NEW ENGLAND FOR OFFSHORE WIND

October 28, 2022

Chairman Philip L. Bartlett II
ME Public Utilities Commission
26 Katherine Drive
Hallowell, Maine 04347

Undersecretary Judy Chang
MA EO of Energy & Enviro Affairs
1 Ashburton Place
Boston, MA 02108

Commissioner Jared Chicoine
NH Department of Energy
21 S Fruit St. #10
Concord, NH 03301

Commissioner Katie Dykes
CT DEEP
79 Elm Street
Hartford, CT 06106

Commissioner Christopher Kearns
RI Office of Energy Resources
1 Capitol Hill
Providence, RI 02908

RE: Regional Transmission Initiative – Notice of Request for Information

Dear Chairman Bartlett, Undersecretary Chang, Commissioner Chicoine, Commissioner Dykes, and Commissioner Kearns,

New England for Offshore Wind appreciates this opportunity to submit comments in response to the September 1, 2022 Request for Information (RFI) issued by Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island ("Participating States") for the Regional Transmission Initiative. New England for Offshore Wind is a broad-based coalition of businesses and business associations, environmental and justice organizations, academic institutions, and labor unions that aims to drive regional collaboration and increased state commitments to responsibly develop offshore wind in New England.

Thank you for your leadership and efforts to collaborate on regional transmission. We applaud the Initiative's efforts to seek information on joint transmission solutions for offshore wind and encourage you to pursue a joint procurement as soon as possible. Regional (and interregional) transmission solutions will be critical to unlocking the benefits of offshore wind on our shared grid and enabling this resource to scale, which will drive down energy costs, increase our energy diversity and energy independence, and create tens of thousands of high-quality, family-sustaining jobs.

Offshore wind is a $100 billion industry waiting to happen. It is the single biggest lever we can pull to simultaneously address the climate crisis, meet our energy needs, and grow our economy. Given that New England boasts

Members (cont'd):

CT Sustainable Business Council
E. Hampton Clean Energy Task Force
Eastern Bank
Eastern CT Green Action
Energy Efficiency Associates, LLC
Environment Council of RI
Faith Communities Enviro. Network
Flashover LLC
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Greenwater Marine Sciences Offshore
Hollis Line Machine
IUPAT DC11
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MassMEP
Mass. Climate Action Network
Mills Public Relations
MOCA Westport
Mothers Out Front
Muggventures
Nashoba Conservation Trust
New Hampshire Audubon
NH Businesses for Social Responsibility
NH Citizens for Progress
NH EEC Network
People's Action for Clean Energy
POWER-US | MA
Rhode Island Building Trades
Robert E Derecktor Inc.
Seacoast Anti-Pollution League
Self-Reliance
Skunk Works Fund
Turnstone
University of Maine
Vineyard Power Cooperative Inc.

some of the best offshore wind resources in the country, it is our best opportunity for new renewable energy sources in our region.[1]

According to several analyses, including one by the Commonwealth of Massachusetts, New England will need anywhere from 30[2]-43[3] gigawatts (GW) of offshore wind to power the economy by 2050, and it is possible more could be needed as energy demand increases to accommodate electrification of the transportation and heating sectors. A coordinated transmission approach is therefore critical to ramp up this game-changing clean energy solution in a timely, responsible, and cost-effective manner. Studies have found that a planned approach to offshore wind transmission could minimize costs to ratepayers, increase reliability, and minimize impacts to the environment and communities by reducing the amount of new transmission infrastructure needed.[4] Moving in a swift and coordinated way will enable the New England states to lead the way to an equitable clean energy economy while strengthening the reliability of the electric grid and securing valuable federal funds.

In September, New England for Offshore Wind released a set of six Transmission Principles to help advance critical new transmission investments needed for offshore wind.[5] We urge the Participating States to adopt these Transmission Principles to serve as the foundation for a successful joint procurement process. The Transmission Principles establish a framework that maximizes benefits and minimizes impacts of New England offshore wind transmission planning and development and include the following features (referred to as the "BASICS"):

- **B**enefit impacted communities
- **A**void, minimize, and mitigate environmental impacts
- **S**ecure environmental justice
- **I**nclusive and early stakeholder engagement
- **C**oordinate on transmission investments
- **S**upply local jobs and economic development

While the impacts of transmission and clean energy development are much less formidable than those caused by climate change, the states, regional regulators, and developers must work together to minimize these impacts through effective planning and community engagement that

