To: New England States
From: Anbaric
Date: March 1, 2021
RE: Transmission Planning

Anbaric Development Partners (Anbaric) appreciates the opportunity to provide comments on the New England Energy Vision Transmission Planning track. Anbaric develops clean energy projects that supply renewable energy to customers and projects that optimize the power grid using energy storage.

An enhanced focus on transmission is critical to achieving New England states' and consumers' energy and climate objectives most cost effectively. Scenario-based planning can confirm near-term needs and identify the transmission infrastructure that New England needs over the long term. Given the long lead-time to design, permit and build transmission projects, analysis should be structured to identify near-term needs that can be addressed through competitive procurements held in late 2021 or early 2022. Efforts to address near-term needs should progress in parallel with longer-term planning so that New England does not lose time or momentum in building the first segments of a 21st transmission grid. Initial procurements can utilize existing authorities in the ISO-NE tariff while preserving state control over the process.

Need for Transmission

Recent analyses from states and third parties show that significant enhancements to the region's transmission system will be needed to meet legally mandated climate policies at lowest cost to all New England states. Maine's Renewable Energy Goals Market Assessment,[i] Rhode Island's Road to 100% Renewable Electricity study,[ii] Massachusetts' Decarbonization Roadmap,[iii] and Connecticut's Integrated Resource Plan[iv] find that the region will need tens of gigawatts (GW) of new renewable energy sources, and that unlocking transmission constraints and accessing remote renewables with transmission is the most cost-effective means of scaling renewables. Renewables enabled by new transmission will reduce the price of wholesale electricity for the entire region, and transmission can serve as a platform for states and third parties to procure renewables in a manner that minimizes impacts on the regional energy market.

Multiple participants in the technical forum highlighted the need for, and benefits of planning. In particular Dr. Biljana Stojovska of National Grid provided a clear example from the recently completed planning process to integrate offshore wind into the United Kingdom grid.[v] Beginning integrated transmission planning in the U.K. in 2025 versus 2030 is projected to reduce costs by 18% and reduce transmission infrastructure assets by 50%, thus significantly reducing impacts on the environment, fisheries, shorelines and local communities.

In New England, analysis by the Brattle Group found that a planned approach to developing transmission for the next round of offshore wind procurements could avoid over $1.1 billion in onshore grid upgrades, reduce marine cabling by 49% and significantly reduce the risks associated with major onshore transmission projects.[vi] These risks of major onshore upgrades are already confronting projects that states have selected, and will likely increase as accessible POIs with available interconnection capacity are used up. Specifically, ISO-NE has estimated upgrade costs of up to $786,883,800 to interconnect 2,400MW of capacity from already-selected projects into Cape Cod.[vii]

Additional Benefits

Expanded transmission can serve as a platform for third-party purchases of renewable energy through power purchase agreements (PPAs), enabling financing and deployment of renewable energy without relying entirely on state-led procurements. In Texas, strategic investments in transmission through the Competitive Renewable Energy Zone (CREZ) program have enabled over 2,000MW of onshore wind energy PPAs from 22 corporate buyers.[viii] In the Netherlands planned transmission has enabled corporate PPAs for offshore wind.[ix] Strategic investment in transmission can enable market-driven offshore wind deployment by large corporate and non-profit entities in the Northeast seeking local renewables to meet sustainability commitments.[x] For offshore wind in particular it is worth noting that independent, planned transmission is a necessary platform to enable small and mid-sized procurements pursued by third-party buyers. High voltage alternating current (HVAC) transmission systems are most economical in the 300MW to 500MW range, and high voltage direct current (HVDC) systems are most economical in the 1000MW to 1400MW range, both of which are far larger than most third-party buyer can support. However, by making transmission available to serve as a platform for procurement, states can enable third-party purchases and unlock a large source of demand.

