment. However, permitting and siting risks should be considered very seriously and any evaluation criteria should also focus on site control or demonstration of a viable path towards site control.

Offshore transmission alternatives may provide cost savings by eliminating or delaying onshore upgrades. According to ISO-NE studies, 5,800 MW of offshore wind can be integrated without major upgrades to the land-based 345 kV system, but above 5,800 MW major upgrades will be needed.[4] Planners should be cognizant of this "limit" when selecting projects—as it may prove efficient in the long-run to select projects that will reduce the eventual burden of major upgrades. To do this, planners could incorporate a sensitivity analysis which includes time to construct facilities under and above the 5,800 MW threshold. This would help to appropriately identify the impacted systems within the ISO-NE states and may help to better understand the impacts of potential neighboring systems (i.e. NYISO) on the region and facilitate quantification of those impacts. Additionally, BOEM's estimation of potential offshore wind capacity in lease areas can be conservative so allowing for a full build out of offshore wind capacity in current and future lease areas developments in any transmission analysis could help bring further benefits to the region.

5. Identify any regional or interregional benefits or challenges presented by the possibility of using HVDC lines to assist in transmission system restoration following a load shedding or other emergency event and particularly from using the black start capabilities of HVDC lines in the event of a blackout.

HVDC technology has the potential to provide the New England grid with considerable benefits. HVDC converters that are built utilizing Voltage Source Converter (VSC) technology can offer a range of grid services including dynamic voltage control, reversal of active power, independent control of active and reactive power, grid forming capability, and black-start capability and other grid services.

6. Identify the benefits and/or challenges presented by using land based HVDC lines or other infrastructure to increase the integration of renewable energy (other than offshore wind) in New England to balance injections of offshore wind.

Land based HVDC overhead lines ("OHL") can carry more power than underground insulated cables, however OHLs create considerable permitting and siting barrier which needs to be balanced with the cost-benefit.

Additional HVDC and/or HVAC infrastructure would benefit New England by increasing the flexibility of the New England grid to balance injections of large renewables (such as offshore wind) and to move power within the region and potentially between regions. Similarly, solar PV

[4] ISO-NE, *2019 Economic Study Offshore Wind Transmission Interconnection Analysis* 3 (2020), https://www.iso-ne.com/static-assets/documents/2020/06/a4_2019_economic_study_offshore_wind_transmission_interconnection_analysis.pdf.

and onshore wind offer diverse output patterns that can balance offshore wind production profiles. The addition of new transmission infrastructure (onshore and/or offshore) will be a critical factor in increasing the integration of renewable energy in New England in a reliable and resilient manner.

However, there are planning, permitting, and financing challenges faced by land-based HVDC infrastructure that need to be considered. HVDC lines cover long distances and are typically only connected to the integrated HVAC network at the two endpoints. There are permitting and siting challenges as it can be difficult to gain support for permitting and cost allocation if lines pass through a community or state, without a local injection of power. Another issue for HVDC lines is the significant space HVDC converters occupy. Footprints can be roughly 3,000 square feet, or about the size of a city block, which could be a challenge in more densely populated load centers. HVDC lines are still preferable as they allow for longer distance delivery with lower losses than HVAC. HVDC also has controllable power flows, which HVAC does not. For further discussion on benefits of HVDC lines see responses three and five.

7. Comment on the region's ability to use offshore HVDC transmission lines to facilitate interregional transmission in the future.

HVDC lines can be built over greater distances than HVAC lines, allowing for potential interregional offshore wind networks to be connected between ISO-NE, NYISO, and PJM, which could provide valuable system benefits.

HVDC technology is an enabler for interregional transmission solving two fundamental challenges, power flow controllability and efficiency over long distances. There are many examples of point-to-point HVDC transmission that has been deployed for interregional purposes, however a multiterminal HVDC project does bring higher levels of complexity, with several examples in Europe (e.g. EurAsia Interconnector).

8. Comment on any just-transition, environmental justice, equity, and workforce development considerations or opportunities presented by the transmission system buildout and how these policy priorities are centered in decisions to develop future infrastructure.