[1] Offshore Wind Energy Technical Potential for the Contiguous United States, NREL, August 15, 2022, https://www.nrel.gov/wind/offshore-resource.html.
[2] "Massachusetts 2050 Decarbonization Roadmap," *Massachusetts Executive Office of Energy and Environmental Affairs* and *The Cadmus Group*, https://www.mass.gov/doc/ma-2050-decarbonization-roadmap/download.
[3] Weiss, Jürgen and Hagerty, John Michael, "Achieving 80% GHG Reduction in New England by 2050," *The Brattle Group*, slide 11, https://www.brattle.com/wp-content/uploads/2021/05/17233_achieving_80_percent_ghg_reduction_in_new_england_by_20150_september_2019.pdf
[4] Pfeifenberger, Johannes, "Offshore Wind Transmission in New England: The Benefits of a Better-Planned Grid," *The Brattle Group*, May 2020, https://www.brattle.com/wp-content/uploads/2021/05/18939_offshore_transmission_in_new_england_-the_benefits_of_a_better-planned_grid_brattle.pdf.
[5] New England for Offshore Wind, Acadia Center, *Transmission Principles,* September, 2022, https://www.newenglandforoffshorewind.org/wp-content/uploads/2022/08/FINAL-Transmission-Principles.pdf

prioritizes environmental justice populations. With that in mind, we urge the Participating States to provide transparent plans for this process, guarantee public comment periods and meetings, proactively reach out to potentially impacted communities early, and use the RFP process to drive strong plans for community engagement by potential developers.

Requested Information and Analysis

In response to the RFI, New England for Offshore Wind respectfully provides comments on eleven pieces of requested information on Changes and Upgrades to the Regional Electric Transmission System and the Draft Modular Offshore Wind Integration Plan (MOWIP). Our comments are numbered in accordance with the corresponding numbered opportunities for comment in the RFI.

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.***

There are multiple promising pathways for the New England states to leverage federal funding from the U.S. Department of Energy (DOE) for transmission projects under the Infrastructure and Investment Jobs Act (IIJA) and Inflation Reduction Act (IRA).

We recommend that the Participating States collectively apply for formula funding under the Section 40101(d) Formula Grant Program of IIJA, where DOE provides grants to states, tribes, and local governments for the purpose of improving grid resilience.[6] The application deadline for this funding is **March 31, 2023**.[7] We encourage Participating States to meet or exceed the federal government's Justice40 goal, which aims to ensure that "40 percent of the overall benefits of certain federal investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution."[8] While this is not a prerequisite for obtaining a Section 40101(d) grant, "priority should be given to projects that will generate the greatest community benefit (whether rural or urban) in reducing the likelihood and consequences of disruptive events."[9]

We also recommend that the Participating States encourage transmission developers to apply for funding under the IIJA Transmission Facilitation Program (Section 40106), a $2.5 billion revolving fund designated for transmission developers and "designed to facilitate the construction of electric power transmission lines and related facilities to enable greater clean energy growth and provide low-cost clean energy to more Americans."[10] We recommend that Participating States apply for funds under the Transmission Facilitation Program as soon as possible, as funds are available until they are fully exhausted.[11]

The third source of IIJA funding that Participating States should apply for is the Smart Grid Investment Program, which received $3 billion in additional funding from Section 40107 for short-term transmission

[6] National Renewable Energy Laboratory, *Section 40101(d) Formula Grants to States and Indian Tribes*, https://netl.doe.gov/bilhub/grid-resilience/formula-grants.
[7] Id.
[8] The White House, *Justice 40,* https://www.whitehouse.gov/environmentaljustice/justice40/.
[9] National Energy Technology Laboratory, *Frequently Asked Questions, Grid Resilience Formula Grants to States and Indian Tribes IIJA Section 40101(d)* at 5, Jul. 25, 2022, https://netl.doe.gov/sites/default/files/2022-07/IIJA%2040101d%20-%20FAQ%20-%20July%2025%202022.pdf.
[10] U.S. Department of Energy, *Transmission Facilitation Program,* https://www.energy.gov/bil/transmission-facilitation-program.
[11] Id.

upgrades.[12] This funding would serve as a strong complement to the Sections 40101(d) and 40106 funding sources that are larger in scope and entail construction of transmission infrastructure and more protracted planning.

The IRA also provides numerous pathways for states to acquire federal funding for transmission projects through the DOE, most notably Sections 50151 and 50152. Section 50151 makes $2 billion available for a transmission facility financing loan fund, from which the DOE will issue loans for transmission construction in as-yet undesignated National Interest Electric Transmission Corridors.[13] Section 50152 provides $760 million in grants to assist states, tribes, and local governments in accelerated siting and analysis for the construction of onshore and offshore transmission infrastructure.[14] We strongly encourage the Participating States to pursue Section 50152 funding alongside efforts to prioritize a networked offshore grid.

