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Michelle Morin, Program Manager
Office of Renewable Energy Programs
Bureau of Ocean Energy Management
45600 Woodland Road,
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Submitted Electronically

Re: Comments on Notice of Intent (NOI) to Prepare an Environmental Impact Statement for the review of a construction and operations plan (COP) for Ocean Wind, LLC's Proposed Wind Energy Facility Offshore New Jersey, Docket No. BOEM-2021-0024

Dear Ms. Morin,

Clean Ocean Action (COA) is a regional, broad-based coalition of conservation, environmental, fishing, boating, diving, student, surfing, women's, business, civic and community groups with a mission to protect and enhance the degraded water quality of the marine waters off the New Jersey/New York coast. We submit the following comments on the Bureau of Ocean Energy Management (BOEM) Notice of Intent to prepare an Environmental Impact Statement (EIS) for the review of a Construction and Operation Plan (COP) for Ocean Wind, LLC's Proposed Wind Energy Facility for Lease Area OCS-A 0498.

COA supports responsible and reasonable offshore wind energy development; this includes operation, management, and decommissioning, as well as the associated onshore infrastructure support.

The Ocean Wind project is the first of five offshore wind facilities to be developed in a 400,000-acre area off NJ's Ocean, Atlantic, and Cape May Counties. Given the scope and magnitude of this infrastructure, both on and offshore, it is imperative that not only each project be environmentally responsible, but the cumulative impacts considered and avoided, minimized or mitigated. As this new industrial development has been initiated, cultivated, and promoted, proponents – especially state and federal leaders -- committed to moving forward responsibly. As these offshore wind projects are now moving forward, now is the time for meaningful commitments to meeting that standard.

With Ocean Wind's proposal, including Orsted's extensive experience in offshore wind facilities development, and PSE&G onshore energy supply and transmission, the opportunity exists to establish the model for environmental stewardship as New Jersey advances this new and multifaceted renewable energy industry. In this context, COA submits these comments for the NOI for an EIS.

General Comments

BOEM's Notice requests information on impact-producing factors (IPFs), effects and mitigation measures on significant resources, and reasonable alternatives to the siting and construction of facilities and activities. COA has reviewed Ocean Wind's proposed COP and recommends that BOEM include mitigation measures and changes to the submitted COP.

Through BOEM's leasing process, Ocean Wind plans to construct up to 98 wind turbine generators and related infrastructure 13 nautical miles southeast of Atlantic City, with separate regulatory review processes carried out by both BOEM and Army Corps. The majority of known effects associated with constructing wind turbine generators and foundations are most severe during the construction and surveying periods of a project's lifecycle. Moreover, there is uncertainty regarding the long-term and onshore impacts associated with this unprecedented scale of offshore development.

COA appreciates the COP's recognition that there will be adverse impacts and welcomes the consideration of avoidance, minimization and mitigation. In general, COA's expectation for responsible development focuses on the following principles, which COA recommends the COP EIS apply:

- identifying and assessing cumulative environmental impacts from the first and each successive project as well as for the cumulative impacts from all five projects being considered in the region. The land use experience over the last 200 years has proven that piecemeal development will lead to mistakes and ecological harm.
- transparency to the public at all levels of design, construction, operation and maintenance, which means more disclosure of activities onshore and offshore with minimal redaction,
- meeting legal requirements through the lens of maximizing opportunities for environmental protection;
- implementation of coastal resiliency and adaption for sea level rise and storm surges for all onshore and offshore facilities, especially as the life span of these projects is 35 years
- Meaningful interagency review is essential at the local, state and federal level; this is especially important during the EIS development with natural resource agencies, also community and citizen resources agencies to ensure environmental justice, public health, or over-development issues are identified and addressed;
- protecting undersea Public Trust lands as these facilities are occupying, constructing, and altering what was (and still will be) treasured public resources, and habitat for extraordinary marine life; therefore, they must have the utmost respect and care.
- Meaningful public involvement —not just hosting meetings but actual measurable evidence of project modification to meet public concerns.

