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ONE HUNDRED SEVENTEENTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON ENERGY AND COMMERCE
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November 29, 2021

Ms. Heather Zichal
Chief Executive Officer
American Clean Power Association
1501 M Street NW, Suite 900
Washington, DC 20005

Dear Ms. Zichal:

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.

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,

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

Heather Zichal, Chief Executive Officer, American Clean Power Association

The Honorable Frank Pallone Jr. (D-NJ)

1. Your testimony addressed the importance of building a transmission system capable of bringing offshore power onshore. As part of the Build Back Better Act, Congress appropriated $2 billion for grants and loans for offshore wind transmission, and $100 million to the Department of Energy for interregional and offshore wind transmission planning, analyzing, and modeling.

    a. How can the $2 billion grant and loan program be used to facilitate the development of offshore wind transmission? Should the Department of Energy allocate some portion of those funds to constructing an offshore wind backbone transmission system?

RESPONSE: *Development of transmission to support and integrate offshore wind would be a highly appropriate use of the $2 billion program in the Build Back Better Act, which consists of $1.5 billion in grants and $500 million in loans. The current text makes clear that, along with interties between electrical regions, transmission for offshore wind is a priority for use of these funds. However, because even individual transmission lines can be billion-dollar projects, ACP urges DOE to closely coordinate all possible funding opportunities to leverage as many impactful transmission projects as possible. For example, if the $2 billion in Build Back Better Funds can be combined with other DOE grant programs, the new Transmission Facilitation Program (signed into law in the Infrastructure Investment and Jobs Act), or loan guarantees from the Loan Programs Office, DOE could greatly expand the portfolio of funded projects and their impact.*

    b. How can the Department of Energy best use the money appropriated for transmission planning, modeling, and analysis?

RESPONSE: *ACP appreciates the Build Back Better Act's funding -and leveraging of the capabilities of the Department of Energy and the National Laboratories - to study offshore transmission, interregional transmission, and electricity market expansion. ACP would urge DOE to spend its study funding in close coordination with FERC-designated transmission planning authorities (such as the regional grid operators) to ensure the*

outcomes from these studies are fully useable in transmission plans. This will enable DOE to use this funding to support and accelerate transmission planning.

ACP also notes that the $800 million in the Build Back Better act providing funding to states for transmission permitting activities could be a valuable complement, particularly in identifying and planning for onshore upgrades necessary to integrate offshore wind.

2. What further actions can the Department of Energy and the Federal Energy Regulatory Commission take to spur the development and deployment of the offshore wind industry in the United States?

RESPONSE: *As noted above, DOE should rapidly issue guidance on new authorities in the Infrastructure Investment and Jobs Act, and the Build Back Better Act if enacted. DOE has more additional tools at its disposal than at any time since the 2009 American Recovery and Reinvestment Act, and ACP's members are ready to use those tools to develop transmission and clean energy. DOE's efforts should also include investments in supply chains to increase domestic content and drive down transport costs, given the massive size of offshore wind components.*

FERC should continue with its 2021 Advanced Notice of Proposed Rulemaking on Building for the Future, which notes many potential reforms to transmission planning and interconnection. Of particular note, FERC should require proactive transmission planning that fully accounts for all relevant state and federal energy policies, including offshore wind goals. FERC should also ensure that generators do not bear excessive burdens for upgrades to the grid that benefit all customers.

Finally, both agencies should coordinate closely with BOEM, the states, and grid operators and utilities on all aspects of planning for offshore wind transmission. This will reduce red tape and improve certainty for the entire industry. For instance, all agencies should collaborate to ensure that offshore backbone transmission (and onshore interconnection thereof) is planned, permitted, and constructed in parallel with (or even in advance of) interconnecting offshore wind projects to maximize efficiencies and ensure that projects can deliver low-cost power on schedule.

3. We have heard that interconnecting to the onshore grid is problematic because of the backlog of generators in interconnection queues and the limited points of interconnection on shore that are available for offshore wind, among other things.

   Can you please elaborate on these problems and identify specific statutory or regulatory changes that would help address these issues?

RESPONSE: *Many interconnection queues are severely backlogged, with otherwise-ready projects frequently waiting years for studies identifying necessary upgrades. Once identified, these transmission upgrades frequently come at an excessive cost.*

The first group of planned offshore wind projects have identified cost-effective locations to interconnect to the onshore grid without excessive upgrade costs, frequently by utilizing retiring thermal generation on the coast. This approach will work well while there is "headroom" at these points of interconnection. However, as more projects seek to come online, interconnecting purely on a project-by-project basis will become increasingly expensive for generators (and ultimately for customers) and inefficient (due to the additional cabling and substations required).

As noted above, close coordination among DOE, FERC, BOEM, states and grid operators – as well as FERC rulemakings requiring proactive transmission planning instead of project-by-project interconnection upgrades – can help to identify and use synergies between adjacent lease areas. An offshore "backbone" is one approach that should be seriously considered, as should shared points of interconnection and offshore substations if feasible.

