

October 17, 2022

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Re: Comment on Revolution Wind COP DEIS; Docket No. BOEM-2022-0045

Public Process: BOEM’s public meeting process for the Revolution Wind project is significantly flawed. Although the project is based on three Power Purchase Agreements (PPAs) for the states of Rhode Island and Connecticut, with the export cables running through Narragansett Bay in the state of Rhode Island, BOEM is conducting only one public hearing in the state of Rhode Island for the project, none in Connecticut, and two in the state of Massachusetts- one on Martha’s Vineyard- a state with no connection to the project.¹ Although we state and recognize in our comments throughout BOEM’s history of offshore wind leasing that affected fisheries stakeholders are federally permitted to fish in the entire Greater Atlantic Region and affected by many projects not associated with the state where their vessels homeport, we point out that for Revolution Wind, BOEM has gone out of its way to include multiple in-person public meetings in the state of Massachusetts while ignoring the states which supposedly justify the Proposed Action. We request that BOEM justify its reasoning for this meeting schedule and its lack of public inclusivity.

For fisheries stakeholders desiring to attend a public meeting, all in person meetings are being held during the week of the Mid Atlantic Fisheries Management Council meeting, and one of the two virtual hearings has also been scheduled during a New England Fishery Management Council meeting. The meetings scheduled by BOEM for this project appear to exclude any meaningful fishery stakeholder participation.

The DEIS states that Martha’s Vineyard may experience visual impacts as a result of the project. If BOEM considers visual impacts a more important NEPA/OSCLA consideration than cable impacts on federally and state permitted fisheries stakeholders, we would request that BOEM make that clarification, as this is the only explanation for multiple meetings in the state of Massachusetts and only one or none elsewhere where affected fisheries stakeholders would have attended.

Purpose and Need/Alternatives: In the DEIS Purpose and Need for the Proposed Action, BOEM relies heavily on the speculative Power Purchase Agreements (PPAs) dictated by the state mandates of Connecticut and Rhode Island to have 2,000 MWs and 100% renewable energy by 2030, respectively.² It indeed apparently bases its entire NEPA review on three PPAs speculatively entered by the developer and the states of Connecticut and Rhode Island in 2019, long before the Revolution COP was ever submitted to BOEM for review.³ In fact, very single alternative other than the legally mandated “No Action Alternative” takes great pains to mention that it would fulfill the existing PPAs.

¹ See <https://www.boem.gov/renewable-energy/state-activities/revolution-wind>.

² DEIS, p. ES-1.

³ DEIS, p. ES-2.

For example: Alternative B, “The Proposed Action includes up to 100 WTGs ranging in nameplate capacity of 8 to 12 MW sufficient to fulfill at a minimum the existing PPAs (total of 704 MW)”; Alternative C, “This alternative allows for the fulfillment of the existing PPAs, which total 704 MW”; Alternative D, “Under this alternative, BOEM could select one, all, or a combination of the following three alternatives, while allowing for the fulfillment of the existing PPAs”; Alternative E, “Allows for the fulfillment of the existing three PPAs”; Alternative F “this alternative would be sufficient to fulfill the minimum existing PPAs (total of 704 MW....)”.⁴

We request that BOEM identify the section(s) of NEPA that lists speculative PPAs conducted by the developer years prior to COP submission as a limiting parameter for NEPA alternative consideration and/or review. We are unaware of any legislative provision that allows BOEM to conduct NEPA review in such a manner and artificially limit its range of alternatives to only those favorable to complete fulfillment of a PPA, particularly when such PPA is privately and speculatively contracted by the developer years prior to analysis and/or COP submission.

This arbitrary and capricious decision taken by the agency is artificial constraint of NEPA and does not allow for full analysis or full consideration of mitigation for adverse impacts caused by the project that BOEM may already be aware of or may discover during NEPA review. Nor does it allow for BOEM to fulfill its legal responsibilities under OSCLA. Considering that the DEIS phase is the only phase of the entire BOEM offshore wind leasing process where impacts to other ocean users are considered, as required by both NEPA and OSCLA, BOEM is in violation of these statutes by only conducting analysis on and by only considering alternatives that fulfill in whole the project goals and pre-existing PPAs of the developers applying for approval. BOEM has bowed its legislative duties to the interests of private economic parties engaging in speculative contracts.

To put in perspective in the BOEM process, BOEM has often known of pre-existing conflicts, in particular fisheries conflicts, prior to siting an offshore wind lease on fishing grounds or prior to offshore wind COP approval when such conflicts have become apparent during the public comment/NEPA analysis phase of the project.⁵ However, BOEM, rather than removing those areas from the lease or from consideration for buildout at the outset of its process so as to deconflict, contends that it will consider all impacts and possible alternatives for mitigation at the DEIS stage, after a developer submits a COP, and then approve/disapprove in whole or in part accordingly. It is at this stage that BOEM portends to comply with OSCLSA and prevent interference with reasonable uses of the ocean, such as commercial fishing. But BOEM, at the DEIS stage, will only consider alternatives that fulfill PPAs contracted before the COP was submitted to it for analysis. Therefore, it cannot deconflict. If BOEM refuses to consider pre-existing fisheries conflicts in its process, but is willing to consider pre-existing speculative PPAs as its sole criteria for alternative analysis, how can BOEM conduct objective analysis? It cannot.

No type of permitting occurs in this manner. A simple analogy would be if an individual contracted with a builder to construct a shed on his property, prior to obtaining planning permission to construct the shed. If the town planning board reviewed the application, subject to all town and state zoning laws and standards, disapproved the shed or could only approve a smaller shed, or in a different location, the individual would have to negate his previous contract with the shed builder and re-contract pursuant to the restrictions imposed by the town zoning board. No town zoning board in the United States would adjust their rules and regulations or permit approvals to accommodate the individual simply because the individual had already speculatively contracted with the shed builder prior to submitting his permit to

⁴ DEIS, p. ES-3-5.

⁵ See, for example, the Equinor and Vineyard Wind projects.

the town. Yet this is exactly what BOEM is doing with unprecedented and giant infrastructure projects in our oceans, which will have unprecedented impacts to existing ocean users and the natural environment, among others. Not only is this poor planning but it flies in the face of reason on every level.

BOEM's recent NEPA standardization, "Process for Identifying Alternatives for Environmental Reviews of Offshore Wind Construction and Operations Plans pursuant to the National Environmental Policy Act (NEPA)",⁶ on which it bases its rationale for the alternatives chosen for analysis in the Revolution Wind DEIS is flawed, arbitrary and capricious, as it only analyzes alternatives that allow for full pre-existing PPAs. We incorporate herein our comments on this issue previously submitted to BOEM in our comments on BOEM's Draft Fisheries Mitigation Guidance (BOEM-2022-0033-0003)⁷ and BOEM's Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Future Wind Energy Development in the New York Bight (BOEM-2022-0034).⁸

No Action Alternative: This alternative confuses a true NEPA No Action with a Cumulative Impacts Analysis, also required by NEPA. BOEM cannot legally conflate the two, as it affects the analysis results. The No Action alternative, in a true NEPA sense, would analyze a disapproval of the Revolution Wind project, and include only projects that BOEM has already approved (i.e. Vineyard Wind and South Fork Wind Farm). A Cumulative Impacts Analysis would include all future foreseeable projects- which would include additional wind farms in all currently leased BOEM areas, as well as the potential for new leases in the Central Atlantic Call Area.