Meeting Legal Requirements

The deficiencies in the applicant's COP are directly related to BOEM's own interpretation of the National Environmental Policy Act (NEPA). Ocean Wind states in their COP that the offshore and onshore export cable routes, substations, and connections will be determined only after the draft EIS is completed. While this is technically NEPA-compliant,[1] the public, policymakers, appropriate research entities, and organizations will not be informed of construction details until the permitting process is near completion. BOEM should seek to include impacts associated with onshore and offshore construction and operation in the draft EIS.

Environmental Impacts from Offshore Wind Development

The NY/NJ Bight is rich with diverse species and extraordinary natural features. Species diversity in the NY/NJ Bight include over 30 species of whales and dolphins, including the endangered Northern Atlantic right whale; 5 species of sea turtles; 300 species of fish; 350 species of birds; 4 species of seals; hundreds of invertebrates [2]eels and other species; and 20 threatened and endangered species.

The NY/NJ Bight experiences intense ocean mixing, called a "Cold Pool" effect, that stimulates massive phytoplankton blooms central to the structure of all NY/NJ Bight ecosystems. Due to its relative warmth, heavy flows of freshwater and inland nutrients from the Hudson River, and unique bathymetry, the NY-NJ Bight holds rich habitat for whales and other species. Ocean currents wash over these bottom features and stir up nutrients that are absorbed by phytoplankton. In essence, the NY/NJ Bight has unique features that are ideal for a vast variety of ocean life, ranging from deep sea corals to over 300 fish species.[3]

The Cold Pool in the Mid-Atlantic Bight supports some of the richest ecosystems and fisheries in the nation, including the most profitable shellfish fisheries and "second-most lucrative single-species fishery, sea scallops, in the western Atlantic."[4] The Bight is also vital to the migratory patterns of many different species, ranging from deep sea corals to invertebrates.[5] The Atlantic sea scallop (*Placopecten magellanicu),* Atlantic surfclam (*Spisula solidissima*), and ocean quahog (*Arctica islandica*) habitat along the Mid-Atlantic Bight is consistently among the most profitable fisheries in the world.[6]

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[1] National Environmental Policy Act of 1969 § 102, 42 U.S.C. § 4332(C).
[2] Hutchison *et al.,* The Interaction Between Resource Species and Electromagnetic Fields Associated with Electricity Production by Offshore Wind Farms, 96 Oceanography Vol. 33, No. 4 (December 2020).
[3] New York Ocean Action Plan, Department of Environmental Conservation (2016-2026), *available at* https://www.dec.ny.gov/docs/fish_marine_pdf/nyoceanactionplan_final.pdf
[4] Travis Miles, Josh Kohut, and Daphne Munroe *et al.,* Could federal wind farms influence continental shelf oceanography and alter associated ecological processes? A literature review., Rutgers University and Science Center for Marine Fisheries (SCEMFIS) (Dec. 1, 2020), *available at* https://scemfis.org/wp-content/uploads/2021/01/ColdPoolReview.pdf
[5] New York Ocean Action Plan, Department of Environmental Conservation (2016-2026), *available at* https://www.dec.ny.gov/docs/fish_marine_pdf/nyoceanactionplan_final.pdf
[6] National Marine Fisheries Service, 2020: Fisheries of the United States, 2018. U.S. Department of Commerce, NOAA Current Fishery Statistics No. 2018.

Further, water column stratification could affect a number of species vital to fisheries and local ecosystem health, including summer flounder.[7] The health of habitat for these and other species is closely associated with Mid-Atlantic ocean conditions. Further, increased mortality and reduced reproductive success of shellfish and other species has been associated with warming-induced shifts to the stratification of cycles in oceanographic conditions.[8] This indicates that further alterations to ocean mixing may lead to changes in vital species activities across the board. Turbine arrays may directly or indirectly affect seasonal processes that dictate water column nutrient transfer among ecosystems and species.[9]

Many species in the waters and migratory corridors surrounding and within the project area could be vulnerable to interruptions in foraging, migration, or other effects of the foundations, cables, and all submerged gear. With these abundant and diverse marine resources and wildlife in mind, the ecological and socioeconomic impacts to include, assess, and address in Ocean Wind's COP EIS are described in the following sections.

