Save the Sound®
Action for our region's environment.

Comments of Save the Sound
In Response to
Regional Transmission Initiative
Notice of Request for Information and Scoping Meeting
October 28, 2022

Save the Sound appreciates the opportunity present these comments regarding necessary changes and upgrades to the regional electricity transmission system. The mission of Save the Sound is to protect and improve the land, air, and water of Connecticut and Long Island Sound. We use legal and scientific expertise and bring people together to achieve results that benefit our environment for current and future generations.

On September 1, 2022, Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island ("Participating States") issued a Notice of Request for information to solicit stakeholder input regarding "changes and upgrades to the regional electric transmission system needed to integrate renewable energy resources, including but not limited to offshore wind resources, as well as significant other new renewable resources developed in areas of the region requiring new transmission to integrate into the New England bulk electric system."[1] The Notice also sought comment on a proposed conceptual framework for a multistate Modular Offshore Wind Integration Plan.

We appreciate the focus of the Participating States on the need for a cooperative, regional solution to upgrade the transmission grid to support increasing amounts of clean, renewable energy, particularly offshore wind. Save the Sound's support for responsibly sited and operated offshore wind projects recognizes the significant role that offshore wind plays in being able to meet our clean energy and climate imperatives. Accordingly, we have encouraged a robust procurement of offshore wind that maximizes the deployment of these resources consistent with satisfying stringent environmental standards.

Like the majority of states in the region, Connecticut has established mandatory greenhouse gas reduction and clean energy goals. Connecticut has committed to reducing greenhouse gas emissions 45% below 2001 levels by 2030 and 80% below 2001 levels by 2050 through its Global Warming Solutions Act.[2] Additionally, Connecticut has committed to securing 100% zero-carbon electricity to meet the state's electricity demand.[3]

Achieving these goals will require the increasing electrification of our transportation and building sectors, allowing us to displace fossil fuels such as gasoline, diesel, natural gas, and heating oil with electricity generated from renewable energy sources such as wind and solar. It will also require upgrades to the current transmission system to move large quantities of renewable energy from areas where it is generated to load centers where the energy will be used.

This will require upgrades to the existing land-based transmission system, as well as a holistic approach to designing a new integrated offshore grid to accommodate the needed scale of offshore wind projects while maximizing the ability to avoid, minimize, and mitigate potential environmental impacts. Indeed, consensus

[1] Regional Transmission Initiative, "Notice of Request for Information and Scoping Meeting" at 1 (September 1, 2022).
[2] Conn. Gen. Stat. §22a-200a.
[3] Public Act 22-5, An Act Concerning Climate Change Mitigation (signed May 10, 2022).

around the need for an integrated offshore wind system appears to have been achieved with efforts underway in New Jersey and New England, and with New York requiring that proposed offshore wind projects be "mesh-ready" to allow them to plug into an offshore grid when it is available.

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

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.**

The necessary buildout of the existing transmission grid is substantial. However, there are factors mitigating the rate impact of this investment on utility customers. As noted in a 2019 study of the anticipated transmission buildout to support the nation's clean energy and climate goals, investment at the scale needed will likely result in relatively small or even positive rate impacts.[4] Factors leading to this outcome are "(1) transmission costs represent a small share of customer rates; (2) the total transmission investment will be spread over greater electricity demand with electrification; and (3) the higher costs of transmission are likely to be offset by lower generation costs."[5]

Further, development of a networked offshore wind grid is itself a measure that could reduce costs for ratepayers. Establishing a networked offshore grid should reduce aggregate offshore wind project costs by reducing the amount of offshore wind transmission infrastructure necessary to deliver power to shore, as well avoiding certain onshore upgrades. New Jersey's recently approved offshore wind network is projected to save customers over $900 million.[6] In New England, studies have estimated that avoided upgrades to the land-side grid through a well-developed offshore transmission network could save customers more than $1 billion.[7]

Finally, the availability of significant federal funding to support upgrades to transmission infrastructure, increase the development of clean energy resources, and expand access to clean energy through the 2021 Infrastructure and Investment jobs Act and the 2022 Inflation Reduction Act should help to defray costs to ratepayers. The Participating States should coordinate in developing and submitting funding proposals to ensure that they maximize the amount of federal funding available to support development of the region's offshore grid and needed onshore improvements.