However, the DEIS uses the No Action Alternative for its Cumulative Impacts Assessment, despite the fact that the two are not the same. The DEIS states, "The No Action Alternative cumulative effects assessment provides an assessment for impacts with and without approval of additional wind farms in BOEM lease areas. Through these assessments, the No Action Alternative provides a baseline against which all action alternatives are evaluated."⁹ This conflation of a true NEPA No Action Alternative and a true NEPA Cumulative Impacts Analysis only serves to downgrade the impacts from the project.

If BOEM were to conduct a true No Action Alternative, it would analyze the current state of two approved projects, with no other approved projects in the ocean. Comparing the action alternatives against this background would show a significant impact, because compared to the two existing approved projects the approval of Revolution Wind would increase the number of turbines in the ocean substantially. However, if BOEM conflates the No Action Alternative with the Cumulative Impacts Analysis and compares approval of the Revolution Wind project against the potential for thousands of turbines in the additional 25/26 other BOEM leases, plus the potential for more in the Central Atlantic Call Area, the addition or subtraction of the Revolution Wind turbines appears more insignificant. For example, BOEM states that under the No Action Alternative, 3,008 WTGs and OSS foundations would

⁶ See <https://www.boem.gov/sites/default/files/documents/renewable-energy/BOEM%20COP%20EIS%20Alternatives-2022-06-22.pdf> and <https://www.boem.gov/newsroom/notes-stakeholders/boem-standardizes-process-environmental-reviews-offshore-wind>.

⁷ See our complete comments here: <https://www.regulations.gov/comment/BOEM-2022-0033-0090> and here: <https://www.regulations.gov/comment/BOEM-2022-0033-0088>.

⁸ See our comments here: <https://www.regulations.gov/document/BOEM-2022-0034-0007/comment?filter=Seafreeze>.

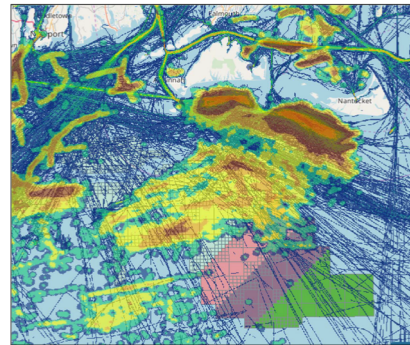
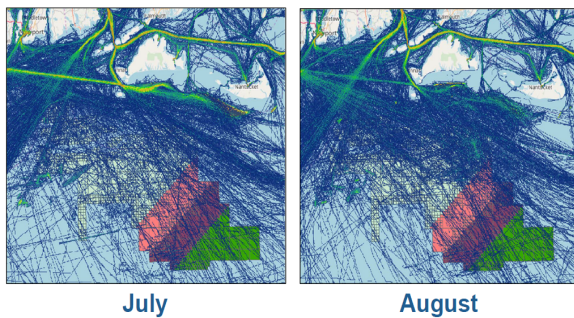
⁹ DEIS, p. 2-4.

exist in the analysis area.¹⁰ This makes the 100 WTGs of the Proposed Action seem negligible. However, 100 turbines compared to the up to 15 turbines of the South Fork Wind Farm and up to 84 turbines of the Vineyard Wind project,¹¹ the Revolution Wind project would in fact double the number of turbines in the water.

Similarly, on the October 11, 2022 BOEM virtual public hearing webinar for Revolution Wind, BOEM personnel stated that impacts to navigation were the same with or without the Proposed Action. This is simply not true but is the illusion created by conflating a No Action alternative with a Cumulative Impacts Analysis. One hundred WTGs in the middle of heavily transited and fished area will certainly have a major navigational impact. See charts below for examples of fishing and transit activity presented by NOAA Fisheries to BOEM, developers and others at the Dec. 3, 2018 RODA transit lane workshop:¹²

AIS Transit Maps

AIS Transit and VMS (<4 knots)

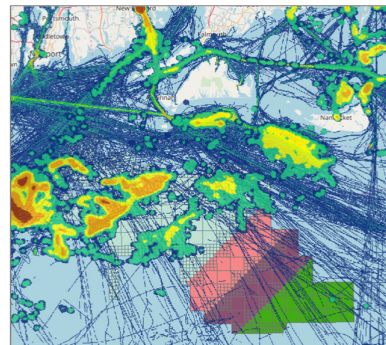
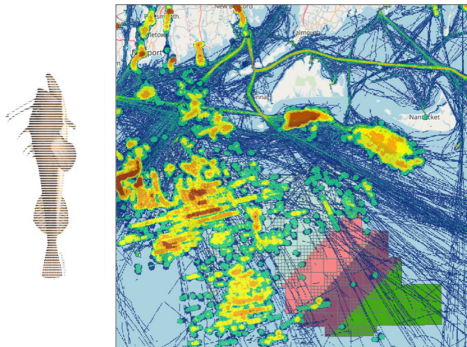


2015-2017

2015-2016

AIS Transit and VMS (<4 knots)

AIS Transit and VMS (<5 knots)



2015-2016

2015-2016

¹⁰ DEIS, p. 3.9-40.

¹¹ See <https://www.boem.gov/renewable-energy/state-activities/record-decision-south-fork> and <https://www.boem.gov/renewable-energy/state-activities/final-record-decision-vineyard-wind-1>.

¹² See presentation here: https://rodafisheries.org/wp-content/uploads/2019/08/20181203_TransitCorridorWorkshop_VMSandAISdata.pdf and meeting documents here: <https://rodafisheries.org/portfolio/december-3-2018-workshop-documents/>. Presentation also attached.

Navigation necessary for the above activity will undoubtedly be impacted by the Proposed Action. If the 100 WTGs of the Proposed Action did not exist, the depicted fishing and transit activity in the project area could continue to occur unobstructed. By installing 100 WTGs directly in the path of the depicted transit and fishing activity, much if not all of the activity will become unsafe or inoperable in the WTG area. The cumulative impact of adjacent and surrounding projects will be tremendous and further complicate and bar safe navigation. In reality, the presence or lack of fixed structure in the Revolution Wind project area will make a big difference to navigation. BOEM cannot pass the red face test if it contends that the Proposed Action will have the same impact on navigation whether or not it is built. That is a ludicrous position. However, if BOEM couches the No Action Alternative in a Cumulative Impacts Analysis to contend that there is no measurable difference between 3,008 turbines and 3,108 turbines, then it has downplayed impacts based on a technicality that is a misrepresentation of the intent and requirement of NEPA.

BOEM cannot conflate the No Action Alternative with the Cumulative Impacts Analysis. NEPA requires transparent, clear cut, and complete analysis for both. We request that BOEM separate the two and conduct a full and appropriate NEPA analysis under each.

Cumulative Impacts Agency Documents: The DEIS states that BOEM’s 2019 study *National Environmental Policy Act Documentation for Impact-Producing Factors in the Offshore Wind Cumulative Impacts Scenario on the North Atlantic Continental Shelf*,¹³ completed in May 2019 is the study which identifies past, present and reasonable foreseeable actions in the North Atlantic that BOEM incorporated into the EIS analysis for Revolution Wind.¹⁴ However, the reasonably foreseeable future actions have increased since 2019, and BOEM should adjust its cumulative impact analysis accordingly as the 2019 study is now outdated.