Reducing emissions from the power sector as quickly as possible is an issue of equity, public health, climate, and environmental justice. There are many such examples of how fossil fuel power plants, and their associated emissions impact the communities that they are sited in. The peaking fossil fuel plants that cities rely on to meet demand are disproportionately sited in low-income communities and communities of color. As a result, those communities are also disproportionately

impacted by the particulate matter, sulfur dioxide, nitrogen oxide and other harmful emissions.[5] Improving localized air quality has immediate benefits. In just ten years, significant reductions in carbon emissions could drive cuts in other air pollutants large enough to reduce premature deaths nationally by over 40 percent from the current 250,000 annual deaths.[6]

Land use and reliability are two of the biggest barriers to decarbonizing the fuel mix in New England. If planned appropriately, transmission projects could deliver clean power directly to load centers, such as Boston. Greater integration of offshore wind and other power flows directly into load centers like Boston could significantly reduce the need for in-region peaker plants, which would have an outsized impact on environmental justice communities.

Ørsted encourages the New England States to consider the benefits of including environmental justice criteria in any study of regional transmission options and in any future competitive solicitation for transmission proposals.

9. Comment on how to develop transmission solutions that maximize the reliability and economic benefits of regional clean energy resources.

Ørsted believes that the best way to develop transmission solutions that integrate regional clean energy and maximize for reliability and economic benefits is through transparent RFP's which seek solutions to current and future problems.

New England's starting point in any RFP should be to ask industry for proposals. Those proposals should be evaluated in a way that maximizes reliability, economic benefits, supply chain and technical feasibility, and ability to integrate regional clean energy at demand centers.

By not being overly prescriptive in the type of project or technology, New England is more likely to solicit a wider range of options to choose from.

[5] Maninder P. S. Thind, Christopher W. Tessum, Inês L. Azevedo, and Julian D. Marshall, *Fine Particulate Air Pollution from Electricity Generation in the US: Health Impacts by Race, Income, and Geography*, Environmental Science & Technology 53 (23) (2019), 14010-14019, DOI: 10.1021/acs.est.9b02527.

[6] David Roberts, *Air pollution is much worse than we thought* (2020), https://www.vox.com/energy-and-environment/2020/8/12/21361498/climate-change-air-pollution-us-india-china-deaths.

10. Identify potential Points of Interconnection (POIs) in the ISO-NE control area for renewable energy resources, including offshore wind. What are the benefits and weaknesses associated with each identified POI? To the extent your comments rely on any published ISO-NE study, please cite accordingly.

Without optimization of the existing POIs much of the offshore wind potential of the region will not be realized. There has already been extensive documentation and evaluation of POIs along the New England coast. Both ISO-NE and the National Renewable Energy Laboratory ("NREL"), in their recent technical conference presentation, have shown that if there is a project-by-project generator lead line approach, the existing POIs will quickly be utilized, and expensive onshore transmission upgrades will be required much sooner.[7]

11. Similarly, comment on whether there are benefits to integrating offshore wind deeper into the region's transmission system rather than simply interconnecting at the nearest landfall (*e.g.*, using rivers to run HVDC lines further into the interior of New England). If there are enough benefits to make this approach feasible, please comment on any obstacles, barriers, or issues that Participating States should be aware of regarding such an approach.

To effectively implement a comprehensive planned transmission strategy for the region, offshore and onshore transmission planning should be coordinated. This coordination is necessary to ensure full integration of offshore wind and to secure the best value for New England ratepayers. Currently, New England States do not have the transmission capacity needed to connect load centers with high renewable potential areas. There is a transmission deficit and there is an excellent opportunity to expand the transmission system while also interconnecting high-capacity-factor sources of zero-carbon electricity.

Specific decisions on where to interconnect should depend on a holistic benefit-cost analysis of the life of the project that fully incorporates all grid benefits for each project. When considering integrating offshore wind geographically deeper into New England's transmission system there are some disadvantages, particularly to running transmission lines up rivers. Longer transmission lines add significant capital costs. Additionally, rivers often have increased commercial and

[7] ISO-NE, *2019 Economic Study: Offshore Wind Integration (2020)* https://www.iso-ne.com/static-assets/documents/2020/06/2019_nescoe_economic_study_final.docx; Brinkman, G., *Atlantic Offshore Wind Transmission Study and the Value of Planning*, NREL 8-12 *(2022)*, https://newenglandenergyvision.files.wordpress.com/2022/10/doe1_tech-mtg-slides.pdf.

recreational traffic which increases the risk that dredging, ship anchors or fishing trawlers affect the lines, and river if not engineered and managed correctly[8].