Additionally, planned, independent transmission for offshore wind will increase competition between developers, leveling the field between leaseholders nearer and farther from shore and driving down prices. (It is worth noting that in the last round of Connecticut and Massachusetts offshore wind procurements one of the leaseholders with a lease area farther from shore declined to bid, reducing competition between developers.) In Europe, strategic investments in transmission have enabled countries such as the Netherlands and Germany[xi] to deploy offshore wind without subsidies or utility-backed contracts.[xii]

Planning Process

Successful transmission planning to achieve states' goals depends on a practical planning process that makes expeditious progress in addressing near-term needs, with additional analysis to identify long term needs and solutions. Experience shows that fast-paced analysis is possible. On September 15, 2009 the New England Governors released a Renewable Energy Roadmap[xiii] and requested ISO-NE to develop a Renewable Scenario Development Analysis to determine transmission needed to achieve renewable energy deployment goals. Within six months ISO-NE developed the New England 2030 Power System Study[xiv] identifying transmission needs for up to 15,000MW of wind and hydroelectric imports.

Similar expedited analysis should be used in a "fast" first round of analysis from ISO-NE, using state-provided scenarios. Additional rounds of analysis can then be undertaken to study longer-term needs without hindering the ability to procure near-term transmission solutions that are needed to accelerate renewable energy deployment at lowest cost. Stakeholders should be kept informed through posting of analysis with opportunity for comment. In order to establish an efficient planning process and enable market participants to begin identifying transmission solutions, states should develop a schedule leading to competitive procurements in late 2021 or early 2022.

States can additionally get the best value from the existing transmission system through regional planning and competitive procurement to replace aging transmission infrastructure. In recent years "asset condition" projects (existing facilities that are nearing end of life or need replacement for other reasons) have constituted the vast majority of transmission investment in the region. A single replacement project can cost hundreds of millions of dollars, and at present there is no review of whether replacing components of the 20th century grid with like components is a just and reasonable investment or whether alternative projects can better meet public policy goals. The states should work

with the Federal Energy Regulatory Commission to revisit planning process rules and RTO arrangements so that opportunities are not lost to optimize transmission or future needs.

Procurement Mechanism

States should utilize existing authorities in ISO-NE's tariff to procure transmission, while maintaining control over the transmission planning and procurement process. Section II of ISO-NE's Open Access Transmission Tariff provides a ready mechanism for states to procure transmission to address needs identified through the planning process. An illustrative procurement framework is appended to these comments, and additional detail on the existing mechanism is provided below.

Under the tariff,[xv] ISO-NE must at least every three years invite members of the Planning Advisory Committee (PAC) to provide input to NESCOE "regarding state and federal Public Policy Requirements identified as driving transmission needs" (Sec. 4A.1 p. 393). NESCOE then provides a letter to ISO-NE requesting a Public Policy Transmission Study, and the letter may identify "particular NESCOE-identified public policy-related transmission needs." This enables states to identify needs surfaced through the study process. Additionally, input can be provided on local and federal policies that drive transmission needs.

The tariff states that ISO's notice must be posted "no less than every three years by January 15" but this is a minimum requirement, and it does not preclude states from requesting a Public Policy Transmission Study and procurement process in late 2021 or early 2022. Once the study process starts, there are three opportunities for states and stakeholders to provide input: first on the proposed scope, second on draft results, and third on final results. Feedback on final results explicitly calls for "updates from the states on any methods by which they are satisfying their respective Public Policy Requirements included in the Public Policy Transmission Study." (Sec.4A.4, p. 396.) At any of these points states could notify ISO-NE that there is no longer need for a study or procurement. The consequences of such a notification are not explicitly laid out in the tariff, but ISO-NE's deference to states on public policy transmission makes it highly unlikely that the process would proceed. This deference is evidenced in the fact that ISO-NE has never acted on public policy transmission in response to being informed by the states that they do have not required use of the public policy process to date in order to meet their state statutes and regulation targets for clean energy. In short, the states can control the public policy process through this same mechanism: at any point they can inform the ISO that they plan to meet identified statutes and regulations through other means (e.g. a state RFP) and that the driver for regional public policy planning no longer exists.

