

ONE HUNDRED SEVENTEENTH CONGRESS
Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6115

Majority (202) 225-2927
Minority (202) 225-3641

November 29, 2021

Mr. David Hardy
Chief Executive Officer
Ørsted Offshore North America
399 Boylston Street, 12th Floor
Boston, MA 02116

Dear Mr. Hardy:

Thank you for appearing before the Subcommittee on Energy on Thursday, October 21, at the hearing entitled “Offshore Wind, Onshore Benefits: Growing the Domestic Wind Energy Industry.” I appreciate the time and effort you gave as a witness before the Committee on Energy and Commerce.

Pursuant to Rule 3 of the Committee on Energy and Commerce, members are permitted to submit additional questions to the witnesses for their responses, which will be included in the hearing record. Attached are questions directed to you from certain members of the Committee. In preparing your answers to these questions, please address your responses to the member who has submitted the questions in the space provided.

To facilitate the printing of the hearing record, please submit your responses to these questions no later than the close of business on Monday, December 13, 2021. As previously noted, this transmittal letter and your responses, as well as the responses from the other witnesses appearing at the hearing, will all be included in the hearing record. Your written responses should be transmitted by e-mail in the Word document provided to Lino Peña-Martinez, Policy Analyst, at Lino.Pena-Martinez@mail.house.gov. To help in maintaining the proper format for hearing records, please use the document provided to complete your responses.

Mr. David Hardy

Page 2

Thank you for your prompt attention to this request. If you need additional information or have other questions, please contact Lino Peña-Martinez with the Committee staff at (202) 225-2927.

Sincerely,

A handwritten signature in blue ink that reads "Frank Pallone, Jr." in a cursive style.

Frank Pallone, Jr.
Chairman

Attachment

cc: The Honorable Cathy McMorris Rodgers
Ranking Member
Committee on Energy and Commerce

The Honorable Bobby L. Rush
Chairman
Subcommittee on Energy

The Honorable Fred Upton
Ranking Member
Subcommittee on Energy

Attachment—Additional Questions for the Record

**Subcommittee on Energy
Hearing on
“Offshore Wind, Onshore Benefits: Growing the Domestic Wind Energy Industry”
Thursday, October 21, 2021**

Mr. David Hardy, Chief Executive Officer, Ørsted Offshore North America

The Honorable Frank Pallone Jr. (D-NJ)

1. Several states, including New Jersey, have established ambitious offshore wind procurement goals and have approved long term power purchase agreements for offshore wind generation.

What is the average tenor of such contracts?

RESPONSE:

- The average length of offshore wind PPAs in the US is 20-25 years. These timelines align with the service life, allowing time for decommissioning.
- Revenue contracts (such as PPAs) tend to be shorter than the expected project lifetime (e.g. a project with a design lifetime of 30 years may have a PPA for the first 15-25yrs, thereafter it would either sell its power to the wholesale power market or enter into more PPAs.
- For example, our Ocean Wind 2 Offshore Renewable Energy Credit with NJ is 20 years.

What is the minimum contract term necessary to make a domestic offshore wind project financially viable?

RESPONSE:

- There are multiple factors that shape whether a project is financially viable in addition to contract terms, most significantly accessing the types of financing necessary to build these large projects. There is no single minimum contract term necessary to make offshore wind viable because it depends on many externalities.
- Across the lifecycle of OSW project development, there are different types and levels of risk that impact viability. Permitting certainty, first and foremost, drives early development by helping to secure financing before significant subsequent investments are made during construction.

- A 2020 study by PwC notes that “Uncertainty about government policies, which aim to correct these market failures, negatively affects demand for green energy and green PPAs... The depth of the corporate PPA market is driven by demand for green electricity. These parties will require a certain degree of certainty about government policy if they are to agree purchase contracts of 10 years or longer.” (PwC, 2020, p. 16)
- Fundamentally, developers consider if the project’s internal rate of return (IRR) is higher than the weighted average cost of its capital (WACC). If the expected IRR exceeds the WACC, a project is deemed financially viable. If it does not, the project will not create any value and, hence, is not a strong project to pursue.
- The minimum contract term necessary to make a domestic offshore wind project commercially viable must produce returns that match the risk taken on for a given project.

Should the federal government execute offtake agreements to purchase power generated from offshore wind, and if so, would that spur the industry’s development?

RESPONSE:

- Federal procurement of offshore wind power would certainly spur industry development, as demand and secured contracts are major drivers of further investment in manufacturing facilities, vessels, and workforce development funding. The duration of revenue contract plus pricing will ultimately influence attractiveness, regardless of the buyer.
 - Orsted is encouraged by the Executive Order issued by the President on December 8th directing the federal government to source 100% of its electricity from carbon free sources by 2030.
2. During your testimony you stated that offshore wind generation in Europe is less expensive than in the United States because Europe has made supply chain and capital investments necessary to bend the cost curve.

