UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION
TECHNICAL CONFERENCE
Offshore Wind Integration in RTOs/ISOs
Docket No. AD 20-18-000

Statement of Anne Marie McShea, Head of Offshore Wind Business Development – New York and MidAtlantic Region, Ocean Winds (OW), North America, LLC – a joint venture of EDP Renewables and ENGIE, October 27, 2020

OW North America, LLC (OW) would like to thank the Commission and Commission Staff for convening this Technical Conference on Offshore Wind Integration - a topic of great importance to future energy markets, the States and ratepayers served by these markets and to our industry. We appreciate the role of FERC in regulating wholesale electricity markets and ensuring, under FERC Order 1000, support for State public policies that advance clean energy on behalf of its ratepayers. These comments address whether and how existing transmission planning processes consider onshore and offshore transmission projects to integrate anticipated generation resources, whether these transmission projects should be considered through another mechanism, and whether the interregional coordination provisions of FERC's Order 1000 can facilitate development of transmission projects to integrate offshore generation that can potentially serve multiple RTOs/ISOs.

OW Ocean Winds

OW, a joint venture between EDP Renewables and ENGIE, is engaged in offshore wind development in Europe, Asia and North America. These two companies are among the world's leading independent power producers as well as among the largest renewable energy producers. By year end 2020, EDPR and ENGIE will provide over 10,000 MW of renewable energy to North American customers.

OW is a 50% investor in the Mayflower Wind project, that holds a BOEM offshore wind energy lease off the coast of Massachusetts. Mayflower Wind has an 804 MW Power Purchase Agreement in place with the local electric distribution companies pursuant to a state-sponsored selection process. Mayflower plans to interconnect via radial interconnection to Independent System Operator - New England (ISO-NE). Additional capacity from Mayflower Wind could be delivered to ISO-NE, NYISO or PJM electricity grids depending on available transmission, points of interconnection and commercial opportunities.

OW is seeking to develop a portfolio of projects through the acquisition of leases in the US federal waters. All these projects and investment decisions depend on the ability to interconnect to the grid in a predictable, timely and cost-efficient manner which is the subject of today's conference.

State Policy Drivers

The electricity sector is undergoing a period of rapid and unprecedented transformation due to State public policy goals and the evolution of grid technologies. States have been leading efforts to decarbonize the electricity sector by enacting increasingly ambitious clean energy goals, with offshore wind as a key driver in meeting those goals – a role that is deeply consistent with the "resource selection" and generation regulatory authority allocated to the States under the Federal Power Act. Massachusetts,

Rhode Island, Connecticut, New York, New Jersey, Maryland and Virginia have each adopted near term and long term Clean Energy targets with combined commitments of nearly 30 GW of offshore wind capacity. Nationally, AWEA expects at least 30 GW of offshore wind by 2030 and estimates this will produce 83,000 jobs and $25 billion in annual economic output. **OW believes that integrated backbone transmission solutions serving multiple projects and markets will be key to realizing the public policy goals and the associated benefits.**

OW

State Clean Energy Targets are driving regional development of offshore wind

State	Renewable & Clean Energy Goals	Offshore Wind Commitment (MW)	OSW Awarded (MW)	OSW Under Solicitation (MW)
Massachusetts	35% by 2030 80% Clean Energy by 2050	3,200 MW	1,600	0
Rhode Island	100% by 2030	Unspecified	430	0
Connecticut	48% by 2030 100% Carbon-free Electricity by 2040	2,300 MW	1,108	0
New York	**70% by 2030** **100 % Clean Energy by 2040**	**9,000 MW**	**1,826**	**2,500**
New Jersey	**50% by 2030** **100% Clean Energy by 2050**	**7,500 MW**	**1,100**	**2,400**
Maryland	50% by 2030 100% Clean Energy by 2040	2,000 MW	368	1,200
Virginia	30% by 2030 100% Renewable Energy by 2050	5,212 MW	12	0
California	44% by 2024; 52% by 2027; 60% by 2030 100% clean energy by 2045	*	*	*
TOTAL		**28,612 MW**	6,444	6,100

3

These clean energy plans also mandate increasing reliance on solar, distributed generation, storage and the electrification of the transportation sector which have implications for the electric transmission and local distribution system. An offshore transmission system must integrate with plans for the onshore grid and should consider a broad set of potential benefits in addition to those identified as State "public policy" benefits including:

- optimization of transmission in areas of high congestion and constraint;
- integration of storage solutions;
- interaction with solar and distributed resources;
- lower capacity and energy prices;
- Improved coastal resiliency and storm response;
- lower environmental impacts to marine ecosystems;
- Increased competition among offshore wind developers which lowers costs;

FERC plays a critical role in regulating RTOs and fostering regional solutions across markets in support of State public policies. FERC´s leadership is needed to provide RTO/ISOs a clear mandate to develop offshore transmission solutions that anticipate the growth of offshore wind to meet State Clean Energy goals.