The 2019 BOEM cumulative impacts study set the threshold for “reasonably foreseeable” as the “State Capacity Planned Commitment for Existing Atlantic Leases”, which was 21.8 GW in 2019.¹⁵ However, the state planned capacity has risen sharply since 2019. It is now well over 40 GW. For example:

Maine has a target of 5 GW by 2030.¹⁶

Massachusetts as of March 2022 has a target of 5.7 GW by 2027.¹⁷

Rhode Island in 2022 signed legislation procuring up to 1,000 MW.¹⁸

Connecticut has a legislative target of 2,000 MW by 2030, with recommendations for 4,000 MW.¹⁹

¹³ See (OCS Study 2019- 036) (BOEM 2019).

¹⁴ DEIS, p. 1-9.

¹⁵ See *National Environmental Policy Act Documentation for Impact-Producing Factors in the Offshore Wind Cumulative Impacts Scenario on the North Atlantic Continental Shelf*, OCS Study 2019- 036) (BOEM 2019) <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Impact-Producing-Factors-in-the-Offshore-Wind-Cumulative-Impacts-Scenario-on-the-South-Atlantic.pdf>, p. 29.

¹⁶ See : [Offshore Wind | Governor's Energy Office \(maine.gov\)](#)

¹⁷ See [Massachusetts \(United States\) targets 5.6 GW of offshore wind capacity by 2027 | Enerdata.](#)

¹⁸ See [Governor McKee Signs Legislation Requiring Offshore Wind Procurement for 600 to 1,000 Megawatts | Rhode Island Office of Energy Resources.](#)

¹⁹ See [Connecticut Looks Before It Leaps on Offshore Wind | Clean Energy Finance Forum.](#)

New York in 2022 issued its third power solicitation to add another 2 GW to its procurement goals, for a total of 9 GW by 2030.²⁰

New Jersey in 2022 increased its offshore wind target to 11 GW by 2040.²¹

Maryland in 2021 increased its offshore wind market to 2,022.5 MW, an increase from 2019.²²

Virginia in 2020 passed legislation increasing its offshore wind power requirements to at least 5.2 GW by 2034.²³

North Carolina in 2021 passed an Executive Order establishing a goal of 2.8 GW of offshore wind by 2030 and 8 GW by 2040.²⁴

Although some of these commitments may exceed the planned commitment for existing Atlantic leases category and fall into the pledged commitment category, it is inarguable that states have increased procurement and planned procurement since 2019. This is combined with additional leases since 2019.

BOEM auctioned off six additional leases in the NY Bight in 2022, totaling nearly half a million acres of ocean floor.²⁵ These cannot be ignored but must be included. BOEM's Central Atlantic Call Area, totaling over 3.8 million acres, also cannot be ignored.²⁶ Although BOEM's 2019 document does not consider Call Areas to be reasonably foreseeable but only preliminary,²⁷ BOEM has indicated on Central Atlantic public meetings that it expects to identify and lease areas in the Central Atlantic in late 2022. In this case, the leases identified as part of that process would also need to be included in the cumulative impacts analysis of the Revolution Wind DEIS/FEIS, as that leasing would be complete prior to the approval of any Revolution Wind DEIS alternatives.

Therefore, with the additional state planned procurement and additional leases since 2019, the 2019 BOEM cumulative impacts analysis study is no longer accurate. BOEM must update its cumulative impacts analysis with the increased state planned capacity commitment as well as recent New York Bight leases and any Central Atlantic leases in the Revolution Wind DEIS cumulative impacts scenario. We request that BOEM initiate a new cumulative impacts study incorporating these increased impacts for the Revolution DEIS and make that updated cumulative impacts analysis available for public comment as

²⁰ See [NY issues third offshore wind solicitation, seeking at least 2 GW | Energy News Network](#) and [Governor Hochul Announces New York's Third Offshore Wind Solicitation to Accelerate Clean Energy Development | Governor Kathy Hochul \(ny.gov\)](#).

²¹ See [New Jersey snatches US offshore wind crown with new nation-leading 11GW state target | Recharge \(rechargenews.com\)](#)

²² See [Offshore Wind \(maryland.gov\)](#)

²³ See [Virginia governor signs off on 5.2 GW by 2034 offshore wind target - Offshore Energy \(offshore-energy.biz\)](#).

²⁴ See [North Carolina sets an 8GW offshore wind target for 2040 - REGlobal - Big Moves](#) and [PowerPoint Presentation \(nc.gov\)](#).

²⁵ See <https://www.boem.gov/renewable-energy/state-activities/new-york-bight>.

²⁶ See <https://www.boem.gov/renewable-energy/state-activities/central-atlantic-activities>.

²⁷ See *National Environmental Policy Act Documentation for Impact-Producing Factors in the Offshore Wind Cumulative Impacts Scenario on the North Atlantic Continental Shelf*, OCS Study 2019- 036) (BOEM 2019) <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Impact-Producing-Factors-in-the-Offshore-Wind-Cumulative-Impacts-Scenario-on-the-South-Atlantic.pdf>, p. 29.

part of the DEIS process before completion of the FEIS. Accurate cumulative impacts analysis is necessary in particular for analyzing impacts to federally permitted fisheries which operate from Maine to North Carolina in the Greater Atlantic Regional Office jurisdiction.

Discrepancy between the COP and DEIS/internal DEIS discrepancies. The Revolution Wind COP contends that it evaluated wind turbines from 8-12 MW in size,²⁸ and the DEIS states that the Proposed Action is to include wind turbines ranging in size from 8-12 MW.²⁹ The Project Design Envelope and Maximum Case Scenario found in Appendix D of the DEIS lists 12 MW as the maximum design size for both proposal and analysis.³⁰ This is what has been analyzed.

However, Alternative F of the DEIS envisions “Selection of a Higher Capacity Wind Turbine Generator”, and specifies that such an alternative would implement “a higher nameplate capacity WTG (up to 14 MW) than what is proposed in the COP”.³¹ We are unaware of any provisions that allow BOEM to propose alternatives that have not been analyzed and have not been proposed in the COP, particularly when the alternative introduces a larger structure. To introduce an alternative that is outside the scope of the application of a developer, outside the scope of analysis, and outside the scope of the maximum case scenario of the PDE contained in the DEIS is both arbitrary and capricious, and unreasonable, action by the agency. It appears to be a thinly veiled attempt to give the developer even more deference for profit than it has by only considering alternatives that fulfill the developer’s PPAs or future development goals.

We request that this alternative either be removed in its entirety, or that the developer amend their COP to include 14 MW turbines, with maximum design size and impacts analysis for a 14 MW turbine and resubmit the COP with this information contained. We request that BOEM then conduct additional NEPA analysis in a supplemental DEIS specific to a 14MW turbine.

MMPA/ESA: It is both curious and unacceptable that BOEM has not included the newest and most accurate scientific analysis of critically endangered North Atlantic right whales’ presence in the project area in the DEIS. We have attached the document, “Residency, demographics, and movement patterns of North Atlantic right whales *Eubalaena glacialis* in an offshore wind energy development area in southern New England, USA” by Quintana-Rizzo et al, published July 29, 2021 in *Endangered Species Research* along with our comments and request that its analysis be incorporated into BOEM’s DEIS analysis regarding impacts to marine mammals. Surprisingly, a document search of the DEIS yields only a 2006 study by Quintana-Rizzo regarding bottlenose dolphins, while yielding no search results for the 2021 North Atlantic right whale article which is specific to the lease area being analyzed in the DEIS. Due to the fact that out of all marine mammals to be impacted by the Proposed Action, the North Atlantic right whale is the only critically endangered species, we request that it be given its own impacts section with specific and related analysis and alternatives.