4. Some recent studies have stated that offshore wind provides reliability and resilience benefits to the grid.

   Do you agree that offshore wind provides reliability and resilience benefits? If so, what are these benefits and how can we make sure they are properly quantified and considered in transmission planning, wholesale markets, and any other markets or processes?

RESPONSE: *Offshore wind provides significant reliability and resilience benefits. First, the output of offshore wind complements the profile of other clean resources (such as onshore wind and solar). A diverse portfolio of clean energy enables zero-marginal cost resources to deliver power in more hours of the day. Second, offshore wind tends to be "peak-coincident", meaning that its output is typically strongest in evening hours when electricity demand is highest. This is a valuable attribute, as it can reduce energy costs in the most expensive hours of the year. Third, advanced HVDC converter stations – which can be used for offshore wind – can supply "black start" capability, supplying electricity to re-energize the grid after an outage. All of these attributes are under-compensated today. However, FERC has the authority to appropriately recognize and compensate resources for the benefits they provide in wholesale markets and should ensure that offshore wind is appropriately recognized for its reliability and resilience attributes.*

Finally, in the not-too-distant future, offshore wind could be co-located with green hydrogen fuel generation, effectively providing vast amounts of energy storage that could provide clean fuel to large vessels, aircraft, and heavy manufacturing facilities (among other uses). This strategy is already being explored by certain EU nations in the North Sea.

The Honorable Jan Schakowsky (D-IL)

1. We heard repeatedly at the hearing about the rising costs of natural gas used for heating as we head into winter, which the Energy Information Administration attributes largely to skyrocketing natural gas exports reducing American natural gas inventories. I am concerned about the effect of high fossil fuel price on consumers this year and in the future. What role will offshore wind energy play in a world of increasingly expensive fossil fuels, and can it provide an alternative to oil and gas, which are subject to wild price swings?

RESPONSE: *Offshore wind can help replace fossil fuel generation, insulating Americans from natural gas and other fossil fuel price swings. A 2020 study by the National Renewable Energy Laboratory (NREL) that simulated offshore wind deployment in the Northeast found that adding offshore wind capacity would help displace natural gas fired combined-cycle generation while simultaneously reducing wholesale power prices. The study found that adding 7 GW of offshore wind in the Northeast would reduce wholesale power prices by 11% compared to a 0 GW scenario. And as noted above, offshore wind could one day be used to generate green hydrogen fuel that could replace oil and gas in the heavy transportation and manufacturing sector.*

2. Your organization, the American Clean Power Association, estimates that reaching 30 gigawatts of offshore wind by 2030 will create 83,000 new jobs in the United States. There are great tools out there, like apprenticeships, for workforce development. How can union apprenticeships help build the trained workforce we need for our clean energy future?

RESPONSE: *Offshore wind developers have already signed five separate workforce training agreements to take advantage of this expertise. Equinor signed a $47M workforce development agreement for their projects Empire 2 and Beacon Wind. Ocean Winds signed a $27-47.5 million workforce development and supply chain investment for their Mayflower Wind project. Orsted and Eversource signed a $10 million workforce development agreement for their Sunrise Wind project. Vineyard Wind signed a $2 million workforce development agreement for the Vineyard Wind 1 project.*

The Honorable Kurt Schrader (D-OR)

1. As you know, there are currently no state or federal processes for coordinating or planning the interconnection of offshore wind into the grid. That's concerning considering that we're planning to initiate so many offshore wind projects in the coming years. What problems do you see with the current ad hoc approach to integrating offshore wind energy into the grid? What technological challenges should we anticipate? And what reinforcements to our onshore infrastructure will be needed to transmit offshore wind energy from generation sites to load centers?

RESPONSE: *As noted above, many interconnection queues are severely backlogged, with otherwise-ready projects frequently waiting years for studies identifying necessary upgrades. Once identified, these transmission upgrades frequently come at an excessive cost. The first*

group of planned offshore wind projects have identified cost-effective locations to interconnect to the onshore grid without excessive upgrade costs, frequently by utilizing retiring thermal generation on the coast. This approach will work well while there is "headroom" at these points of interconnection. However, as more projects seek to come online, interconnecting purely on a project-by-project basis will become increasingly expensive for generators (and ultimately for customers) and inefficient (due to the additional cabling and substations required).

A coordinated approach to transmission planning would ensure that all grid users pay for the benefits of necessary upgrades, and would prevent the "ad hoc" identification of upgrade costs that prevails today. In most cases, the challenges are not technological, as the types of upgrades are based on technologies available today (with the possible exception of certain advanced HVDC technologies). Focus from Congress and the executive agencies on ensuring that onshore points of interconnection keep pace with planned offshore wind will be absolutely essential to ensure that affordable, clean electricity can be delivered to the grid without congestion (inability to flow due to overcrowded transmission lines) or curtailment (forcing generators to shut down due to a lack of transmission for their output).

2. It's important to fully understand the potential environmental impacts and their effects on local fisheries, so it's vital that we ask the right questions, incorporate the right evidence, and understand any uncertainty that we face. What is the state of research into the environmental impacts of offshore wind projects? What do we know? What don't we know? And what can't we know about how offshore wind might affect coastal ecologies, economies, and communities like the ones in my district?