How can the United States government help bend the cost curve and make offshore wind power less expensive for ratepayers?

RESPONSE:

- Policy incentives, like the offshore wind investment tax credit, directly lower the tax burden for offshore wind projects, allowing developers to reinvest in future projects, creating a virtuous cycle that helps achieve efficiencies that come with technology advancements and economies of scale.
- Additionally, as I noted during my testimony, tax incentives, grants, and loans that help domestic manufacturers in our supply chain jump down the cost curve, compete

with other providers, and support the domestication of experience and new industries will enable the expansion of the U.S. offshore wind industrial base. Programs like:

- The Offshore Wind Manufacturing Tax Credit,
 - Funding and expansion of the Loan Program Office to include key components that support OSW like vessels, and
 - Funding for logistics support for offshore wind components.
- Finally, federal investment directed at our nation's infrastructure contained in the Bipartisan Infrastructure Bill and the Build Back Better act will help expedite some of high upfront costs associated with the foundational infrastructure upgrades to our ports and electrical grid that are needed to spur the creation of a U.S. offshore wind industry. These federal investments will complement investments Orsted is already making in ports, transmission, vessels and workforce training.

What are the primary capital expenditures necessary to establish a robust offshore wind industry in the United States?

RESPONSE:

- The primary capital expenditures are:
 - Grid upgrades/transmission
 - Facility construction/upgrades (land and wharf infrastructure)
 - Building construction
 - Jones Act Qualified vessel construction for WTG installation vessels, SOVs, CTVs, and others
 - Offshore wind components, transportation, and installation
 - WTGs
 - Foundations
 - Cables
 - Substations

To what extent would the offshore wind industry benefit from a federal program that provides financial support for such capital expenditures?

RESPONSE:

- It is critical that there is financial support for these types of capital expenditures. These are the exact investment that distribute offshore wind investment throughout the United States by creating a nationwide supply chain; as I noted during the hearing, offshore wind is a national industry, even with offtake agreements focused along the eastern seaboard.
- Senator Markey's Offshore Wind Manufacturing Act outlines the key components of this list that require federal support to compete with other international suppliers that have been participating in the OSW supply chain for over a decade.

- With the growing number of offshore wind leases offered in the United States, the Offshore Wind American Manufacturing Act boosts domestic manufacturing through an investment tax credit and a production tax credit
- This legislation would create a 30 percent investment tax credit for qualified facilities that manufacture offshore wind components and subcomponents that would reduce the high capital costs required to build, upgrade, or retool a facility. The investment tax credit would be complemented by a new production tax credit for qualified offshore wind components and dedicated offshore wind vessels. Orsted strongly supports this policy.

Does it make a difference if the government provides grants or loans?

RESPONSE:

- Both are useful in unique ways to develop components of the offshore wind supply chain. Where grants target particular policy goals, loans can address a specific project need that might help overcome unexpected hurdles as we build out a new clean energy economy. Loans are, within the parameters of the loan program, able to support specific projects by creating more flexibility for clean energy developers. We would support ensuring that loan programs like DOE's LPO and MARAD's Title XI Loan Program are refined to ensure that they can be used to finance offshore wind specific investments, like supply chain development and vessel construction. Grants can provide immediate support for projects but are often within more constrained parameters.
3. *Ørsted has made significant investments in the State of New Jersey, including by purchasing 50 zero emission vehicles for the Port of Newark. As Ørsted's business grows in the United States, can you commit to making additional investments in seaside communities, including through measures that prioritize environmental justice and the health of port communities?*

RESPONSE:

- Yes – this aligns with our existing commitments to sustainable development and the revitalization of coastal waterfronts. We continue to seek out new opportunities to support the communities benefitting from and living with our projects.

The Honorable Jan Schakowsky (D-IL)

1. *A map provided by the Business Network for Offshore Wind identifies 30 offshore wind supply chain contracts executed with companies in Illinois. What can states in the Midwest, like Illinois, do to ensure that we continue to capture an increasing part of the domestic offshore wind supply chain, and is Ørsted committed to working with partners throughout the United States?*

RESPONSE:

- We're proud of the investments we've made to lead the build out of a domestic offshore wind supply chain. We already have partnerships between our offshore line and businesses in over 30 states including Illinois, Indiana, Michigan, and Ohio. We remain committed to working with partners throughout the US and are advancing new relationships across the country.
- States across the United States can help draw investment from offshore wind developers by providing tax incentives for manufacturing, investing in workforce development geared toward and in partnership with offshore wind developers, setting their own procurement targets, and enabling robust interstate transmission.