12. Identify likely offshore corridor options for transmission lines. Please comment on the potential for such corridor options, include size of the corridor footprint and potential number of cables that can be accommodated, to minimize the number of lines and associated siting and environmental disturbance needed to integrate offshore wind resource. For any offshore corridor identified, please indicate how the corridor avoids or minimizes disturbances to marine resources identified in the applicable plan, including the Connecticut Blue Plan and the Massachusetts Ocean Management Plan.

Ørsted does not recommend that offshore transmission corridors be determined until site investigation has been carried out. This will help ensure that development flexibility is maintained. Because a transmission technology has not been selected, flexibility is required to ensure cost can be kept low for customers. Different technology requires a different number of cables and this changes from location to location. Thus, different burial requirements and space required for repair during operations should be considered.

Ørsted supports the principle of shared transmission corridors however at this stage flexibility is key. Ørsted believes that a distinction between nearshore and far from shore transmission corridors is necessary as there are different challenges. For example, nearshore cable routing is challenging due to the number of obstacles and jurisdictions crossed. While far from shore cable routing (e.g. Federal waters) has more flexibility to go around obstacles without major cost impacts.

14. Comment on the benefits and/or weaknesses of different ownership structures, such as a consortia of developers with transmission owners or use of U.S. DOE participation as an anchor tenant through its authorizations in the federal Infrastructure and Investment Jobs Act, for new offshore transmission lines.

A regionally planned proactive approach to transmission buildout with an open competitive solicitation process would be best for the New England States Transmission Initiative.

Any model where transmission and generation are separated increases the risk of a timing mismatch between transmission development and generation, as uneven offshore wind and

[8] DNV, *Maine Offshore Wind Analysis Offshore Wind Transmission Technical Review – Initial Report to the Maine Governor's Energy Office and Maine Offshore Wind Roadmap* 23-25 (2022), https://www.maine.gov/energy/sites/maine.gov.energy/files/inline-files/Maine%20OSW%20DNV%20Offshore%20Wind%20Transmission%20Technical%20Review%20Initial%20Report.pdf.

transmission procurement could lead to a situation where either transmission or generation could come online before the other—threatening project economics.

15. Comment on cost allocation mechanisms that would prevent cost-shifting between the states based on their policy goals and ensure that local and regional benefits remain quantifiably distinct. How should any future potential procurement identify and distinguish local, regional, and state-specific benefits (e.g., reliability) such that ratepayers only pay for services that they benefit from?

For any large-scale transmission line, the economic and reliability benefits are relatively evenly spread across the entire region, so a postage stamp rate, as used by ISO-NE, that evenly distributes costs is preferred. A mechanism does not currently exist for crediting the benefits of new transmission towards the cost of transmission. These benefits can be modeled, but there would need to be agreement among states for cost recovery by comparing actual load costs to a production cost model without offshore wind injections. Ørsted encourages the states to decisively begin the difficult task of cooperating on this complex issue, as coordinated transmission development would need to address state energy policy laws while also providing widespread regional reliability, economic, and generator interconnection benefits.

Currently, Connecticut, Massachusetts, and Rhode Island have statutory offshore wind requirements,[9] but all the states participating in this RFI have clean energy laws.[10] Offshore wind generation and transmission will benefit all New England customers by reducing wholesale energy and capacity prices and improving reliability, including those in states not participating in more aggressive carbon emissions reduction policy goals. Political differences among the region's states and groups of stakeholders may make this challenging, but coordinated transmission development could create greater regional buy-in.

States without offshore wind mandates may object to a relatively even distribution of costs, so they could be excluded from some of the cost. Detailed production cost models could be run, but the results are heavily dependent on the assumptions, and it is not possible to predict what fuel prices and other assumptions will be over the decades long life of a transmission line.

One method could be to have a process like the 2011 MISO MVP planning or its more recent Long Range Transmission Plan. In these processes, there was an intentional effort to try to meet each state's goals, such as economic development or energy policy. This strategy helped avoid concerns about cost allocation. ISO-NE could conduct holistic planning such that transmission investment includes benefits for all New England states. States with coastlines, strong clean energy laws, or

[9] New England for Offshore Wind, *States Overview (Accessed October 24, 2022)*, https://www.newenglandforoffshorewind.org/states/overview/.

[10] National Regulatory Research Institute, *State Clean Energy Policy Tracker* (Accessed October 24, 2022), https://www.naruc.org/nrri/nrri-activities/clean-energy-tracker/.

that participate fully in the regional carbon plan have a mutual interest in a robust regional transmission plan.

