

March 12, 2021

Aida Camacho-Welch
Secretary of the Board
New Jersey Board of Public Utilities
44 South Clinton Avenue, 9 th Floor
Trenton, New Jersey 08625-0350

Via email to: Board.Secretary@bpu.nj.gov

Re: In the Matter of Offshore Wind Transmission, Docket No. QO20100630, Post
Technical Conference Comments

Dear Secretary Camacho-Welch,

Thank you for the opportunity to participate in the February 26, 2021 Technical Conference on offshore wind transmission. Ørsted would like to provide the Board with these post-Technical Conference comments to further assist the Board's understanding of the critical issues surrounding different approaches for offshore infrastructure connecting offshore wind.

Ørsted is the largest developer of offshore wind in the world. We built and operate 28 wind farms and the more than one thousand kilometers of subsea power cables needed to connect this green power to customers. The historic operational data collected from this worldwide cable portfolio enables us to predict, prevent and fix cable failures resulting in the shortest operational outages, mutually benefitting rate payers and developers alike.

From this position, Ørsted has developed a keen understanding of the risks associated with various offshore transmission regimes. The evolution of offshore wind transmission systems, from single wind farm radial connections to shared and possibly a meshed backbone will benefit greatly from careful planning and public policies. Ørsted appreciates the Board's leadership on these important issues.

Panel 1: Pre-Commercial Operation Delays, Mismatch of Construction Schedules:

Ørsted would like to take this opportunity to reinforce important elements of the issues discussed at the Technical Conference. During panel one, Ørsted's Christian Bjøl discussed a series of risks associated with shared transmission, and several tools available to policy makers to mitigate these risks. It is widely recognized that HVDC technology has many benefits and will likely be a key component of a meshed offshore backbone transmission system. However, Ørsted feels one key risk has received precious little attention in discussions regarding offshore transmission options. Namely, it is critical for the Board to understand that it is currently not possible to connect HVDC equipment from different manufacturers. Efforts are underway that may solve some, or all, of these interoperability issues. However, the timing of these solutions is unclear. Therefore, the NJ BPU needs to be aware that if it selects a shared transmission bid using HVDC technology, it may inadvertently limit

future offshore generation bids to certain technologies or manufacturers. This may have impacts to future prices and timing of availability of equipment for generators.

Panel 3: Post-commercial operational risk:

Ørsted discussed a key factor of post-commercial operational risk. Specifically, Øyvind Vessia pointed out how an offshore cable was repaired in “only” 29 days, setting a record for the fastest offshore cable repair. Most offshore cable repairs take much longer to complete. This is due to the offshore nature and the need to hold strategic spares, enlist special boats and crews to be able to complete repairs. The point is clear: the key difference between on and offshore transmission, that outages are much longer, much more costly and therefore generators and ratepayers need to have some protections from transmission owners. There are remedies to align the risks and achieve the lowest costs possible for rate-payers. However, requires a regulatory framework which sets out as a minimum:

- A methodology for calculating the compensation paid during offshore wind cable repair (for both planned and unplanned outages) including rules for validation of lost production;
- Cable outages can also lead to cascading costs therefore rules to cover costs associated with consequential damage (such as increased maintenance) are also needed.

Ratepayers will face higher costs if these elements are not addressed, as they will need to be incorporated in future generation bids as risk-premiums. It is therefore key that the owners of the offshore grids have the incentives for adequate system maintenance. In case of unrepairable damage, a liability scheme should also be in place. The solution in the UK is that unforeseeable events and the costs of those are now socialised. It’s an economically efficient solution which avoids over-engineering and over-spend for events that are high impact but extremely low risk.

A further point made regards the lifetime of the grid connection versus the offshore wind farm. The possible mismatch in incentives and treatment of assets limits the options of what can be done for life-extension. Generators will only deploy a life-extension option (repowering, refurbishing etc.) if the transmission assets are in good shape to last the extended period.

Additional comments regarding the evaluation of offshore transmission risks:

Assessing various risks will inevitably be part of the Board’s analysis of potential on- and offshore transmission solutions that arise via the State Agreement Approach with PJM. If the BPU adopts methodologies similar to those used by PJM in its planning processes for merchant transmission projects (i.e., assuming zero MW energy and capacity injection into the grid) there is a chance that future offshore wind developer will still be carrying the risk of not being able to deliver power to NJ due to the expensive and prohibitively complex grid upgrades of the wider PJM system.

Additionally, developers may face risks that near-term grid upgrades (especially to onshore points of interconnection) built to accommodate future offshore wind may get used by other onshore generators and be unavailable to offshore generators

pursuant to future solicitations. Predictability for investments here will be crucial to keep capital costs as low as possible, which in turn allows for lowest cost electricity.

Ørsted appreciates this opportunity to comment and we are more than willing to have continued dialog on these important issues, bringing our experience from numerous European grid connection regimes. The Board and its staff should feel free to reach out to us as we are happy to be a technical resource of both offshore generation and transmission.

Best regards,

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Ørsted