A NOAA press release dating from July 29, 2021 announcing the release of the Quintana-Rizzo et al. study states “Right whales are increasing their use of southern New England waters, including regions slated for offshore wind energy development, according to aerial survey data collected during the last decade. Offshore wind energy installations are proposed in waters off the south coasts of Massachusetts

²⁸ See <https://www.boem.gov/revolution-wind-cop-volume-i>, p. 58.

²⁹ DEIS, p. ES-3.

³⁰ DEIS, Appendix D, p. D-1.

³¹ DEIS, p. ES-4.

and Rhode Island.... “We found that right whale use of the region increased during the last decade, and since 2017 whales have been sighted there nearly every month, with large aggregations occurring during the winter and spring,” said Tim Cole, lead of the whale aerial survey team at the Northeast Fisheries Science Center and a co-author of the study.”³²

The study itself states, “Since 2017, whales have been sighted in the area nearly every month, with peak sighting rates between late winter and spring. Model outputs suggest that 23% of the species population is present from December through May, and the mean residence time has tripled to an average of 13 d during these months.”³³ According to study results, 87% of the current population had been sighted in the study area by the end of 2019, including mothers and calves, and conceptive and reproductive females important to the population.³⁴ This is directly contradictory to the assertions of the Revolution Wind DEIS that “Due to the low relative densities of those species vulnerable to collisions compared to where the majority of the population is, there is a low risk of marine mammal vessel encounter” for the 1,936 round trips over the 2-year construction and installation period for the Proposed Action alone, never mind the cumulative impacts of adjacent and nearby projects.³⁵ If an average of 23% of the North Atlantic right whale population, the population of a critically endangered species, is resident in the MA/RI Wind Energy Area for a good portion of the year, and the species is now present in the area year round, this is not an accurate assumption on BOEM’s part.

Neither would be an assertion that North Atlantic right whales are not vulnerable to vessel strikes. In fact, North Atlantic right whales are so vulnerable to vessel strikes that NOAA maintains both Seasonal Management Areas as well as Dynamic Management Areas (frequently implemented in the MA/RI Wind Energy Area where the Proposed Action is located) requiring vessels to travel at 10 kts or less.³⁶ These restrictions have been for larger vessels in the past, but proposals to extend the mandatory speed restrictions to smaller vessels 35-65 feet in length are now underway due to the fact that vessel strikes are one of the primary causes of death and injury to the species.³⁷ The DEIS estimates a maximum of 249 vessels on a daily basis during offshore wind construction in 2024, and 301 vessels in 2025.³⁸ This is a high vessel strike hazard probability given the presence of whales in the area.

In fact, the MA/RI Wind Energy Area, including the Proposed Action area, is the most densely populated area for North Atlantic right whales in the entire region. See the results of the Right Whale Density

³² See <https://www.fisheries.noaa.gov/feature-story/right-whale-use-southern-new-england-wind-energy-areas-increasing>.

³³ Quintana-Rizzo et al., “Residency, demographics, and movement patterns of North Atlantic right whales *Eubalaena glacialis* in an offshore wind energy development area in southern New England, USA”, *Endangered Species Research*, Vol. 45: 251-268, July 29, 2021.

³⁴ Quintana-Rizzo et al., “Residency, demographics, and movement patterns of North Atlantic right whales *Eubalaena glacialis* in an offshore wind energy development area in southern New England, USA”, *Endangered Species Research*, Vol. 45: 251-268, July 29, 2021, p. 257, 251.

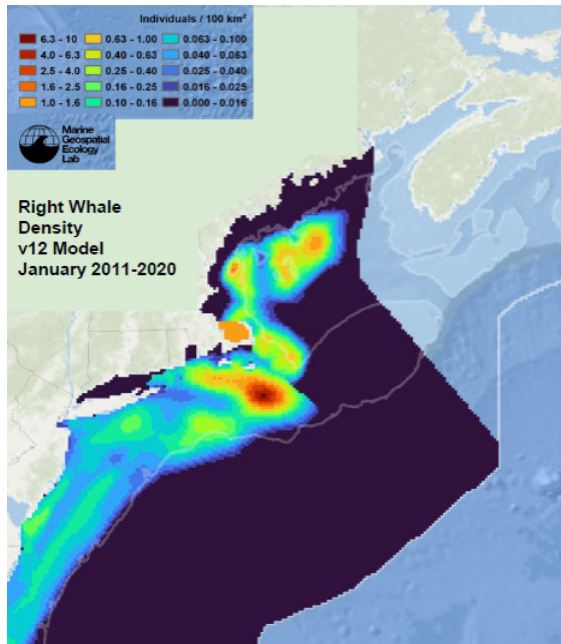
³⁵ DEIS, p. 3.15-38.

³⁶ See <https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales>.

³⁷ See <https://www.noaa.gov/news-release/noaa-proposes-new-vessel-speed-regulations-to-protect-north-atlantic-right-whales>.

³⁸ DEIS, p. 3.16-8.

Model chart below, and included on page 4 of the attached NOAA Fisheries presentation to BOEM’s Gulf of Maine Task Force on May 19, 2022, which we have attached with this comment:



BOEM must correct these inaccurate assumptions and related analysis related to North Atlantic right whales in the DEIS. We request that this information also be included in a Cumulative Impacts analysis.

The DEIS relies heavily on passive acoustic monitoring (PAM) as a mitigation measure to downplay construction and vessel strike impacts on marine mammals, as well as UXO impacts, discussed below. However, specific to North Atlantic Right whales, this also falls short of necessary protections. According to peer reviewed scientific data, North Atlantic Right whale mother and calves in particular exhibit “acoustic crypsis”, i.e. they exhibit reduced calling rates and reduced call amplitude compared to other whales as a way to minimize the attention of predators.³⁹ PAM will therefore be an ineffective means of identifying and avoiding mothers and calves in the area. We have attached this data as part of our comment and request that it be included in analysis of a DEIS section specific to North Atlantic right whales as part of a Final EIS.

The 2021 Quintana-Rizzo et al paper clearly details that mother and calf pairs are found in the project area. No takes of this species are allowable under the Endangered Species Act. It is not reasonable to assume that PAM will be an adequate mitigation measure specific to critically endangered North Atlantic right whales considering the attached science. BOEM must include mitigation measures that will address impacts specific to right whales, which should be analyzed in its own section of the DEIS.

The DEIS similarly relies heavily on bubble curtains to mitigate the effects of pile driving and UXO detonation. For example, the DEIS concludes that bubble curtains will be effective at minimizing effects to marine mammals and ESA listed species from UXO detonation on page 3.15-11. Appendix F, “Environmental Protection Measures, Mitigation and Monitoring” lists bubble curtains on pages F-7 and F-8 as the mitigation measure for marine mammals related to construction and installation’s impact and

³⁹ Parks et al., “Acoustic crypsis in communication by North Atlantic right whale mother-calf pairs on calving grounds”, *Biology Letters*, 16 September 2019, also attached with our comment.

vibratory pile driving. However, BOEM already knows that bubble curtains do not protect North Atlantic right whales from impacts. Bubble curtains were designed to mitigate effects for high frequency marine mammals. At its Renewable Energy Program Update Briefing for the Mid Atlantic Fisheries Management Council on February 11, 2021, attached, BOEM's presentation openly stated "Low frequency sound (<200Hz) is not reduced by the bubble curtain".⁴⁰ Therefore, as low frequency species- and noted as such in the DEIS- North Atlantic right whales will not benefit from bubble curtains. Right whales' acoustic signals and acoustic sensitivity are below 200 Hz.⁴¹ As such, North Atlantic right whales are at a risk of hearing loss and other permanent impacts despite the use of bubble curtains during pile driving and UXO detonation activities. This is not acceptable, particularly for an ESA listed species. BOEM must demonstrate effective mitigation measures specific to low frequency marine mammals, and specifically the critically endangered North Atlantic right whale.