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?**

Generally speaking, higher voltage direct current (DC) lines are preferable for transmission linking offshore stations with land-based interconnection substations due to their higher efficiency and transmission capacity. Utilizing HVDC lines will not only reduce the number of cables that need to be laid (reducing trenching

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[4] Dr. Jurgen Weiss, et al., *The Coming Electrification of the North American Economy: Why We Need a Robust Transmission Grid* at v, Brattle Group (March 2019).
[5] *Id.*
[6] New Jersey Board of Public Utilities, Docket No. QO20100630, In the Matter of Declaring Transmission to Support Offshore Wind a Public Policy of the State of New Jersey, Order on the State Agreement Approach SAA Proposals at 2 (October 26, 2022) [hereinafter NJ Board of Public Utilities], available at https://www.nj.gov/bpu/pdf/boardorders/2022/20221026/8A%20ORDER%20State%20Agreement%20Approach.pdf.
[7] Johannes Pfeifenberger, et al., *Offshore Transmission in New England: The Benefits of a Better Planned Grid*, Brattle Group (May 2020).

operations and disturbance to benthic habitats) but also ensure that more offshore wind energy is available for use by customers. Moreover, as was pointed out be several presenters at the New England States' Transmission RFI technical session, economical opportunities for offshore wind facilities to interconnect using lower capacity AC cables have largely been exhausted by current projects.

Because of the higher transmission capacity and efficiency of HVDC cables, offshore wind facilities can be linked to the land-side transmission grid at a greater diversity of locations along the coast, avoiding the potential need for costly upgrades to the land-based transmission system.[8] For example, conceptual designs for a New England offshore transmission networks serving lease areas off the coast of Massachusetts have identified potential connection points as far south as Bridgeport, Connecticut and as far north as Everett, Massachusetts.

New Jersey has taken an early lead in setting forth what an offshore grid might look like and how it can be designed, and the New Jersey Board of Public Utilities ("NJ BPU") has recently approved the first integrated offshore wind transmission plan in the United States [9] As part of the evaluation of offshore transmission grid proposals, the NJ BPU concluded that HVDC technology was preferable to HVAC technology for export cables because:

> 1. Fewer physical cables are needed in the case of HVDC technology, resulting in less impact to the environment and communities, and potentially enabling more capacity to utilize the same Transmission Corridor.
> 2. HVDC cables can be economically employed over longer distances, and result in fewer line losses, which creates a more even playing field for bidders into future New Jersey OSW solicitations given the distances to most of the BOEM OSW lease areas in the New York Bight.
> 3. Technology trends inside and outside the U.S. indicate a move towards HVDC technology for larger OSW farms.
> 4. Other states in the region have made a definitive choice for HVDC technology.[10]

Given the demonstrated advantages of HVDC lines, we believe that standardizing the use of HVDC lines for offshore transmission is reasonable.

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

All other consideration being equal, HVDC offshore projects that eliminate the need for major land-based transmission upgrades should be prioritized, recognizing that some level of investment in the land-based transmission system will be necessary given the aging infrastructure of that system.[11] While certain upgrades to the land-based transmission system will be necessary under any planning scenario, we should take advantage of the opportunity to strategically map out necessary investments to achieve optimal delivery of clean energy resources to load centers, facilitate inter-regional transmission, and improve the reliability and resilience of aging infrastructure while avoiding unnecessary land-based upgrades through sound development planning of the offshore wind grid.

Accordingly, the onshore and offshore transmission assets should be considered interrelated and complementary components of a unified regional transmission system, and investments and upgrades should be made in consideration of how such investments will benefit the system as a whole. Not only will such an approach

[8] ISO- New England, *2019 Economic Study: Offshore Wind Transmission Interconnection Analysis* (June 17, 2020).
[9] NJ Board of Public Utilities, *supra* note 6.
[10] *Id.* at 43.
[11] *See* ISO-New England, *2021 Regional System Plan* at 89 (November 2, 2021).

reduce costs for ratepayers, but it will help to avoid potential adverse environmental impacts to onshore resources and local communities and the contentious disputes that frequently accompany land-based transmission projects.

We also recommend that comprehensive planning for the offshore transmission network be completed as rapidly as possible to ensure that the appropriate modular components of the network are available for offshore wind generation projects as they come online. The ability to plan and build out the transmission infrastructure in advance of the construction of specific offshore generation facilities is one of the significant benefits of the offshore network concept. The ability to stage transmission construction first can reduce scheduling and regulatory risk to the generation project with respect to the interconnection process, particularly if onshore upgrades are also needed.[12]

Finally, the Participating States should encourage projects that pair offshore wind with battery storage. As offshore wind is an intermittent resource, utilizing battery storage is beneficial in avoiding curtailment of offshore wind during periods of production in excess of load. That stored energy which would otherwise be "lost" can then be used to meet load during other hours of the day providing additional reliability to the transmission grid. Offshore Wind curtailment rates in the ISO-NE and NY ISO regions have been projected to be approximately 4% - 5%, increasing with higher levels of variable renewable energy resources.[13]

6. **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.**

As we begin the process of evaluating and implementing needed transmission system upgrades to maximize the contribution of clean renewable energy to meet our energy needs, it will be important to recognize that states and local communities may be impacted differently. The legacy of energy infrastructure deemed as undesirable being sited in communities powerless to object to it, as well more recent history of controversial transmission proposals, underscores the need for a well-thought-out, comprehensive, and inclusive long-term planning process to identify the best approach to transmission grid upgrades that meet forecasted energy needs, integrates renewable generation sources in a manner that maximizes their benefits, and that avoids, minimizes and mitigates environmental impacts while also providing meaningful input into siting decisions and substantial benefits to impacted communities.