Following are OW responses to the questions posed by FERC Staff:

1. ***Do existing RTO/ISO transmission planning and cost allocation processes— including public policy planning requirements, interregional coordination, and other approaches*—accommodate the anticipated need for transmission to integrate offshore wind generation?**

OW RESPONSE: The current RTO/ISO planning and cost allocation methods generally hinder the integration of offshore wind on a large scale beyond interconnection of single projects via interconnection requests. This tends to be true across the three major east coast RTOs/ISOs where offshore wind projects are developed. The primary reasons are 1) the RTO transmission planning process overly relies on the interconnection queue to determine transmission needs; 2) RTOs evaluate transmission needs based on requirements for reliability, market efficiency, resilience and "public policy" in an unintegrated manner; and 3) cost allocation methods fail to recognize the broader system benefits and the beneficiaries of offshore wind transmission.

Under FERC Order 1000 each public utility transmission provider must participate in a regional transmission planning process that considers transmission needs driven by public policy requirements. This is a specific element of the RTO/ISO Transmission planning process that considers and plans transmission projects based on key drivers such as reliability, market efficiency, operational performance and more recently post Order 1000, public policy needs. In PJM, projects determined to be primarily public policy projects are then advanced under the "State Agreement Approach" which requires State sponsorship and assigns responsibility for all project costs to the State Sponsor(s) regardless of the system benefits and other beneficiaries. The State Agreement Approach deters public policy transmission projects because the costs are excessive for a single State and such cost allocation method fails to share the project costs among market beneficiaries located outside of the State which is not consistent with the classic "beneficiaries pay" principle.

Additionally, current transmission planning, and even more so current cost allocation, in the RTOs does not recognize transmission projects that have multiple benefits – like providing reliability benefits while advancing implementation of state policies.

The RTO planning process also does not prioritize the transmission projects that will be required to meet State clean energy goals. NYISO is currently participating in a State sponsored study to accomplish this for all renewables and for offshore wind transmission specifically[1]. The NYISO study could serve as a model in other RTOs as it allows the planning process to focus on the optimal design of an offshore wind transmission backbone relative to State capacity commitments but also seeks to optimize the onshore grid. However, in PJM, a state interested in sponsoring an offshore wind transmission project would likely need to request the study from PJM or they would need to agree on a third party to conduct the study.

RTO/ISOs tend to rely upon interconnection requests to determine incremental demand and related transmission needs versus transmission for planned capacity that is not yet leased or in the interconnection queue. For example, the PJM Regional Transmission Expansion Plan (RTEP) which adopts a 15 year planning horizon, considers the existing topography and changes to generation mix based on the interconnection queue. This analysis does not reflect the true mix of resources that will be relied upon

[1] Governor Cuomo, 2020 State Address, Combatting Climate Change. Part 3: Expand Renewable Energy Power in New York to Meet Zero Carbon Emissions by 2040. Proposal: Prepare the Electric Grid for New, Renewable Generation (Page 34).

by say 2030[2]. This process specifically leaves out areas of new generation resources – be it on-shore wind, gas fields or off-shore leases. Huge amounts of transmission investment is done through the interconnection process on a "but-for" basis. In the case of offshore wind, States like Maryland and New Jersey have already committed to a set amount of capacity to be procured under long term contracts or offtake agreements. While these commitments are generally recognized in the PJM 2019 RTEP (Section 5.0 Facilitating Interconnection), PJM defers to the State Agreement Approach, a methodology that has significant flaws as explained in these comments, to advance transmission needs that are beyond the interconnection queue process.

Some RTO/ISOs also require site control or a federal offshore wind lease in order to process an interconnection request so interconnection requests are limited to current lease holders and do not reflect future lease holders and anticipated capacity. BOEM New York Bight leases are expected to be auctioned in 2021 which could represent an additional 9-15 GW of offshore wind capacity to be interconnected. If New York Bight leases are auctioned in 2021 there will be a dash for competing interconnection requests in locations already very constrained. The greatest need is thus for transmission plans to anticipate and facilitate the future growth of offshore wind by 2030 and 2050 in sync with State clean energy goals.