BOEM already divides marine mammals into low frequency, mid frequency and high frequency cetacean categories in the DEIS, for example in Table 3.15-2 on page 3.15-7. It lists North Atlantic right whales in the low frequency category. BOEM already acknowledges that there are differences between the species. Therefore, it cannot apply the same mitigation measures to all species when it knows that mitigation measures such as bubble curtains designed for high frequency mammals will not work for low frequency mammals. This is unreasonable, arbitrary and capricious, especially considering that BOEM already possesses the information and analysis to make this connection and distinction.

UXO/ESA/Safety: According to the DEIS, "Orsted anticipates that up to 13 UXOs, ranging from 5 to 1,000 pounds in size, may need to be detonated in place."⁴² This is an astonishing statement considering the consistent numbers of a critically endangered species inhabiting the project area. However, the estimated detonation number may in reality be higher. As noticed by Orsted in its most recent Mariners Briefing email, attached, there are now 17 UXO that have been identified by Orsted in conjunction with its Revolution Wind activities (despite the title of the email, attached, being identified as "South Fork Wind Seabed Preparation").

It is also astonishing that in Table 3.15-7 on page 3.15-30 of the DEIS, entitled "Estimated Number of Marine Mammals Experiencing a Permanent Threshold Shift from Worst-Case Scenarios for Construction-Related Impact Pile Driving and Unexploded Ordinance Detonation Exposure" that BOEM expects impacts from UXO detonation and pile driving activities only to non-ESA listed species. For example, BOEM expects 8 humpback whales to be impacted. However, humpback whales are only transitory through the project area and not present year-round, as are North Atlantic right whales. Yet BOEM expects no impacts to North Atlantic right whales from these activities? How can a species not present consistently in the area be impacted, while a species present year around with some of its highest density levels in and around the project area not be impacted?

Not surprisingly, BOEM's only source for its DEIS analysis of these impacts is a single document, prepared by the developer, entitled "Petition for Incidental Take Regulations for the Construction and Operation of

⁴⁰ See https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/602d7bbd49ee2d06d9db12c4/1613593539206/05a_BOEM+Renewables+Program+Update+2021-02.pdf, p. 21 of 23. Also attached as part of this comment.

⁴¹ Quintana-Rizzo et al., "Residency, demographics, and movement patterns of North Atlantic right whales *Eubalaena glacialis* in an offshore wind energy development area in southern New England, USA", *Endangered Species Research*, Vol. 45: 251-268, July 29, 2021, p. 253.

⁴² DEIS, p. 3.6-40.

the Revolution Wind Offshore Wind Farm”.⁴³ It is not surprising that the developer analysis will omit impacts to ESA listed species, as to acknowledge them would be to risk approval of the project. However, BOEM has a legal duty to fully and independently analyze impacts, which it has not done.

BOEM cannot simply cite one source- the developer’s petition for an incidental take permit- as its only analysis for impacts to or takes of marine mammals as a result of UXO detonation as well as construction activities. This is obviously a conflict of interest. Additionally, BOEM cannot ignore and/or omit peer reviewed science which shows high concentrations of North Atlantic right whales year-round in the project area, i.e. the Quintana-Rizzo paper attached with this comment, in favor of non-peer reviewed science submitted by the developer. We request that this entire section of the DEIS be re-analyzed with independent and peer reviewed information.

According to page 3.15-27 of the DEIS, the UXO detonation distance to peak injury threshold for low frequency marine mammals such as North Atlantic right whales is up to half a mile away from the detonation site.⁴⁴ The distance to cumulative injury threshold for low frequency marine mammals is up to 2.65 miles away, and the distance to behavioral or cumulative temporary hearing threshold shift (TTS) effect threshold is up to 8.3 miles away from the detonation site.⁴⁵ The document notes 13 detonation sites, however, based on the current 17 UXOs discovered by the Revolution Wind survey vessels, this may in fact be inaccurate. An 8.3 mile radius is a large area to monitor for every UXO detonation. However, a temporary hearing threshold shift for North Atlantic right whales could easily make these whales vulnerable to vessel strikes and other hazards while impaired. We request that BOEM explain how it proposes to monitor the entire 8.3 mile radius for right whale presence during detonation, what mitigation measures other than PAM and bubble curtains (which as discussed previously are ineffective mitigation for low frequency marine mammals such as right whales according to BOEM’s own data) it plans to require during detonation so as to protect right whales, and/or how BOEM proposes to ensure that no vessel traffic occurs in the area until any potential UXO- induced TTS has subsided for the animals.

We also note that the above distances of half a mile, 2.65 miles and 8.3 miles detailed by BOEM’s chart in the DEIS as distances from detonation site for peak and cumulative permanent and temporary hearing threshold shift (PTS and TTS) for marine mammals are calculated solely by a document paid for and prepared by the developer, entitled “Underwater Acoustic Modeling of Detonations of Unexploded Ordnance (UXO) for Orsted Wind Farm Construction, US East Coast.”⁴⁶ Again BOEM utilizes only developer data as the primary source of impacts, when such data clearly is being prepared by an entity possessing a conflict of interest. As a mere footnote to the quoted developer data included in the DEIS, BOEM states, “NOAA uses the larger cumulative threshold distance to assess potential PTS and TTS exposure resulting from UXO detonation...PTS injury and TTS exposure acreages could occur within a 46,139 to 567,221- acre zone of potential exposure within and around the maximum work area for the

⁴³ See reference in Table 3.15-7 to “LGL (2022)” and corresponding reference on DEIS page B-19, “LGL Ecological Research Associates (LGL). 2022. Petition for Incidental Take Regulations for the Construction and Operation of the Revolution Wind Offshore Wind Farm. Prepared for Revolution Wind LLC, Orsted, and Eversource. Bryan, Texas: LGL Ecological Research Associates.”

⁴⁴ DEIS, p. 3.15-27; the chart states 2,776 feet which is 0.52 miles.

⁴⁵ DEIS, p. 3.15-27; the chart states 14,009 feet and 44,291 feet, which are 2.65 and 8.3 miles, respectively.

⁴⁶ Hannay, D., and M. Zykov. 2021. *Underwater Acoustic Modeling of Detonations of Unexploded Ordnance (UXO) for Ørsted Wind Farm Construction, US East Coast*. Silver Spring, Maryland: JASCO Applied Sciences.

RWF and RWE, varying by hearing group and type of exposure.”⁴⁷ This is a tremendous statement to relegate to a footnote.