Impacts to Marine Mammals

(1) Noise Pollution from Construction
   a. Studies have shown that construction noise related to offshore wind farms (especially pile driving) may cause behavioral changes and negative impacts in seals, porpoises, dolphins, and whales.
   b. Disruption effects have been measured up to 20 miles from the construction site.

(2) Noise from Operation
   a. This includes both the noise from the turbines themselves which emit a constant low-frequency noise and also the increased vessel traffic from operations and maintenance (O&M) activities.
   b. The operational noise stems from vibrations in the tower caused by the gearbox mesh in addition to the generator, causing underwater noise.

(3) Vessel Strikes
   a. Increased vessel activities may result in increased strikes with marine mammals, such as the Northern Atlantic right whale. This includes from construction and O&M.
   b. There is also concern that the wind farms will displace other marine commerce and transit funneling those vessels into narrower lanes which may increase strikes.
   c. The COP EIS must account for competing uses and navigation impacts of offshore wind facilities. With increased or altered traffic patterns, the risk of collisions and spills of gas, oil, and chemicals may increase, with negative effects

[7] T.M. Grothues and E. A. Bochenek, 2011: Fine scale spawning habitat delineation for winter flounder (*Pseudopleuronectes americanus*) to mitigate dredging effects –Phase II (Cycle 8), 2/2011.
[8] D. A. Narvaez, D. M. Munroe, E. E. Hofmann, J. M. Klinck, and E. N. Powell, 2015: Long-term dynamics in Atlantic surfclam (*Spisula solidissima*) populations: the role of bottom water temperature. *Journal of Marine Systems*, 141, 136-148.
[9] Travis Miles, Josh Kohut, and Daphne Munroe *et al.,* Could federal wind farms influence continental shelf oceanography and alter associated ecological processes? A literature review., Rutgers University and Science Center for Marine Fisheries (SCEMFIS) (Dec. 1, 2020), *available at* https://scemfis.org/wp-content/uploads/2021/01/ColdPoolReview.pdf

to water quality and marine life. Exposure to oil and other hydrocarbons from oil spills can drastically affect marine mammals and ecosystems. Further, vessel strike mitigation is vital to reducing collision between both commercial and noncommercial vessels and North Atlantic right whales.[10] The COP EIS should also consider spacing between offshore wind turbines and high-traffic areas through either increased spacing or based on consultation with the National Marine Fisheries Service and the United States Coast Guard.

(4) More Protective Consideration of the North Atlantic Right Whale
   a. This highly endangered species is exceptionally vulnerable to additional barriers in its migratory patterns and prime foraging habitat. While BOEM requires mandatory minimization procedures and marine mammal observers for construction and operation of offshore wind farm, it is not enough. Current minimization measures, including passive acoustic monitoring (PAM) via glider[10] do not account for when marine mammals are not vocalizing. Right whales vocalize frequently. But these vocalizations tend to be "irregular and non-repetitive" and based on activity level.[11] Further, it is likely that most known marine mammal mortalities occur via ship-strike.[12] While PAM, marine mammal observers, shut-down procedures, and other mitigation measures can be useful during construction and building spatio-temporal baseline data, there is uncertainty regarding right whale behavior and offshore wind foundations and vessel activity. The COP EIS needs to address this problem.

Impacts to Birds

(1) Displacement of Habitat
   a. Behavioral responses to offshore wind farms may cause birds to avoid previously used habitats. This phenomenon has been dubbed displacement. At Robin Rigg offshore wind farm in Scotland, the monitoring program showed evidence of a decrease in the number of common scoter (*Melanitta nigra*) one year after construction.

(2) Risk of Collision
   a. There is concern for birds colliding with wind turbines. This has been a big issue with onshore wind projects, specifically in the middle of the country.
   b. Weather increases the risk of collision, and the ocean is an area with some of the harshest weather conditions, which will only increase due to climate change impacts.