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.***

A coordinated approach to regional transmission development that considers a broad set of benefits is critical to minimize ratepayer impacts. To minimize adverse impacts to ratepayers, Participating States should move quickly and in a coordinated way. As mentioned above, issuing a joint solicitation swiftly could increase the chances of securing federal funding for networked offshore wind transmission. A well-planned and networked offshore grid that channels more wind to communities using fewer cables will reduce costs and impacts while expediting and optimizing benefits.[15] Potential benefits of a networked offshore grid include the ability to:

- Optimize the use of limited viable landing points and reduce on-shore infrastructure while providing overall cost savings for consumers and maximizing total generation potential;
- Through early and coordinated planning of the offshore network, identify potential impacts on environmental justice, indigenous, and other communities and work to reduce impacts while providing benefits to those communities;
- Improve reliability and resiliency, including through an interlinked transmission network as well as the flexibility for future connections to other regions;
- Protect marine ecosystems by laying fewer marine cables, avoiding the "spaghetti" cable scenario that would require a separate cable for each and every wind project; and
- Ensure expedited siting and approvals due to reduced on-land infrastructure and increased community consensus compared to alternatives.

[12] Mike O'Boyle, Dan Esposito, and Michelle Solomon, *Implementing the Inflation Reduction Act: A Roadmap for State Electricity Policy* at 17, Energy Innovation, Oct. 2022, https://energyinnovation.org/wp-content/uploads/2022/10/Implementing-the-Inflation-Reduction-Act-A-Roadmap-For-State-Policy.pdf.
[13] Id. At 16.
[14] Id.
[15] Pfeifenberger, Johannes, "Offshore Wind Transmission in New England: The Benefits of a Better-Planned Grid," *The Brattle Group*, May 2020, https://www.brattle.com/wp-content/uploads/2021/05/18939_offshore_transmission_in_new_england_-the_benefits_of_a_better-planned_grid_brattle.pdf.

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 Participating States should prioritize transmission technology that minimizes impacts and allows power to be delivered efficiently across long distances to optimal points of interconnection near electricity load. Distance is a critical factor to determine which types of transmission cables to prioritize. High voltage direct current (HVDC) cables can carry more power more efficiently and at longer distances than high voltage alternating current (HVAC) cables. Most of the optimal offshore wind lease areas for HVAC cables (the areas closer to shore) have already been contracted by states using HVAC generator lead lines. With the exception of the Bay State Wind lease area, the remaining lease areas are likely to require HVDC cables due to their distance from shore. HVDC would also allow a networked grid to carry power across even greater distances directly to load centers, such as Boston and southwest Connecticut. This type of system could also connect to nearby states in other regional grids, such as New York (NYISO) and New Jersey (PJM).

The Participating States should consider the relative environmental impacts in selecting transmission line technology. HVDC lines have higher capacity than HVAC lines, so fewer cables are needed to carry larger amounts of power. Because HVDC technology requires fewer cables, prioritizing its use would minimize impacts on marine ecosystems. HVDC transmission requires conversion stations, unlike HVAC transmission. However, HVDC systems only require two power conversion stations at each end whereas offshore HVAC systems need intermittent placement of substations to regulate electricity frequency over long distances. Therefore, for a long-distance offshore grid, HVDC generally requires less infrastructure.[16]

HVDC lines can efficiently carry more than the amount of power suggested in the Draft Modular Offshore Wind Integration Plan (1,200 MW). We encourage the Participating States to think more broadly beyond the 1,200 MW maximum per line suggested in this draft framework. We understand that this number is due to ISO-NE's point of single contingency rule, which requires that no single point exceed 1,200 MW to avoid system failure, but we note that there are existing interconnection points at retired power plants (such as Brayton Point) that previously had generating capacity larger than 1,200 MW. Since renewable energy is an intermittent source with less than 100% capacity factors, the amount of energy being transmitted along these lines will almost never reach 100%. A modular system would also minimize any potential single contingency impacts because power could be routed on another line if one failed. Energy storage systems co-located with offshore wind interconnection points could also be used to facilitate the injection of offshore wind onto the grid from periods of high production to periods of high demand. In order to optimize use of interconnection points and thus minimize onshore impacts to the environment and to communities, we encourage the Participating States to consider pushing ISO-NE to reevaluate this rule in the case of a networked offshore grid to integrate offshore wind.