Successful Precedents

Experience from other regions that have successfully developed public policy transmission shows that selecting a portfolio of projects distributes benefits across states/load zones and facilitates cost allocation. This experience is summarized in a study from the Brattle Group[xvi] describing how SPP, MISO, NY and CA developed public policy transmission, determined benefits, and allocated costs. In particular the SPP and MISO examples (starting on slide 17) are instructive as both SPP and MISO include multiple states. In New England, initial priority projects could include a diverse portfolio of projects potentially including: transmission from Cape Cod / SEMA to Boston to enable continuing offshore wind deployment, upgrades to enable onshore wind development in Maine and unlock current constraints limiting the availability to move clean energy being added to that state, transmission from the wind energy areas to CT to minimize overloads/upgrades in SEMA, upgrades to the Northern VT transmission system to reduce curtailment and enable continuing development, and connections between MA and NH identified in Massachusetts Decarbonization Roadmap.

Thank you for the opportunity to comment. Anbaric looks forward to continuing engagement in the Energy Vision process and to presenting solutions to the region's transmission needs.

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End notes:

[i] Available at: https://www.maine.gov/energy/studies-reports-working-groups/current-studies-working-groups/renewable-energy-market-assessment

[ii] Available at: http://www.energy.ri.gov/100percent/

[iii] Available at: https://www.mass.gov/info-details/ma-decarbonization-roadmap

[iv] Available at: https://portal.ct.gov/DEEP/Energy/Integrated-Resource-Planning/Integrated-Resource-Planning

[v] National Grid ESO's Offshore Coordination Phase 1 Final Report is available at: https://www.nationalgrideso.com/document/183031/download

[vi] Commissioned by Anbaric, *Offshore Transmission in New England: The Benefits of a Better-Planned Grid* builds on ISO-NE's Economic Studies to calculate costs and evaluate risks associated with two scenarios: 1) the current offshore transmission approach of connecting generator lead lines to nearshore locations, and 2) a planned approach utilizing HVDC to route offshore wind to load centers and robust grid connections. For the next 3,600MW of capacity (approximate demand from CT, MA, RI and other interested states and third parties), the planned approach cost 10% less overall, avoided $1.1 billion in onshore grid upgrades, and significantly reduced risk of cost overruns and delays experienced by recent onshore transmission projects in New England. Study available at: http://ma.anbaric.com/brattlereport/. In public comments to the ISO-NE Planning Advisory Committee Al McBride, Director of Transmission Strategy and Services at ISO-NE stated that the findings of the Brattle report are consistent with ISO-NE's findings.

[vii] ISO-NE's Feasibility Study for QP 828 identifies $226,949,000 in upgrade costs with a -50% to +200% range ($113,474,500 to $680,847,000) to interconnect three projects planning to connect to Cape Cod. QP 829 estimates $35,345,600 in upgrades with a -50% to +200% range ($17,672,800 to $106,036,800), in addition to upgrades from QP 828.

[viii] See *Corporate Renewable Procurement and Transmission Planning,* 2019, available at: https://windsolaralliance.org/wp-content/uploads/2018/10/Corporates-Renewable-Procurement-and-Transmission-Report-FINAL.pdf

[ix] See: https://cleantechnica.com/2019/05/28/microsoft-announces-new-offshore-wind-energy-agreement-in-the-netherlands/

[x] Anbaric has been approached by large energy consumers to explore the potential of enabling third-party PPAs for offshore wind through strategic transmission investments.

[xi] Germany conducted zero-subsidy offshore wind generation auctions in 2017: for three wind farm projects: OWP West, Borkum Rifgrund West 2, and HE Dreiht.

[xii] See https://www.government.nl/latest/news/2019/07/10/vattenfall-to-build-second-unsubsidised-dutch-offshore-wind-farm

[xiii] Available at: http://nescoe.com/uploads/September_Blueprint_9.14.09_for_release.pdf

[xiv] Available at: https://www.iso-ne.com/static-assets/documents/committees/comm_wkgrps/prtcpnts_comm/pac/reports/2010/economicstudyreportfinal_022610.pdf

[xv] Available at: https://www.iso-ne.com/static-assets/documents/regulatory/tariff/sect_2/oatt/sect_ii.pdf

[xvi] Available at: https://brattlefiles.blob.core.windows.net/files/20508_transmission_cost_allocation_-_principles_methodologies_and_recommendations.pdf

**New England Transmission Procurement Framework**

March 2021

The New England transmission system requires significant optimization and expansion to integrate clean energy resources. Transmission must be planned, procured, and built in a manner that ensures consistency with states' objectives, minimizes costs, and accelerates projects that take years to permit and construct. Utilizing existing ISO-NE public policy procurement authority[i] – with safeguards to ensure that the process is providing states with solutions that meet state objectives in a manner desirable to the initiating states – provides a readily available mechanism to achieve states' shared objective of a clean, affordable, and reliable 21st century regional electric grid.