(3) Migration Barriers
   a. The barrier effect may have a negative impact of birds. The birds' behavioral avoidance response to the wind farm may lead to detours circumventing the structures, ultimately extending the total flying distance and energy use. This

[10] Moscrop *et al.,* Vocalization rates of the North Atlantic right whale, *J. CETACEAN RES. MANAGE*. 3(3):271–282, 2001, *available at* https://www.researchgate.net/publication/268273193_Vocalisation_rates_of_the_North_Atlantic_right_whale
[11] *Id.*
[12] Ship Strikes and Right Whales, Marine Mammal Commission (last accessed 4/28/2012), *available at* https://www.mmc.gov/priority-topics/species-of-concern/north-atlantic-right-whale/ship-strikes/

energy loss is critical for birds experiencing other stressing factors to their populations.

b. Furthermore, for species such as the common eider (*Somateria mollissima*) the reproductive success is related to the females' body reserves during the breeding period. By increasing the energy use for common eiders their body mass may drop, thus affecting the breeding output.
c. Results from the monitoring programs at Nysted and Horns Rev offshore wind farms in Europe showed that all birds generally avoid wind farms if they block migration pathways. The specific level of avoidance depends on the species with some going further out of their way to avoid the area. Over 50 percent of the birds avoided passing through the wind farms at half a mile to a mile.

Impacts on Fish / Benthic Species

(1) Electromagnetic Fields
   a. Two main cables associated with the Ocean Wind project include an interarray cable and the larger export cable. The orientation of fish may be impaired by the magnetic fields surrounding electric cables and thus impact migration patterns.
   b. Electricity produced at offshore wind farms is usually transmitted to shore through high voltage alternating or direct current cables. The current in these cables creates electric and magnetic fields (EMF). While the electric field generated by the current is isolated within the cable, the magnetic field is measurable around the cable.
   c. There has been significant concern about the impact on crustaceans and their sensibility to EMF as it can impact their ability to locate food and may cause avoidance or large areas.
   d. Fish species that employ electrical currents for orientation such as sharks and rays, eels and electric fish are the most sensitive. It has been suggested that many such species may be able to detect EMF at a distance over 1,000 ft.

(2) Habitat Change
   a. Introducing hard substructures into the marine environment creates artificial reefs leading to the settlement of marine organisms in the area. This can be positive, as well as negative. It increases biodiversity but can also potentially introduce new harmful species (including invasive species) and disrupt food chains.
   b. The creation of these large homogenous changes to the sea floor will change the environment and the impact it has on the marine life is uncertain but could result in displacement.

Impacts to Competing Ocean Uses

The ocean is already home to numerous industries and activities. The Ocean Wind COP EIS must consider and address the following:

(1) Navigation Impacts – Funneling Navigation into Narrow Corridors
In addition to the many potential impacts to wildlife and marine and coastal resources, Ocean Wind's COP EIS should consider the top-down impacts of the increased vessel activity, increased onshore activity, shifts in recreational and commercial ocean uses, and the foundation, cabling, and interconnection infrastructure associated with the project. In

sum, the Ocean Wind COP EIS must consider changing traffic patterns, navigational safety, and port access conflicts. More specifically:

a. The Port of New York and New Jersey is a massive economic enterprise that is a hub for vessel traffic. There are four container terminals in the port, whose combined volume makes it the largest on the East Coast, the third busiest in the United States.
b. A large area of the Outer Continental Shelf (OCS) has been leased for offshore wind development without any comprehensive analysis of the fishing industry's need for safe transit or how the installation of large numbers of offshore structures will impact the operations of fishing vessels.
c. The port imports petroleum, plastics, chemicals, oils and perfumes, pharmaceuticals, and other materials that if spilled into the ocean would be devastating. The port of NY/NJ is the largest U.S. petroleum product port.
d. There is also concern that the development of these wind projects in close proximity will displace transit corridors and create narrow lanes where vessels are expected to travel. This could lead to increase accidents and spills.
e. One danger is that vessel density – ships operating within the same sea space – would be increased by the funneling effect of constricting traffic between turbine arrays.
f. Another consideration is the radar shadow effect of rotating turbine blades that can affect navigation radars.
g. Consider these port statistics: 577,649 vehicles • 6.3 Million TEUs of containerized cargo • 730,617 cruise ship passengers • 8,596 deep-sea vessel transits • Over 4,000,000 smaller vessel harbor transits.
h. Another consideration is the speed and agility of large ships maneuvering a small, competitive space. For example, it can take an ultra large 2.5 miles of full astern to brake to a halt.