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***

[16] Linquip Team, HVDC vs HVAC Transmission Systems-Difference Between Them, Linquip Technews (Feb. 2021), https://www.linquip.com/blog/hvdc-vs-hvac-transmission-systems/ (last visited Oct 14, 2022).

prioritized over another HVDC offshore project that does not eliminate such upgrades.

The Participating States should prioritize the advance planning of a complete networked offshore grid that maximizes generation opportunities and minimizes impacts, including land-based impacts. An optimized set of investments that are planned in a coordinated way in advance of individual procurements can ensure that land-based upgrades are minimized overall. The Participating States should ensure that the offshore grid and any onshore grid upgrades are optimized to provide maximum reliability and resilience benefits and that they will also enable the interconnection of other types of land-based renewables as possible, such as wind or solar. The Participating States should seek out and carefully consider options that pair offshore wind with energy storage, as energy storage can increase the reliability and other benefits of renewables including offshore wind while reducing infrastructure needs. In addition, distributed energy and other non-transmission alternatives should be considered in all planning. For example, distributed solar paired with storage is among the solutions that can reduce the volume and size of new investments in long-distance transmission. In addition, in planning a networked offshore grid, consistent with the Transmission Principles described above, the Participating States should carefully consider any potential environmental justice impacts to enable all necessary community consultations at a stage when plan modifications are still feasible.

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

Interregional ties via an offshore transmission system would increase reliability across regions, especially during extreme weather events. An offshore grid has the capacity to – and should be used – to further interregional connections. Given New England's proximity to neighboring Regional Transmission Organizations (RTOs), such as NYISO and PJM, and the ongoing offshore wind development in those adjacent regions, it will be helpful for the New England states to engage in interregional planning and collaboration to benefit and connect multiple regions. A modular, networked offshore wind transmission system could be tied to other similar systems in other regions to increase reliability across regions. For example, New York's future offshore wind projects, which are required to be "mesh-ready" in the state's latest solicitation, could connect to a networked offshore grid off of New England to increase interties between regions.

Enabling these interregional connections can improve access to diverse renewables while enhancing the resilience and reliability of the electric system, including by enabling New England to draw more on neighboring regions when needed during extreme weather events. A recent Tufts University report concludes that "efforts to modernize our grid could benefit substantially from a large-scale OSW power grid that provides high-capacity offshore connections between Atlantic Coast RTOs."[17] The report further concludes that "an offshore multi-terminal HVDC system could provide stability to the voltage

[17] *See* Smith, K. *et al*., Offshore Wind Transmission and Grid Interconnection across U.S. Northeast Markets at 22 (Feb. 6, 2021), available at https://dl.tufts.edu/pdfviewer/br86bh77z/47429p92q.

and frequency of onshore grids"[18] and "Voltage Source Converter (VSC) technology would equip OSW farms with black-start capability."[19]

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.***

The Participating States should center procedural justice in all siting and planning processes for transmission infrastructure while prioritizing workforce development opportunities to ensure a just transition for workers.

High-impact and polluting energy infrastructure has historically been sited disproportionately in communities of color and low-income communities. At the same time, this infrastructure often provides stable jobs that sustain livelihoods. By including these environmental justice communities in planning and siting conversations, New England states can advance equity in transmission development while building out a grid that can meet state and federal clean electricity goals with the region's abundant offshore wind resources. Similarly, by prioritizing workforce development opportunities, such as training programs and targeted recruitment for communities that both benefit and bear the environmental and health burdens from fossil fuel infrastructure, states can accelerate a just transition to an equitable clean energy economy. A targeted equity approach satisfies every element of New England for Offshore Wind's Transmission Principles, from inclusive and early stakeholder engagement to benefitting impacted communities and supplying local jobs and economic development.

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

The Participating States should prioritize solutions that maximize economic opportunities and reliability. The development of transmission infrastructure to integrate offshore wind into the New England electric grid presents an economic opportunity for New England workers, including through the creation of high-quality union jobs, workforce development opportunities, and the use of local and domestic content where feasible. The Bureau of Ocean Energy Management (BOEM) has been experimenting with new mechanisms and incentives, such as bidding credits in the offshore wind leasing process, to incentivize the development of a domestic supply chain. We encourage the Participating States to consider a similar approach for this transmission RFP process by including developers' plans for local or domestic supply in bid evaluation. Enabling offshore wind to scale is of utmost importance for the future energy security of our region, and a domestic supply chain will help ensure success while driving the creation of tens of thousands of family-sustaining jobs.