RESPONSE: *To build offshore wind in time to address climate impacts, offshore wind developers have to work with the best available science while promoting more research into potential effects of offshore wind on the marine environment. That is why offshore wind developers and fishermen initiated the Responsible Offshore Science Alliance to answer these questions about fisheries, and why offshore wind developers and environmental groups started the Regional Wildlife Science Entity to answer these questions around effects on marine life and the ocean ecosystem. The U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy Wind Energy Technologies Office, Pacific Northwest National Laboratory and National Renewable Energy Laboratory are also leading the U.S. Offshore Wind Synthesis of Environmental Effects Research (SEER) to "synthesize key issues and disseminate existing knowledge about environmental effects, inform applicability to U.S. waters, and prioritize future research needs."*

The U.S. Bureau of Ocean Energy Management (BOEM) is required by law (the Outer Continental Shelf Lands Act) to fund environmental studies for information needed to predict, assess, and manage impacts from offshore energy on human, marine, and coastal environments. BOEM's office of Renewable Energy has completed studies on acoustics in the marine environment, birds and bats, cultural and archaeological resources, economics, electromagnetic fields, fish and fisheries, social science, marine mammals and other protected species, and much more. BOEM has also held workshops and developed literature syntheses of peer-reviewed literature. Offshore Wind developers support science-based

efforts, including environmental monitoring during the construction and operations phases, to understand both local and regional changes due to development and are willing to share this data collection. Developers work directly with fishermen to design and implement these studies including through supporting the Responsible Offshore Science Alliance.

Finally, BOEM, its federal partners, the US offshore wind industry, other ocean users, and environmental groups have the benefit of decades of research conducted on dozens of operational offshore wind farms in Europe. BOEM and its cooperating agencies can and do utilize this science in conducting its environmental analyses and developing mitigation measures.

3. The Committee on Natural Resources recently approved legislation to authorize wind energy leases off territories of the United States. What unique ecological, economic, or engineering challenges can we foresee needing to overcome to ensure that the territories can fully benefit from offshore wind energy? And what, from an industry perspective, is needed to ensure that territories are included in our Nation's clean energy strategy?

RESPONSE: *According to the National Renewable Energy Laboratory, Puerto Rico and the U.S. Virgin Islands have a 2 (marginal) to 4 (good) resource potential (on a 5 point scale) offshore their coasts at 50 meter heights. A study that extrapolated wind speeds in Puerto Rico to 100 meter heights showed even better potential for offshore wind in areas that are shallow enough for projects to be constructed. The potential is also there in the U.S. Virgin Islands, Guam, Samoa, and the Northern Mariana Islands. The challenges faced in these territories are like the ones we face in the continental United States. These, primarily, are whether existing port and grid infrastructure is sufficient to construct, service, and interconnect these projects to the wider electrical system.*

4. As you know, the Jones Act requires shipping between U.S. ports to be conducted by U.S.-flagged vessels; and this, as you know, applies to the transportation of materials from the U.S. mainland to offshore wind projects in U.S. waters. What kind of vessels are necessary to construct and maintain offshore wind turbines? How many such vessels will we need to serve the level of offshore wind development that we're aiming for? And what role is there, if any, for public-private partnerships to ensure that there is a sufficient fleet of vessels appropriate to serve our offshore wind energy industry?

RESPONSE: *Offshore wind project development and operations will rely on at least 27 vessels per project across all project stages, including seafloor survey work, component transfer, cable burial, crew transfer, and turbine installation. The number and category of vessels used depends largely on environmental conditions, distance of lease from shore, project size, and other factors. ACP's Offshore Wind Vessel Needs factsheet goes through each of these 27 different vessels in detail. The number of vessels needed to achieve the administration's goal of deploying 30GW by 2030 depends on permitting and subsequently construction timelines.*

We anticipate that projects-will be permitted by BOEM and constructed on parallel timelines in order to achieve 30 GW of offshore wind by 2030; this will require even more construction vessels to be procured. Operations and maintenance vessels will play a longer lasting role

throughout a project's life. At least four different types of vessels will be used during operations and maintenance: crew transfer vessels, service operations vessels, and diving/remotely operated vehicle support vessels.

Public-private partnerships and different policy options could help incentivize the buildout of more US-flagged vessels to build offshore wind. Policy options could include:

1. *Tax credits to help offset the price premium for American built vessels would be very helpful. For example, a WTIV can cost as much as 50% more to be built in America, and tax credits can help reduce this premium. Senator Markey and Representative Pascrell's offshore wind manufacturing tax credit bill lays out a potential 10% Production Tax Credit (PTC) on the final sale price of a vessel. A 30% PTC would go exponentially further than a 10% PTC for domestic vessel construction.*
2. *A program to subsidize Jones Act compliant vessels, similar to the transmission anchor tenant provision in the Bipartisan Infrastructure Bill, could help construct more vessels, while allowing them to compete internationally during that time (1-2 years) would enable investors more flexibility and comfort to make investments in the domestic fleet when projects don't align perfectly.*
3. *A Maritime Security Program for WTIVs that can support military engagements abroad and provide the merchant marine experience in the operation of heavy-lift vessels.*