OW recommends that FERC require RTOs to reflect offshore wind capacity targets within RTO Transmission Plans based on State mandated procurement targets and offshore wind solicitation schedules to facilitate transmission planning that reflects the future resource mix. BOEM Lease Auctions and related capacity potential may also inform RTO planning. The result would be RTO/ISO planning that follows the requirements and needs of this important new resource instead of discouraging new backbone transmission that may challenge traditional models of resource integration.

2. Staff is aware of various transmission development options for integrating offshore wind generation. Among others, these include: (1) the conventional approach in which Interconnection Customer Interconnection Facilities and Network Upgrades are developed in tandem with new generator interconnection requests, and either sized to accommodate a single generation facility or sized to maximize the export capability on a radial line given the anticipated development of additional generation in the same area; and (2) a "transmission first" approach in which large-scale transmission facilities, including an extension of the transmission system and/or expansion of capacity within existing facilities, are constructed onshore and/or offshore for anticipated generation in order to realize economies of scale. The Commission's regulatory frameworks, except perhaps the merchant transmission framework, do not include a "transmission first" approach. Do the Commission's regulatory frameworks and/or RTO/ISO processes present any impediments to these options? If so, what are the impediments? What opportunities or potential efficiencies, if any, do these or other approaches offer?

OW RESPONSE: Transmission policies need to be sufficiently flexible to be able to consider a range of approaches to interconnect offshore wind generation. Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Maryland and Virginia have already enabled the procurement of a combined 6GW of offshore wind generation projects which utilize the proven generator lead line approach to transmission.

[22] https://www.pjm.com/~/media/about-pjm/newsroom/fact-sheets/rtep-fact-sheet.aCshx; Also see https://www.pjm.com/-/media/library/reports-notices/2019-rtep/2019-rtep-book-1.ashx?la=en

Mayflower Wind is among this group that ties into the grid via radial line based on an interconnection request for a specified amount of installed capacity. Projects already underway using radial interconnection should not be delayed by the adoption of other models for subsequent projects.

For future offshore wind procurements however, a "transmission first" approach will help ensure long term growth aligned with State solicitation schedules and clean energy targets. It will also allow for greater optimization of the points of interconnection relative to power flows and system constraints. A "transmission first" approach will also require new RTO transmission planning procedures as discussed above to ensure such planning is fully integrated in the existing transmission planning framework.

The most important first step is to include the offshore regions and their likely generation capability in the regional plans. This will allow transmission to be developed during the permitting and development phase of the offshore project.

One of the largest impediments to transmission first approach is cost allocation. Currently FERC Order 1000 directs RTOs to consider transmission projects that support "public policy" and defers to the RTO on how to allocate costs. PJM adopted, as it's Order 1000 public policy implementation mechanism, a "State Agreement Approach" which essentially places all transmission costs on the sponsoring state even when there may be broader system wide benefits or beneficiaries in neighboring geographies. This inability to share the cost related to large offshore wind transmission infrastructure among its beneficiaries is highly problematic and hinders State sponsorship and regional cooperation, as discussed above.

FERC can advance offshore wind transmission projects by directing RTO's to 1) evaluate offshore transmission based on a broader set of criteria that include the contribution of the project to system reliability, operational performance, market economics and resiliency in addition to 'public policy" goals and 2) modify the cost allocation method based on the proportional share of benefits within each state and across the grid and between RTOs. The cost allocation method is the most controversial and divisive and what is most likely to delay and jeopardize future RTO offshore wind transmission plans.

3. Should "transmission first" facilities be considered through a dedicated planning process designed for offshore wind generation? If so, how would that process work and relate to existing interconnection, merchant transmission and transmission planning processes? Are there any impediments or advantages/disadvantages to using a dedicated process?