The Honorable Kurt Schrader (D-OR)

1. Supply chain problems continue to plague industries all across the United States. For instance, I have heard from local businesses in my district who struggle with inventory delays due to bottlenecks at ports and other challenges. *Has Ørsted experienced similar supply chain disruptions? How have they affected your ability to deliver orders to customers? And what, if anything, can Congress do to help ameliorate such supply chain disruptions?*

RESPONSE:

- Our component sourcing has not, at this time, been impacted by the availability of components, as the majority of our projects won't begin construction until 2023 or 2024.
 - However, we are attuned to the impact of supply chain disruptions to our ports and surrounding infrastructure. To that end, we firmly support additional port funding to ensure that increasing offshore wind related port work can co-exist with ongoing port activities.
2. The Pacific coast is very different from waters off Europe or the East Coast, where offshore wind energy projects have been erected so far. For instance, we would be dealing with much deeper water, where it may make more sense to deploy floating turbines.

What research is needed to support industry efforts to install, operate, and maintain offshore wind projects, especially deep-water projects?

RESPONSE:

- Floating technologies, which will be key to the West Coast market, are being demonstrated and deployed at increasingly larger capacity in markets across Europe and Asia Pacific. Even more than R&D, federal agency coordination and resourcing are viewed as a risk to the timely, predictable deployment of West Coast offshore wind. That said, there are certainly enhancements and new technologies that can improve performance where Congress can provide direction and support to agencies like DOE, NSF, NOAA and BOEM for offshore wind R&D. Research to support

industry efforts to install, operate, and maintain offshore wind projects, especially deep-water projects, might include:

- cost reduction of mooring and anchor systems for very deep waters
- unlocking construction, assembly and installation efficiencies, including modularization and serial production
- innovation in harbor infrastructure needed for modularization and serial production
- innovation in installation and operation & maintenance strategies, including innovative solutions to minimizing towing to shore operations
- optimization of durability and cost of dynamic array and export cables in very deep waters
- innovation in solutions for offshore substations including subsea and floating structures
- materials sciences to create more durable materials for ocean conditions,
- materials recycling for floating turbine components after decommissioning,
- supply chain decarbonization for steel and other key turbine components,
- logistics modelling to reduce transport emissions and new methods for shipping turbine components, and
- vessel design R&D to support new solutions in installation for floating and fixed-bottom offshore wind.

What uncertainty do you anticipate we will have to mitigate?

- An absence of clear state procurement targets for OSW is a significant risk to creating OSW markets in California, Oregon, and Washington state. California, for example, has decided to set an OSW goal in Summer 2022, but there is currently no mechanism to translate that goal into firm offtake, planning for regional assets, an approach to transmission, etc. This unclear demand picture in turn limits supply chain investment.
- To that extent, BOEM has acted ahead of the state in announcing lease areas off of California. This mismatch between state procurement and federal leasing can lead to a lag in understanding route to market. In Oregon, Gov. Kate Brown signed a bill to commence planning for offshore wind facilities in federal waters to generate up to 3,000 megawatts by the Biden administration's target date of 2030 but has set no guaranteed procurement target.

- Permitting uncertainty is another significant risk to the West Coast/floating market. As noted, floating is already being deployed globally. Ensuring that agencies are robustly staffed, both at the state and federal level, and that there is certainty in processes like coastal zone federal consistency and fisheries mitigation and compensation is the necessary mitigation that will unlock private investment in the West Coast markets.
- Additionally, the marine ecologies of the Pacific will require different mitigations than those of the Atlantic. Additional research conducted concurrently with these planning initiatives will be important to efficient, sustainable development of the Pacific Northwest's renewable resource.

What, if any, role do you see for the Federal government in investing in the kind of environmental and engineering research necessary to tackle the challenges we may face in supporting offshore wind projects beyond where we have heretofore operated?

- There is a substantial role, and in some cases responsibility, of the Federal government to invest in the environmental and engineering research necessary to deliver energy to US citizens from the common resources of the U.S. Outer Continental Shelf.
 - BOEM already conducts research for the sustainable development of the common resources on the Outer Continental Shelf through its environmental studies program, and it is programs like this, NOAA's National Marine Fisheries Service and ocean climate science programs that can expedite offshore wind installation – but only insofar as there is well-resourced permitting of projects. Programs in the National Science Foundation and DOE are well positioned to support innovation in engineering that can find new efficiencies in floating wind that will tailor technology to the needs of the West Coast and bring those new technologies to market.
 - Consistent with the request from our trade association, American Clean Power, we support FY22 funding at the following levels to support offshore wind permitting: \$70 million for BOEM's Office of Renewable Energy, \$52 million for the Environmental Studies Program, and at NOAA recommend \$154 million for MMPA/ESA consultations, \$205 million for fisheries surveys, \$170 million for fisheries and ecosystems science, and \$136 million for fisheries management.
3. Offshore wind energy is exciting from both an environmental and an economic standpoint. But we need to have an industrial base that will support such projects and, ideally, enable the United States to one day export offshore wind technology. *How would you characterize the current state of the American offshore energy industrial base? What role do you see for the public sector in developing our offshore wind energy manufacturing capacity? What regulatory improvements would make the United States more attractive to chain investment? And when, in your opinion, would be a reasonable timeframe to impose domestic content requirements?*