17. Comment on the co-benefits of landfalling offshore transmission lines, such as improvements to reliability and/or resilience (*i.e.*, through the use of HVDC converters or otherwise), economic development (*e.g.*, port development, hydrogen production, *etc.*) and any local system benefits. Identify ways to measure and maximize these co-benefits when evaluating transmission buildout.

All of these benefits and co-benefits should be fully accounted for in any planning. Any transmission plan should be holistic and consider the full range of benefits for the life of the project. A multi-value benefit methodology, such as MISO MVP or the benefits proposed by FERC in its planning NOPR are appropriate for power system benefits (reliability and resilience, infrastructure cost savings in landfalling/siting, together with production cost savings).[11]

IV. Conclusion

Ørsted would like to once again thank the New England States for their initiative in releasing this RFI, and looks forward to discussing offshore transmission solutions with policy makers in the coming months.

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Dated: October 28, 2022

[11] *See* CWL paper for methodology.

Appendix A[12]

There are five programs from the IIJA the New England States should consider in submitting proposals for federal funding.

1. Transmission Facilitation Program (Sec. 40106)

   The Transmission Facilitation Program ("TFP") is one of the optimal programs the New England States should be pursuing. Eligible projects must be 1000 MW and above, or 500 MW and above for upgrades of existing lines making offshore wind projects good candidates. This program gives DOE the authority to act as the "anchor tenant" by entering capacity contracts for up to 50 percent of a transmission line's capacity for up to 40 years. The goal of the program is to help transmission projects that may face concerns over line utilization secure financing. This would also help facilitate cost allocation issues by reducing the cost of the project paid by customers. DOE has also suggested that TFP capacity contracts do not require an Environmental Impact Review, which could enable faster deployment.[13] Under the TFP priority is given to projects deemed to be in the public interest.[14] Due to their environmental and reliability benefits, Offshore wind projects are in the public interest.

2. Grid Resilience and Innovation Partnerships ("GRIP") (Sec. 40101(c), 40103(b), 40107)

   The GRIP program is another program where the New England States will be well positioned to receive funding. The Grid Innovation Program (40103(b)) includes the following statutory language; "Program Upgrading Our Electric Grid and Ensuring Reliability and Resiliency" with the Purpose of coordinating and collaborating "with electric sector owners and operators - (A) to demonstrate innovative approaches to transmission, storage, and distribution infrastructure to harden and enhance resilience and reliability; and (B) to demonstrate new approaches to enhance regional grid resilience, implemented through States by public and rural electric cooperative entities on a cost-shared basis." An offshore grid would certainly be innovative and would provide significant reliability and resilience benefits. DOE proposed that during the first application cycle for the GRIP program in fall 2022 applicants may initially submit concept papers, with a

[12] The DOE Grid Deployment Office now has a website *Grid and Transmission Programs Conductor* which "acts as a clearinghouse for GDO's transmission and grid resilience financing programs made available through President Biden's Bipartisan Infrastructure Act and Inflation Reduction Act, as well as other existing DOE transmission and grid programs."

[13] Notice of Intent and Request for Information, Establishment of a Transmission Facilitation Program, 87 Fed. Reg. at 29143 (June 13, 2022), https://www.govinfo.gov/content/pkg/FR-2022-05-12/pdf/2022-10137.pdf.

[14] See Question Two for a more complete discussion on the possibility of misaligned development timelines.

full application only being required in the winter of 2023.[15] The New England States Regional Energy Transmission Infrastructure Initiative, if its innovative aspects are described and supported, could be well positioned to receive funding through GRIP.

3. Grid Resilience Formula Grants (Sec. 40101(d))

   This program provides formula grant funding to the states to modernize grid infrastructure and increase grid resilience. Grants can likely be used for new lines and upgrades, and reconductoring with advanced conductors. The New England States could utilize this program to improve the capacity of the onshore grid to help integrate offshore wind power and potentially delay major upgrades that may require new rights of way.

4. State Energy Security Plans (Sec. 40108)

   This program provides financial and technical assistance to states to assist in the assessment of potential security, risks, hazards, and threats and enhance security, mitigation, and response to ensure reliability and resilience for State Energy Security Plans. For states with a coastline and POIs for the offshore grid, funding and technical assistance could be helpful for the development of security plans related to the new security considerations of an offshore grid.