ISO-NE public policy procurement authority provides an efficient mechanism to draw on ISO-NE's transmission planning capabilities, and states can assert control to ensure consistency with state objectives. Under ISO-NE public policy procurement authority states can request that ISO-NE initiate a process to develop public policy transmission at any time. And at any time states can stop the process by providing notice to ISO-NE that states will develop transmission independently to achieve public policy objectives.

The process would work as follows:

1. States provide notice to ISO-NE of statutes and regulations that drive the need for public policy transmission. Notice may be provided at any time outside of ISO-NE's minimum requirement of a 3-year solicitation of public policy transmission needs.
2. States indicate a public policy need for transmission to achieve statutes and regulations identified in #1 and request initiation of a public policy planning cycle.
3. States specify objectives of public policy transmission; for example, develop transmission to enable:
    a. Interconnection of [XX]MW of offshore wind to load centers and strategic points of interconnection, based on recent studies (e.g. [XX] MW into [SW Connecticut/Boston])
    b. Interconnection of [XX]MW or solar energy in [XX location(s)]
    c. Interconnection of [XX]MW of onshore wind/solar/imported hydro in Maine with deliverability to load
    d. Export of [XX]MW of offshore wind from Cape Cod to load
4. States specify priority evaluation criteria and timeline, for example:
    a. Lowest overall lifetime cost to consumers[ii]
    b. Enhanced reliability, fuel security, and resiliency
    c. Minimization of new overland rights of way
    d. Avoidance, minimization, and mitigation of environmental impacts
    e. Issue procurement by [date] and conclude evaluation by [date].
5. ISO-NE conducts procurements to achieve objectives in #3-#4
6. States and ISO-NE evaluate bids
7. States notify ISO-NE of intent to:
    a. Utilize preferred submittal(s) evaluated in #5, or
    b. Address public policy transmission needs independently, bringing Order 1000 process to an end[iii]
8. If states proceed to approve selection of preferred submittals, projects proceed with permitting and construction. Costs are included in the regional transmission tariff, with costs allocated in accordance with the approved default ISO-NE public policy procurement authority[iv] or another cost allocation approach proposed by states.[v]

Endnotes:

[i] See Attachment K: Regional System Planning Process, Section 4A, page 393 at: https://www.iso-ne.com/static-assets/documents/regulatory/tariff/sect_2/oatt/sect_ii.pdf

[ii] Lowest lifetime consumer cost could include projects with higher capital costs and higher benefits due to reduced production costs, reduced curtailment, increased renewable energy integration and other benefits. For additional information on calculation of benefits and cost allocation methodologies see *Transmission Cost Allocation: Principles, Methodologies, and Recommendations*, Brattle Group, 2020, available at: https://brattlefiles.blob.core.windows.net/files/20508_transmission_cost_allocation_-_principles_methodologies_and_recommendations.pdf

[iii] This approach is similar to the State Agreement Approach that New Jersey will pursue in partnership with PJM, wherein PJM runs the procurement and New Jersey elects whether to select one or more projects. See: https://www.nj.gov/bpu/pdf/boardorders/2020/20201118/8D%20-%20ORDER%20Offshore%20Wind%20Transmission.pdf

[iv] Under ISO-NE public policy procurement authority, 30% of costs are allocated to states with public policies driving the need for public policy transmission in proportion to their load, and 70% of costs are allocated to all states in proportion to load.

[v] An alternative cost allocation methodology could be established through the ISO-NE tariff, or independently if states assume control of contracting for the selected project(s). A summary of viable cost allocation methodologies is provided in *Transmission Cost Allocation: Principles, Methodologies, and Recommendations*, Brattle Group, 2020, available at: https://brattlefiles.blob.core.windows.net/files/20508_transmission_cost_allocation_-_principles_methodologies_and_recommendations.pdf