Development of a regional offshore wind transmission grid will help to minimize potential conflicts and help to support environmental justice principles by reducing the scale of necessary onshore transmission upgrades, reducing the number of landfall interconnections and community disruptions, and facilitating the retirement of legacy polluting generating facilities in overburdened communities by displacing them with clean renewable energy at scale.

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

As noted above, renewable generation projects that are paired with battery storage can avoid unnecessary curtailments and enhance the reliability of the transmission grid by providing for the dispatch of stored energy when needed. In addition to opportunities associated with battery storage, greater offshore wind energy inputs

[12] NJ Board of Public Utilities *supra* note 6, at 18.
[13] Phillip Beiter, et al., *The Potential Impact of Offshore Wind Energy on a Future Power System in the U.S. Northeast* at 28-29, National Renewable Energy Lab (January 2020).

to the regional power grid have the potential to address existing winter reliability issues caused by our current over-reliance on natural gas.

Additionally, project proposals for the development of the NE offshore wind grid should be accompanied by information regarding how the project will support the development of the domestic supply chain, promote local economic and workforce development (particularly for communities impacted by the project), and mitigate impacts of existing energy infrastructure. These considerations have been included in solicitations for offshore wind generation facilities and should be factors in evaluating transmission proposals as well.

Conceptual Framework for a New England Modular Offshore Wind Integration Plan

The conceptual framework set forth by the Participating States establishes several design principles to guide the development of an offshore wind transmission network for the New England Region. Among the design principles are:

- Solutions should be scalable, cost-effective, and sufficiently flexible to accommodate up to 8,400 MW from current and future New England leaseholds.
- Anticipating a modular buildout of the offshore transmission system in 1,200 MW increments through 2040.
- Projects to be designed to maximize access to, and be consistent with, the terms of any applicable U.S. Department of Energy (DOE) funding programs including, programs established under Infrastructure Investment and Jobs Act (IIJA).
- Transmission developers should provide the widest array of potential transmission solutions while ensuring that ratepayers are not exposed to excessive costs or risks.
- Operational infrastructure, and specifically HVDC converters, should be designed in a manner that future transmission lines can connect in a meshed manner and share landing points.
- Encouraging HVDC transmission topologies that enables inter-area transfers of OSW generation to various network points within and beyond ISO-NE.
- The Participating States will recommend or prioritize certain land-based points of interconnection, based on state-specific considerations (such as interregional transfer capability, siting considerations, etc.) and overall project timing.
- Projects should integrate with the landside grid in a way that minimizes curtailments of renewable energy generation.
- Transmission solutions or portfolios of transmission solutions that consider other clean energy located onshore, while use the HVDC converter technology to support potential weak areas of the grid are encouraged.

Save the Sound supports these principles as appropriately prudent considerations to guide development of offshore wind transmission. We note that many of these principles align with priorities identified in a recent report setting forth a blueprint for efficiently upgrading New England's transmission system to support renewable energy.[14]

In addition to the principles set forth above, New England for Offshore Wind (NE4OSW) has developed a set of transmission principles to ensure that the development of offshore wind transmission occurs in an environmentally responsible, equitable, and just manner.[15] These principles require that transmission projects:

- Benefit impacted communities

[14] RENEW Northeast, *A Transmission Blueprint for New England; Delivering on Renewable Energy* (May 23, 2022).
[15] New England for Offshore Wind, "Statement of Principles -Transmission" (September 2022), available at FINAL-Transmission-Principles.pdf (newenglandforoffshorewind.org)

- Avoid, minimize, and mitigate environmental impacts
- Secure environmental justice
- Provide early and inclusive stakeholder engagement
- Coordinate transmission investments
- Supply local jobs and economic development

By adhering to the principles above, we can ensure that the clean energy economy does not repeat the injustices associated with the development of our legacy fossil fuel energy system and that historic inequities can be remedied. At the same time, we will ensure that the energy, economic, and health benefits of our burgeoning renewable energy system are shared by all.

Conclusion

Save the Sound appreciates the opportunity to comment on improvements to the regional transmission grid and development of an offshore transmission grid. We recognize that this is only the first of many stakeholder discussions on how best to develop offshore transmission and we look forward to continuing to work with the Participating States, transmission and offshore wind developers, ISO-NE, and other stakeholders moving forward.

Respectfully submitted,

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