Coastal Development and Industrialization

Another area of consideration is the onshore infrastructure necessary to manage this new coastal-dependent industry. Each offshore wind energy project will need operation and maintenance facilities. Further, there is the need for larger manufacturing centers and marshalling ports.

In Volume 1, Section 6, the COP gives a woefully inadequate description of necessary onshore facilities and appears to suggest it has no obligation to provide a detailed analysis of the comprehensive onshore facilities that will accommodate their project and that are needed to support the construction, operation, and maintenance of the offshore facilities. The COP states:

> *The primary ports that are expected to be used during construction, but which have independent utility and are not dedicated to the Project, are as follows:*
>
> *• Atlantic City, NJ - construction management base. The site area is intended to offer an opportunity for a combined base for crew transfer vessel (CTV) operations for the construction phase.*

• Paulsboro, NJ or Europe (directly) - for foundation scope. The port area is intended to offer an opportunity for both foundation fabrication facilities as well as staging and load-out operations in collaboration with a key subcontractor.

• Norfolk, VA or Hope Creek, NJ - for WTG scope. The port area is intended to offer an opportunity for WTG pre-assembly and load-out facility without any air draft clearance restrictions covering jack-up installation vessel assets.

• Port Elizabeth, NJ, Charleston, SC, or Europe (directly) - cable staging (unless transported directly from the cable supplier). The intended terminal area and quay infrastructure will be used for various cable staging and operation activities, if required.

During operations, Ocean Wind intends to utilize an O&M Facility in Atlantic City that will serve as a regional operations and maintenance center for multiple Orsted projects in the mid-Atlantic, including the Project.

Again, these port facility descriptions are unacceptably vague, and the COP EIS must require specific and clear descriptions of the potential onshore facilities. Of special note, it appears that Ocean Wind may not require any construction port facilities, relying on European sources for construction materials to be shipped. The COP EIS must account for all potential port activities at the various proposed locations.

The COP EIS must also include the following for operation and maintenance:

a. Type of maintenance approach (ship-based, air support);
b. Land use requirements;
c. Proximity to the offshore wind farm ;
d. Storage capabilities for spare components;
e. Wharf area required Bearing capacity;
f. Ship depth requirements; and
g. Secondary impacts from influx of workers and support services

Specifically, COA advocates that the COP-EIS include land-based facilities that are or may be used for development of wind turbine generators as well as operation and management. These are:

1. To reduce the overall footprint; and
2. To be climate resilient; and
3. To be as energy efficient as possible; and
4. Sited in environmentally friendly locations.

The COP appendices focusing on port operations and maintenance activities are largely redacted. The COP EIS must require more disclosure while understandably protecting sensitive legal and financial information.

Mitigation Measures Needed

Working to avoid and minimize impacts on the ocean and coastal environment is essential and must be a main goal of offshore wind energy development, as it is with any

offshore or onshore activity. Therefore, the COP EIS must identify measurable, meaningful, and actionable effective mitigation measures for when impacts cannot be avoided or minimized.

For example, Volume 1 of the COP asserts that Ocean Wind needs to mitigate cable exposure by re-burying multiple cables over the lifetime of the project. The COP also indicates that impacts to onshore and coastal ecosystems is likely. Specific mitigation of impacts to wetlands, seagrass beds, and other habitat should be specifically analyzed in the EIS. Particular attention should be paid to the seasonality of seagrass beds. Further, analysis of the impacts to seagrass beds should be analyzed beyond turbidity. The spatio-temporal variability in the distribution of vulnerable species should also be considered.

Ocean Wind's COP states that they will be applying for authorizations under the Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, Rivers and Harbors Act, Clean Water Act, Coastal Zone Management Act, and more. COA will provide feedback on these permitting decisions to the relevant authority as they become available.