5. State Energy Program (Sec. 40109)

   The State Energy Program provides assistance in implementing energy efficiency programs, energy security planning, and energy waste management, among other state-led energy initiatives. The definition of this program was expanded to add transmission and distribution planning as a requirement for state energy conservation plans. For states with a coastline and POIs for the offshore grid, this program could also be used for funding and technical assistance related to state energy conservation plans and the incorporation of an offshore grid.

There are five programs from the Inflation Reduction Act the New England States can utilize for funding.

1. Transmission Facility Financing (Sec. 50151)

   Projects eligible for loans under this program eligible must be designated by the Secretary of Energy to be necessary in the national interest under section 216(a) of the Federal Power Act (16 U.S.C. 824p(a)). There is an open question as to how "national interest lines" is defined since the associated Schumer-Manchin permitting bill creating the "national interest" determination process has not passed. However, this program

[15] Request for Information, Grid Resilience and Innovation Partnerships Program, 87 Fed. Reg. 54681 (September 7, 2022), https://www.federalregister.gov/documents/2022/09/07/2022-19308/request-for-information-on-grid-resilience-and-innovation-partnerships-program.

has more money available to be awarded than the TFP New England States should consider this option for federal funding as additional information is made available around eligibility and the definition of "national interest lines" is clarified.

2. Grants to Facilitate the Siting of Interstate Electricity Lines (Sec. 50152)

   This program makes available funding to State, local, or Tribal governmental entity with authority to make a final determination regarding the siting, permitting, or regulatory status of a covered transmission project.[16] Grants can be awarded for conducting analyses of the impacts of the proposed line, examination of three alternate siting corridors, participation in regulatory proceedings or negotiations in another jurisdiction, participation in determining applicable rates and cost allocation before the Federal Energy Regulatory Commission ("FERC") or State regulatory commission, and economic development activities for communities that may be affected by the construction and operation of a covered transmission project. Siting authorities in New England could pursue funding from this program. Offshore wind transmission is specifically eligible within the program and may be used for a variety of purposes that would be critical to the extensive planning needed. Additionally, there is money available for economic development grants that could be used to benefit communities where offshore transmission is landfalling.

3. Interregional and Offshore Wind Electricity Transmission Planning, Modeling, and Analysis (Sec. 50153)

   This program makes available funding for transmission planning, modeling, analysis, and the convening of stakeholders for offshore wind and interregional transmission projects. The New England States could pursue funding from this program. Offshore wind transmission is specifically eligible within the program, specifically for convening stakeholders. When applying for technical and modeling assistance it would be a more compelling proposal if it does not propose replicating work already completed or in progress, such as the NREL *Atlantic Offshore Wind Transmission Study* or existing ISO-NE studies.

4. U.S. DOE Loan Program Office ("LPO") funding (Title 17) (Sec. 50141)

   The IRA allocated additional funding for the LPO. Applications for transmission projects are currently open and offshore wind projects are eligible under section 1703 of the Energy Policy Act of 2005 (42 U.S.C. 16513). To be better positioned for funding from LPO, projects should be innovative (which includes HVDC). New England States

[16] The term "covered transmission project" is defined as a high-voltage interstate or offshore electricity transmission line that is proposed to be constructed and to operate at a minimum of 275 kilovolts of either alternating-current or direct-current electric energy by an entity; or offshore and at a minimum of 200 kilovolts of either alternating-current or direct-current electric energy by an entity; and for which such entity has applied, or informed a siting authority of such entity's intent to apply, for regulatory approval.

could also consider the use of advanced conductors and superconductors. LPO Director Jigar Shah has specifically indicated that the use of those technologies are considered innovative under the program.[17]

5. Energy Infrastructure Reinvestment Financing (Sec. 50144)

   The Energy Infrastructure Reinvestment Financing Program provides loan guarantees for eligible projects which include retooling, repowering, repurposing, or replacing energy infrastructure that has ceased operations or enabling operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or anthropogenic emissions of greenhouse gases. Energy infrastructure includes transmission. This program could potentially be used to convert retired or retiring power plants into POI, converter stations, or synchronous condensers.

[17] Jigar Shah, Personal Post, LinkedIn (Accessed October 24, 2022), https://www.linkedin.com/posts/jigarshahdc_upgrading-transmission-lines-could-enable-activity-6983969644789260288-w1vd/?utm_source=share&utm_medium=member_ios.