According to the data used by NOAA, the cumulative threshold distance for PTS and TTS from the UXO detonation site is up to 886 square miles (567,221 acres)! BOEM does not explain why it has chosen to use developer generated data to assess impacts to marine mammals, including critically endangered species, rather than NOAA data. This is particularly surprising given the fact that NOAA is the agency federally charged with protecting marine mammals. We request that BOEM explain its rationale for this decision. It is unclear how BOEM can effectively mitigate impacts over an area of this size, as it will be impossible to visually monitor and PAM/bubble curtains will be ineffective for low frequency marine mammals. We request that BOEM conduct a further analysis in the DEIS utilizing the NOAA distances and associated necessary mitigations and monitoring for marine mammals, particularly endangered North Atlantic right whales, for UXO detonation.

Additionally, the DEIS states that, “UXO detonation may also result in non-auditory injury (i.e. lung and gastrointestinal tract compression injuries).”⁴⁸ These impacts should be treated differently than hearing threshold impacts and contain detailed analysis, particularly for critically endangered North Atlantic right whales. The Revolution Wind DEIS, following this statement regarding lung and intestinal tract compression injuries, notes, “A detailed discussion of noise impacts on marine mammals is provided in Vineyard Wind final EIS Section 3.4.1.1.1 (BOEM 2021b).”⁴⁹ However, neither the Vineyard Wind Final EIS Section 3.4.1.1.1, “Marine Mammals”, nor anywhere else in the Final EIS mentions UXO detonation. A word search of the Vineyard Wind Final EIS for the term “UXO” yields the result, “No matches were found”. Therefore, the Vineyard Wind FEIS, upon which the ROD is based, did not analyze UXO detonation at all. This would seem to be arbitrary and capricious on behalf of BOEM for that project, considering that the Vineyard Wind COP Easement Approval Letter contains a section on surveying for UXO, meaning that BOEM expected UXO discovery to be reasonably foreseeable as a result of construction activities.⁵⁰ It is particularly concerning considering that Vineyard Wind has in fact unearthed a 1000 lb UXO, which is discussed below in more detail.

For the Revolution Wind DEIS, BOEM cannot reference the Vineyard Wind FEIS relative to impacts of UXO detonation on marine mammals when the Vineyard Wind FEIS did not analyze these impacts. We request that BOEM conduct a full analysis of non-auditory injury impacts to marine mammals from UXO detonation, with a separate section for North Atlantic right whales, and include this in an updated and revised DEIS for Revolution Wind.

UXO is also a problem for fisheries, and these impacts have not been fully discussed or analyzed in the DEIS. As demonstrated by the attached Orsted Mariners Briefing, UXO is already being unearthed discovered before the FEIS/ROD for the Revolution Wind project. UXO unearthed by developer activity presents a very real safety hazard for fishing vessels and crew, as well as contamination of catch or destruction of resource.

⁴⁷ DEIS, p. 3.15-27, footnote #.

⁴⁸ DEIS, p. 3.15-28.

⁴⁹ DEIS, p. 3.15-28.

⁵⁰ See Section 2, p. 3-6 of the Vineyard Wind COP and Project Easement Approval Letter at https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/VW1-COP-Project-Easement-Approval-Letter_0.pdf

Not only can UXO contain explosives; it can also contain nerve agents or burn agents such as mustard gas. For example, in 2010, a commercial fishing vessel encountered mustard gas while fishing, hospitalizing some crew and causing quarantine of the vessel and remaining crew aboard and⁵¹ the 504,000 lbs of clam harvested by the vessel to be destroyed.⁵² Again, in 2016, a commercial clam vessel pulled up UXO, causing second degree burns to crew and the destruction of over 700 cases of chowder.⁵³ A commercial fishing vessel in the UK recently encountered UXO, injuring all crew members aboard,⁵⁴ and US fishermen hauling aboard UXO in the past have been forced to scuttle their vessel, taking years to recover losses with payment from the government.⁵⁵ Most recently, Vineyard Wind, a project with a BOEM-approved ROD, has dug up a 1000 lb UXO from roughly 100 feet beneath the seabed.⁵⁶ This UXO, formerly buried 100 feet below the surface so as not to interact with commercial fishing vessels operating in the area, has now been sitting on top of the ocean floor in a heavily fished area since the month of July.⁵⁷ This UXO now presents a life threatening hazard to commercial fishermen working in the area, yet BOEM does not require any developer action to be taken other than noticing to the USCG and preparing UXO survey planning for BOEM related to construction.⁵⁸ BOEM requires no apparent standard procedure for UXO removal/detonation, nothing to ensure the safety of commercial fishermen operating in the area, nor any impacts analysis conducted on marine mammals regarding UXO removal/detonation. This is arbitrary and capricious. It is also a violation of the OSLCA requirement for “safety”.

This is not acceptable. UXO cannot be continued to be unearthed by developers and left on commercial fishing grounds, with no lease or permit requirements to safely dispose of the UXO in a manner that both provides for safety of US commercial fishermen per OSLCA and protection of critically endangered species per the ESA. Clearly, given the information contained above in this comment, this is not currently being achieved by BOEM in the DEIS nor by the developer’s COP. Neither are there mitigation or compensation proposals related to UXO- induced injury, vessel damage, or loss of product caused by offshore wind construction activities found anywhere in BOEM’s Draft Fisheries Mitigation Guidance document. These are glaring omissions, and we request that they be included and analyzed in the Revolution Wind DEIS.

Revolution Wind’s own COP states that the developer plans to address UXO via one of three methods: detonation, low-order burnout, or relocation⁵⁹. Each method will have its own potential adverse impacts

⁵¹ See <https://www.cbsnews.com/news/mustard-gas-eyed-in-clam-boat-sickness/> .

⁵² See <https://libn.com/2010/06/28/mustard-gas-contaminated-boat-is-clean/>.

⁵³ See <https://www.cbsnews.com/news/fisherman-injured-chowder-destroyed-after-netting-unexploded-ordnance/>.

⁵⁴ See <https://maritime-executive.com/article/maib-unexploded-ordnance-may-be-cause-of-fishing-vessel-blast>.

⁵⁵ See <https://www.newsday.com/long-island/suffolk/hazardous-fishing-off-long-island-s-coast-l35630> and <https://www.denix.osd.mil/uxo/for-work-crews/maritime/index.html>.

⁵⁶ See <https://www.eenews.net/articles/unexploded-bomb-discovery-flags-growing-challenge-for-offshore-wind/> and attached.

⁵⁷ See attached email “OW Mariner Update No. 63”.

⁵⁸ See Section 2, p. 3-6 of the Vineyard Wind COP and Project Easement Approval Letter at https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/VW1-COP-Project-Easement-Approval-Letter_0.pdf.

⁵⁹ See Revolution Wind COP, p. 84-85 at https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/COP_Sections%201_2_3_4_clean_08232022-508c.pdf.

and require its own analysis. UXO detonation causes obvious problems for marine mammals, fish and wildlife, whereas low-order plasma burnout of the UXO will often result in sea pollution through the deposit of hazardous waste on the seabed and still carries the consequences of unintended explosion, issues being acknowledged in the UK as problematic to the nation's offshore wind ambitions.⁶⁰

Relocation poses a safety risk for bottom tending fisheries, which cannot be ignored due to BOEM's legislative mandate to conduct offshore wind leasing in a manner that provides for safety, and also carries the risk of accidental detonation. The Revolution Wind DEIS does not comprehensively address any of these issues, whether from a safety standard for commercial fishing vessels and crew per OSCLA, nor a biological perspective re Endangered Species Act requirements for North Atlantic right whales, nor a Clean Water Act perspective should low-order plasma burnout be selected. All UXO options- detonation, low-order burnout, relocation- must have a thorough and comprehensive analysis, with endangered North Atlantic right whales receiving their specific own section, for full compliance with the relevant laws, including NEPA, OSCLA and the Clean Water Act.