OW RESPONSE: Transmission policies need to be sufficiently flexible to be able to consider a range of approaches and interconnection needs including the use of single radial lines where that is the most efficient solution. **"**Transmission first" facilities can be considered through a dedicated planning process as seen in New York or may be considered through the RTO regional transmission planning process with appropriate changes to recognize the existence of a new resource outside of the traditional planning scope. This is very akin to the development of nuclear and mine-mouth plants in the 1960s that resulted in the existing high-voltage network. To reap the full benefits of an offshore transmission backbone system, it should be planned and analyzed as an extension of the onshore grid. Future offshore wind transmission systems should also be considered within the context of other clean energy initiatives including the use of solar and storage solutions, the electrification of the transportation system and local grid upgrades. A dedicated process might work, but it has to be integrated with the on-shore grid and cannot interfere with progress of projects already in progress under the current interconnection regime.

The success of a "transmission first" system will depend on several key factors related to the planning process including[3]:

- **Very long planning horizons and the time needed to plan an optimized system,** to design key technical specifications, to execute a competitive solicitation, and to construct the transmission line prior to the wind farms' turbine installation. In the case of Texas CREZ lines, the overall timeframe from legislation through to commissioning took nine years to connect 18.5 GW. A nine-year planning and construction horizon would push an operational offshore wind transmission backbone to 2030. This planning horizon would likely need to be compressed and then carefully managed in order to align with the next round of States' offshore wind solicitations.
- **Transmission design and the need to have an optimum design implemented in a certain time frame for an identified total capacity**. An optimization study needs to be performed by a leading authority and that study should clearly state the build out capacities, the offshore substation locations, the cable routes, the point of interconnections and the technical specifications and standards for the overall system to avoid any unfair advantages and disadvantages to the lease holders. Once all of these parameters are decided than a competitive solicitation, open to both offshore lease holders and third-party transmission developers, should be run to select the transmission developer.
- **Mitigation of project-on-project risk.** When the transmission and generation development are executed independently a project-on-project risk, where the transmission infrastructure may not be ready when the generation project is ready for commissioning or vice versa., is introduced. This risk is especially relevant for the first wave of projects that would be subject to a "transmission first" system. New York and New Jersey have planned Round 3 solicitation in 2022 with projects likely to be awarded by 2023 and with a commercial operation date around 2028 /29 timeframe[4]. This first wave of projects would have the highest project-on-project risk but this could be mitigated by taking appropriate measures to ensure construction and operation in sync with State solicitations.

FERC can enable RTOs to initiate a dedicated offshore wind planning process with the support of States and with agreement that an alternative cost allocation method will be developed that evaluates and considers all benefits and beneficiaries beyond States' boarders.

4. When considering proposed transmission projects to integrate anticipated growth in offshore wind generation pursuant to RTO/ISO transmission planning and cost allocation processes, how would the benefits be considered? Are potential cobenefits, such as improved reliability or greater capacity to integrate other resources, of the proposed transmission projects, considered? If not, why not? What are the impediments to such consideration?

There are significant system benefits that should be evaluated especially as offshore wind technologies advance, adjunct technologies like storage are added and performance increases with higher capacity factors at 50% and greater. RTOs can model the performance and injection of offshore wind at various points of interconnect and coincident with demand to estimate system wide benefits including locational benefits in support of cost allocation methods. The results of such study, to be performed with input by the States, can help inform a discussion about which benefits to consider and how to optimize transmission and interconnection design.

[3] Mayflower Letter to Massachusetts Department of Energy Resources (DOER), February 18, 2020.
[4] Assuming projects are delivered from new leases yet awaiting to be auctioned.

There may indeed be significant reliability and resilience co-benefits from building a transmission system designed to support offshore wind generation, including mitigating existing seams issues by creating new connections between different RTO/ISO control areas, greatly increasing reliability and providing customers access to power from a wider pool of resources. Technical offshore wind integration studies performed by a leading authority along with the RTO/ISOs in collaboration with States and stakeholder can effectively demonstrate these benefits and inform the planning process.

Conclusion

OW appreciates the opportunity to provide its views on these important matters. OW encourages FERC to establish new RTO guidance and procedures for a well-planned, backbone transmission infrastructure that may serve multiple states and or RTO/ISOs. We believe that the RTO/ISOs regional transmission planning process will benefit by integrating future offshore wind capacity commitments by the States. A modified cost allocation method that considers the system benefits and proportional benefits of States will be key to gaining State support and moving forward in time to serve new federal lease areas. FERCs leadership in fostering collaboration between RTO/ISOs and the States to realize the first regional ocean grid will be key to our long-term success.

Respectfully,

Anne Marie McShea

Anne Marie McShea

Head of Offshore Wind Business Development, New York and MidAtlantic Region

OW Ocean Winds, North America