Ocean Wind and Expanding Cumulative Impacts Analysis

In an alternative analysis, BOEM should utilize an extensive cumulative impact analysis based on the potential harm to sensitive areas in the NY/NJ Bight, especially in light of the unprecedented footprint for offshore wind energy proposed across the East Coast. During the leasing and planning phases of offshore wind development, BOEM only reviews impacts that are "reasonably foreseeable."[13] As a result, cumulative effects and extensive, precautionary steps have taken a back seat. Even though BOEM expanded the scope of their cumulative impact analysis during the Vineyard Wind programmatic review, there could still be cascading effects to vulnerable New Jersey and New York ecosystems, wildlife, and communities along the Mid-Atlantic Bight. Siting offshore wind turbines in the WEAs may affect these species, many of which are already "on the brink."

Echoed in COA and other organization's prior comments, the siloed nature of BOEM's approach to Section 102 of the National Environmental Policy Act (NEPA) could prevent proper siting, construction, and analysis. Section 102 states simply that a "detailed statement be prepared by the responsible official" when appropriate for "actions significantly affecting [14]." For instance, the Supplemental Environmental Impact Statement (SEIS) from Vineyard Wind 1 "assumes that best management practices (BMPs) incorporated from the [Record of Decision] on the 2007 Final Programmatic Environmental Impact Statement for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf, will be implemented.[15]

BOEM finally shifted their analysis from the 2007 Record of Decision during the Vineyard Wind extended environmental review process.[16] In July of 2020, the Bureau of Ocean Energy Management ("BOEM") published the SEIS, which exclusively focused on cumulative

[13] Vineyard Wind Supplemental Environmental Impact Statement, p 1-2.
[14] *Id*.
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[16] Vineyard Wind 1 Offshore Wind Supplemental Environmental Impact Statement, 1-2 (2020).

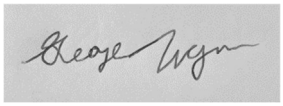
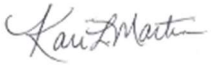
impacts from the project in relation to others in the same geographical area. The results of the SEIS detailed the importance of early planning and a robust cumulative impact analysis. The SEIS concluded that the proposed action, as well as all six alternatives, would result in "major impacts" to both commercial and recreational fishing as well as navigation.[17] The previous project-specific Environmental Impact Statement found that, individually, Vineyard Wind would only result in "minor" to "moderate" impacts to these industries.[18] The SEIS and a cumulative impact approach illustrate how the impacts change when viewed in relation to the surrounding developments. Further, the SEIS outlined why it is essential that regulators engage in increased cumulative impact analyses that focus on the development of the offshore wind industry holistically, as well as on an individual project-by-project basis.

With the Vineyard Wind project, BOEM changed their tiered analysis of "reasonably foreseeable" impacts to include "those proposed offshore wind projects with COPs submitted or approved at the time of analysis."[19] BOEM expanded their "quantitative cumulative impacts analysis" in their SEIS to include all projects with submitted or approved COPs, all projects with onshore energy awarded, and all announced and future solicitations and lease sales. However, BOEM still did not expand this to apply to transmission, interconnection, or onshore impacts. Nor did they cover the full extent of navigation and transit concerns as "reasonably foreseeable." COA supports the continued application of BOEM's "quantitative cumulative impact analysis" and urges BOEM to continue revising their approach to include the aforementioned additional cumulative impacts.

Conclusion

In sum, Clean Ocean Action is working to ensure all offshore wind energy development – both offshore and associated onshore infrastructure -- is properly sited, constructed, and operated to avoid conflicts with marine life and existing ocean uses. COA appreciates the opportunity to submit comments on this notice of BOEM's intent to prepare an EIS and suggest alternatives, mitigation measures, and vulnerable wildlife and ecosystem considerations. COA will be submitting substantive comments in response to BOEM's modifications to the COP and throughout the EIS process. If you have any questions, feel free to contact COA.

Respectfully Submitted,

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[17] Vineyard Wind Supplemental Environmental Impact Statement (2020), p. ES-5.

[18] Bureau of Ocean Energy Management, Vineyard Wind – Draft Environmental Impact Statement, Docket No. BOEM 2018-060, at ES-8.

[19] *Id.*