Fisheries: Based on BOEM's previous lack of accurate assessment of commercial fishing impacts, which we detail in our comments on BOEM's Draft Fisheries Mitigation Guidance (BOEM-2022-0033-0003)⁶¹ which we incorporate into this comment by reference, we do not have confidence that BOEM has conducted an accurate and comprehensive commercial fishing impacts analysis. Therefore, we request that BOEM make public all its models and numbers for calculating fisheries impacts so that they can be replicated by an industry economist and compared with other economic fisheries studies we have provided BOEM in the past. We request that this information be provided prior to the finalization of the Revolution Wind EIS.

Fisheries Resources: We contest the DEIS conclusion that "The available research indicates that invertebrates are similarly insensitive to UXO detonation, meaning that only those invertebrates within a short distance from the blast impact footprint would be able to detect the associated particle motion effects."⁶² The DEIS similarly states "Construction-related sources of sound pressure and vibration that could affect invertebrates are impact and vibratory pile driving, construction vessels and HRG surveys, and UXO detonation. In general, mollusks...are less sensitive to noise-related injury than many fish because they lack internal air spaces and are therefore less vulnerable to sound pressure injuries on internal organs than vertebrates (Popper et al 2001)."⁶³

Sandwiched in between the above statements, BOEM acknowledges the particular effects of sound sensitivity and particle motion exposure to squid, quotes various studies on the subject, but then concludes "These findings suggest that squid could experience injury or behavioral effects from intense underwater noise exposure, but evidence for this type of effect is limited and additional research is needed."⁶⁴ BOEM cannot identify data, then ignore it, and conclude that impacts to squid will be "minor". Cumulatively, for the Revolution Wind and surrounding projects, as well as projects up and down the coast, the impacts to longfin squid, whose habitat significantly overlaps with multiple offshore wind leases, are prospectively very high. As squid is the most significant part of Seafreeze's business, we

⁶⁰ See <https://www.marinelink.com/news/navigating-a-minefield-why-uxo-hamper-uks-498869> and attached.

⁶¹ See our complete comments here: <https://www.regulations.gov/comment/BOEM-2022-0033-0090> and here: <https://www.regulations.gov/comment/BOEM-2022-0033-0088>.

⁶² DEIS, p. 3.6-39.

⁶³ DEIS, p. 3.6-39.

⁶⁴ DEIS, p. 3.6-39.

have a high degree of interest in protecting this species or suffer huge potential losses. BOEM must separate out squid from other invertebrates and conduct a spatial and temporal analysis for this species compared to offshore wind leasing and construction activities, including the Proposed Action. We have attached a new troubling study entitled “Commercial cuttlefish exposed to noise from offshore windmill construction show short range acoustic trauma”, accepted by the scientific journal *Environmental Pollution* in July 2022.⁶⁵ Cuttlefish are similar species to squid. We request that BOEM add this into its analysis for Revolution Wind as well as the cumulative spatial and temporal analysis for squid in particular. We request that the result of this analysis be incorporated into the DEIS. This analysis should also include information from both the DEIS combined with the information from squid particularly that eggs and larvae are expected to experience death is approximately one quarter of a mile.⁶⁶ For longfin squid, which has eggs and larvae that overlap both inside and outside the MA/RI Wind Energy Area in time and space with planned construction activities, this is concerning. We request that analysis include this aspect of potential resource threat as well, including the consecutive years of construction in the area expected.

Navigation: Section 3.16 of the DEIS, “Navigation and Vessel Traffic” relies on incomplete information and is unjustifiably restricted to a limited geographic area. The cumulative navigational only includes the listed MA/RI wind leases OCS-A 0487, OCS-A 0500, OCS-A 0501, OCS-A 0517, OCS-A 0520, OCS-A 0521, and OCS-A 0522.⁶⁷ However, federally permitted commercial fisheries operating in the region will be encountering and affected by offshore wind leases not only off MA and RI but also off NY, the NY Bight, NJ, DE, MD, VA and NC, as well as the Gulf of Maine and Central Atlantic Call Area. Only consideration of projects over that entire region can estimate the true cumulative impact to federally permitted commercial fisheries by BOEM’s offshore wind plans in the Atlantic. Analyzing anything less than that is a segmentation of NEPA analysis that will downgrade impacts. A full regional impact for the Greater Atlantic Region must be conducted by an independent body. Project specific navigational risk assessments and “cumulative” analysis limited to the leases closest to the Proposed Action are inadequate to assess impacts. Furthermore, a developer’s navigational risk assessment cannot be the primary source of data for assessing impacts, as there exists a clear conflict of interest on the part of the developer or developer’s contractors to minimize impacts.

Project specific navigational risk assessments are inadequate when the analysis is meant to identify impacts to mobile vessels which operate over large regions covered with multiple wind farm leases. Cumulative and regional assessments are necessary. These assessments must include all aspects of navigation and mariner safety, including marine vessel radar interference analysis and HF radar interference analysis, including impacts to USCG search and rescue capabilities resulting from HF radar loss. We request that BOEM update the DEIS with this information.

The DEIS references the USCG’s MARIPARS as a primary source of information for its Navigation and Vessel Traffic section. We commented on that study, in both 2019 and 2020, which comments we

⁶⁵ Solé, M., De Vreese, S., Fortuno, José.-Manuel., van der Schaar, M., Sánchez, A.M., André, M., Commercial cuttlefish exposed to noise from offshore windmill construction show short-range acoustic trauma, *Environmental Pollution* (2022), doi: <https://doi.org/10.1016/j.envpol.2022.119853> .

⁶⁶ DEIS, p. 3.6-40.

⁶⁷ DEIS, p. 3.16-1.

incorporate by reference here.⁶⁸ One of the primary issues we discussed in our comments was marine vessel radar interference and requested that the USCG conduct modeling studies and analysis on that subject related to the MA/RI Wind Energy Area, similar to its modeling study that it had conducted for the Cape Wind project. The USCG declined to conduct that modeling, resulting in a recent bipartisan Congressional letter from the US House Transportation and Infrastructure Committee to the USCG, which we have included as part of our comments. The US House Transportation and Infrastructure Committee acknowledged that the USCG has allowed BOEM to drive the offshore wind planning process with regards to maritime safety and ignored concerns about radar interference and search and rescue capabilities. We request that BOEM send an official request to the USCG, as a cooperating agency, to conduct an independent marine vessel radar modeling study using updated turbine parameters expected for the MA/RI Wind Energy Area projects and include the results of that modeling study in an updated Revolution Wind DEIS. We also request that BOEM send an official request to the USCG, as a cooperating agency, to conduct analysis of diminished search and rescue capabilities resulting from both marine vessel radar interference on its own vessels as well as the loss of HF radar due to interference from the cumulative impacts of offshore wind project turbines and include analysis results in an updated Revolution Wind DEIS. It is the USCG which holds the independent and sole responsibility of ensuring US maritime safety, not analysis from the offshore wind developer's navigational risk assessment.