RESPONSE:

- Europe has had several decades to build the necessary supply chain to support a mature offshore wind industry. As we begin to procure components for our U.S. projects, U.S. suppliers are competing against a well-established, competitive, and specialized global market. In order to become competitive, the U.S. needs to prioritize the development of an American supply chain.
- Ørsted advises a two-pronged approach to help solve this challenge. First, building the capacity for supplying specialized offshore wind components within existing American companies and second, attracting established European offshore wind manufacturers to build U.S. facilities, creating foreign direct investment and America.
- We can ensure offshore wind and its ancillary supply chain can scale up quickly and cost effectively by extending and enhancing key tax benefits that incorporate specific industry needs. For example, the extension of investment tax credits for offshore wind projects through this decade will send a powerful signal to the global offshore wind industry that the U.S. is a stable market to invest in. Tax credits facilitated by direct pay are the most efficient economic tool to monetize the full value of the credit and should be a top priority of Congress.
- To that end, manufacturing tax credits that support the development of a domestic supply chain including foundations, towers, blades, nacelles, cables, vessels, and steel can reduce the risk, cost and time of building out a new domestic clean energy industry like OSW. High Capital Expenditure costs on the front end of a clean energy industry can be offset by manufacturing tax credits that build domestic excellence and expertise in renewable systems and enable developers to translate experience from a global industry to a domestic context.
- Trade policy should also be a consideration in setting a regulatory framework that expedites both offshore wind deployment in the U.S. and ensures we can scale up domestic supply chains efficiently. U.S. trade policies have a clear impact on the development and deployment of clean technologies in the United States and abroad, driving up costs for domestic production through perverse incentives. Section 232 steel tariffs for example, drive up cost of steel plate that is not available in the US. This makes the cost of importing steel plates to be processed into monopolies at domestic manufacturing facilities more expensive and perversely makes importing fully manufactured monopiles from the European Union more attractive to developers. Tariffs under consideration during the Trump Administration for a 25% penalty on steel imports, additionally, were predicted to raise the levelized cost of energy by 3-5%.
- Another harmful trade policy in place is anti-dumping duties on wind towers imported from certain countries. Current DOC interpretations do not distinguish between onshore and offshore towers, which in fact are fundamentally different products, as offshore towers are designed to meet unique scale, engineering constraints and offshore environments. As there are no existing domestic offshore tower manufacturers, duties are an inappropriate tool to create a domestic market and are only serving to drive up the cost of near-term offshore wind projects.

- Regarding domestic content requirements, Orsted is striving to invest in the U.S. supply chain, as evidenced in our testimony. However, as noted above, additional policy support would be hugely beneficial to compliment the efforts of private sector companies like Orsted and help accelerate our ability to procure more U.S. products. We would caution against punitive requirements and encourage instead policy “carrots” that provide added incentive for companies that are meeting certain content thresholds.
4. National security considerations are, of course, paramount whenever we’re discussing the maritime domain. *Based on your experience as both a wind energy executive and a submariner, what is the best way to make sure that national security equities are duly and robustly considered in the siting process?*

RESPONSE:

- Orsted recognizes that national security is paramount and is committed to working with national security stakeholders to ensure that all of our offshore wind projects are compatible with military readiness.
- Our projects are not here to make the Department of Defense (DoD) or Navy’s work any more challenging than it already is, nor make their missions any riskier. That is why the industry works with the DoD to address national security concerns about potential wind projects, both on- and offshore, through the DoD Military Aviation and Installation Assurance Siting Clearinghouse.
- The Clearinghouse manages the Mission Compatibility Evaluation Process, a timely, transparent, mission-specific, project-specific, and science-based analysis of potential impacts to military operations. Military stakeholders from individual military bases to Pentagon-level military commands and services provide comment on proposed energy and transmission projects. Potential impacts to military operations, research, development, testing, training, and readiness. DoD considers potential impacts to radars, low-level flight routes and training areas, and vessel navigation are analyzed and assessed.
- DoD input is consolidated in the Clearinghouse and provides the official DoD position to Federal agencies, state and local permitting authorities, and project proponents. This process has an excellent track record of working to review onshore renewable projects, with no renewable project ever built over the objection of DoD. We anticipate a similarly transparent, collaborative, and effective relationship with the Clearinghouse in the offshore space.
- Formal and binding agreements are developed for each Project to provide for mitigations prescribed by the Clearinghouse that address potential impacts, if any, to DOD missions.