As mentioned above, a planned, networked offshore transmission system will help unlock the vast offshore wind resources off our coast and increase reliability across our region. The Participating States should request and consider options that pair systems with energy storage, which as noted above can also increase the reliability and other benefits of renewables like offshore wind while reducing infrastructure needs.

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***

[18] *See id.* at 23.
[19] *Id.* at 23-24.

associated with each identified POI? To the extent your comments rely on any published ISO-NE study, please cite accordingly.

The Participating States should prioritize the use of existing points of interconnection, such as the site of retired or retiring power plants. Our region has current and former generating stations near the coast that would serve as optimal points of interconnection for offshore wind. To minimize onshore impacts, we encourage the Participating States to consider prioritizing interconnections into existing infrastructure, such as the locations of retired or retiring power plants, and to optimize the use of those interconnection points. For example, the former Brayton Point coal plant was a 1,600-MW plant, but only 1,200 MW of offshore wind will interconnect at that location. This approach is triggering the need for additional onshore impacts through interconnection and demonstrates the need for optimal use of interconnection points.

While it is important to factor power plant retirements into planning for interconnection of an offshore transmission system, we acknowledge that fossil fuel retirements will mean the loss of some high-quality employment in the sector. It is crucial that the New England states work to ensure a just transition of these power plants and that offshore wind and transmission development foster the creation of high-quality jobs. The use of project labor agreements and community benefits agreements can create job transition opportunities for workers affected by this transition. As mentioned above, these power plants have historically been disproportionately sited in communities of color and low-income communities, so ensuring robust stakeholder and community engagement concerning the continued use of these facilities, particularly in environmental justice communities, is critical.

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.***

Integrating an influx of new clean electricity from New England's abundant offshore wind resources will require an unprecedented buildout of transmission infrastructure. It is understandable that New England states are exploring different approaches to efficiently interconnect this resource with the grid. We urge the Participating States to prioritize existing roads and terrestrial rights of way as avenues for increasing the number of potential interconnection points, conduct thorough environmental analyses, and avoid sensitive ecosystems wherever possible. Fluvial and riparian zones are extremely sensitive ecosystems that harbor diverse flora and fauna. Environmental assessments and preliminary data collection alone could be highly disruptive to these ecosystems, and any construction activity would likely trigger Clean Water Act protections in addition to the numerous federal, state, and municipal permitting obligations inherent in transmission development. We recommend that the Participating States pursue the option of a networked offshore grid that will reduce the number of undersea cables and onshore substations. If the Participating States determine that deeper integration into the New England transmission system is needed, they should prioritize already developed roads and rights of way over sensitive aquatic habitats. New land-based transmission routes also need to be carefully planned to avoid, minimize and/or mitigate impacts to important resources such as large forest blocks, prime farmland, and lands that are already in permanent conservation status.

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?

The Participating States should consider a broad set of benefits to guide cost allocation. An offshore wind transmission system that unlocks wind resources would deliver myriad benefits to the regional grid, beyond the public policy benefits for states that require renewable energy procurements. As the Participating States are considering cost allocation for a regional transmission system, they should consider a broad range of benefits for analyses of cost responsibility. For example, the Federal Energy Regulatory Commission's (FERC) Notice of Proposed Rulemaking on Transmission Planning enumerated a list of twelve quantifiable benefits of regional transmission, including benefits related to cost reductions and system reliability and resilience. The Participating States should also consider the benefits used in MISO's recent approach for cost allocation for regional transmission projects, as presented at the last Restructuring Roundtable.[20] benefits included: congestion and fuel savings, avoided capital costs of local resource investment, avoided transmission investment, resource adequacy savings, avoided risk of load shedding, and decarbonization.

Conclusion

Thank you for the opportunity to provide comments to this Notice of Request for Information. Our coalition is very excited by the opportunity to maximize benefits for the region through development of a networked offshore grid that unlocks the promise of offshore wind, reduces overall costs, and improves the reliability of the electric system. We emphasize the need to begin the planning and procurement processes as soon as possible so that the region can reap the benefits of these investments without delay while helping to avert the worst impacts of climate change, which is already negatively affecting New Englanders including environmental justice and coastal communities. We stand ready to assist with and support the next steps in this process.

Sincerely,

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Cc:
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TJ Poor, Director, Regulated Utility Planning Division, Vermont Department of Public Service

[20] Johnson, Aubrey (September 30, 2022), *Long Range Transmission Planning*, Restructuring Roundtable, Boston, MA, http://www.raabassociates.org/Articles/Johnson%20Presentation%209.30.22.pdf.