We also point out that BOEM has neglected to include the results of the National Academies of Sciences (NAS) 2022 study entitled "Wind Turbine Generator Impacts to Marine Vessel Radar (2022)" as a reference document in the Revolution Wind DEIS, despite the fact that the study was supported by contracts between the National Academy of Sciences and Bureau of Ocean Energy Management under Award Number 140M0119D0001/140M0121F0013.⁶⁹ BOEM contracted to have the study conducted but now has omitted the study and results from that study in its Revolution Wind DEIS. This is unacceptable and we request that BOEM update and revise its DEIS with this information included and analyzed in the DEIS Alternatives.

The NAS study quotes Seafreeze comments submitted to the USCG MARIPARS in its actual analysis on page 15, Figure 1.3. The USCG did not address these impacts in the MARIPARS, however the NAS study validates that they are a concern. In fact, the NAS report opens with "Marine vessel radars are not presently optimized to operate in a WTG environment. Marine WTGs are very large structures, with towers on the order of several hundred meters and blade lengths exceeding 100 meters. Being heavily composed of steel, the nominal WTG structure has a large radar cross section. Furthermore, many hundreds to thousands of WTGs will be constructed throughout the U.S. OCS. The combination of high radar reflectivity and vast number of WTGs leads to many strong reflected signals entering the radar receiver, further complicated by other factors, such as multipath and range ambiguous returns. In addition, blade motion generates aspect-dependent, Doppler-spread interference. These various effects, left unresolved, combine to complicate navigation decision-making. Certainly, there is a need to collect more data, develop physics-based models, identify key failure mechanisms, and devise mitigating

⁶⁸ For copies of our MARIPARS comments and support materials, see: <https://www.regulations.gov/comment/USCG-2019-0131-0026> for our 2019 comments, and here: <https://www.regulations.gov/comment/USCG-2019-0131-0067> for our 2020 comments.

⁶⁹National Academies of Sciences, Engineering, and Medicine. 2022. *Wind Turbine Generator Impacts to Marine Vessel Radar*. Washington, DC: The National Academies Press. See document at [Wind Turbine Generator Impacts to Marine Vessel Radar | The National Academies Press](#), p. 3 of 95.

strategies to effectively manage the situation.”⁷⁰ This statement alone should necessitate a cumulative impacts modeling analysis for the Revolution Wind DEIS including all current wind leases on the US East Coast, and in particular for a vessel attempting to transit through the MA/RI Wind Energy Area, as BOEM expects vessels to do in a safe manner.

There is no factual basis for this expectation. Currently, no proven mitigation methods exist for marine vessel radar interference in the presence of wind turbines. The NAS report states, “WTGs reduce the effectiveness of both magnetron-based and Doppler-based MVR radar...It is noteworthy that there are no published studies of WTG interference on Doppler-based solid state radar used for marine navigation”.⁷¹ Key findings of the NAS committee included “no standard approach to active radar deployment for operation in a WTG environment is available” and that the USCG recognizes that “how MVR will lose efficacy in a WTG environment, and corresponding impact on navigation performance, requires in-depth testing and evaluation”.⁷² Considering these facts, it is inexplicable that BOEM can conclude that impacts to navigation from the Proposed Action merely range from negligible to moderate, with moderate impacts being temporary.⁷³ These are illogical conclusions; however, BOEM has omitted a key study from the DEIS that it itself paid for. We request that the NSAS study and results be added to the DEIS and conclusions regarding navigation re-analyzed, in addition to the USCG modeling analysis requested above.

Decommissioning: BOEM mentioned on its October 11, 2022 BOEM virtual public hearing webinar for Revolution Wind that specific financial security requirements for decommissioning are required by 30 CFR 585 but that security dollar amounts are kept private. We request that the dollar amounts for decommissioning be made public. The payments that BOEM receives for individual lease sales are made public; the decommissioning security amounts for each project should also be made public. The project itself takes place on public lands of the US OCS, and if the security amounts for decommissioning are not substantial enough to cover actual decommissioning in the future, the public resources and lands of the OCS and the American people will permanently suffer, leaving our oceans forever a wasteland of decrepit steel and cables. BOEM has a public duty to ensure that US public resources are well maintained. Given that BOEM has given the developer wide deference in analysis pertaining to its own project approval, we do not have confidence that BOEM has not done so with decommissioning security costs as well. Lease sale dollar figures are made public; they are not proprietary developer financial details. Neither are securities that the US federal government requires for the future maintenance of US public resources. The amounts required by BOEM for decommissioning securities should be included in an updated DEIS.

Cables: The DEIS concludes that impacts to commercial fisheries from cable placement and maintenance is long term, but only negligible to minor adverse. This is because BOEM expects that all cables will be

⁷⁰ National Academies of Sciences, Engineering, and Medicine. 2022. *Wind Turbine Generator Impacts to Marine Vessel Radar*. Washington, DC: The National Academies Press. See document at [Wind Turbine Generator Impacts to Marine Vessel Radar |The National Academies Press](#), Preface, p. vii.

⁷¹ National Academies of Sciences, Engineering, and Medicine. 2022. *Wind Turbine Generator Impacts to Marine Vessel Radar*. Washington, DC: The National Academies Press. See document at [Wind Turbine Generator Impacts to Marine Vessel Radar |The National Academies Press](#), p. 5.

⁷² National Academies of Sciences, Engineering, and Medicine. 2022. *Wind Turbine Generator Impacts to Marine Vessel Radar*. Washington, DC: The National Academies Press. See document at [Wind Turbine Generator Impacts to Marine Vessel Radar |The National Academies Press](#), p. 66.

⁷³ See, for example, BOEM analysis on p. 3.16-15 of the DEIS.

buried and remain buried.⁷⁴ Not only has the opposite been proven to be true in Europe, as we highly detailed in our Vineyard Wind SEIS comments on pages 38-43 and which we incorporate here by reference,⁷⁵ but BOEM continues to view cable impacts in a vacuum.

Significant numbers of cables already exist on the US Atlantic OCS. We have attached a NOAA cable chart of Southern New England/NY Bight as part of this comment. None of these existing cables contain the high electric voltages planned for offshore wind cables and therefore present less of a hazard. However, the cables from Revolution Wind and all other East Coast offshore wind projects will create cumulative impacts on top of these pre-existing cables, necessitate many cable crossings and associated cable mattresses/rock armoring, and related cable failures and maintenance. The East Coast is soon to become a spiderweb of hazardous, high voltage cables containing many overlaps with existing cables and each other, resulting in lost fishing grounds for mobile bottom tending gear. The Revolution Wind COP estimates one third of a mile of cable protection-including rock berm, rock bags, concrete mattresses-will be required for each cable crossing.⁷⁶ Considering the number of cable crossings that will be occurring throughout the region, this carries considerable potential for interruption with commercial fishing operations. We request that BOEM conduct a coastwide cumulative cable analysis and include this analysis as part of the Revolution Wind DEIS.

Maintenance of existing cables damaged by rock armoring will also become an issue for commercial fishing operations around armored cable areas. Orsted, the developer applying for Revolution Wind approval, has already run into significant problems with its armored cables in the UK and Europe. Last year, 10 of Orsted's UK and European offshore wind farms required cable repair because the subsea cables had been eroded by scour protection placed by the developer.⁷⁷ The more cable crossings, the more armoring necessary, the more probability of cable erosion and failure, and the more maintenance required, resulting in exclusion zones for commercial vessels while repairs are completed.

Additionally, the DEIS does not analyze impacts to commercial fishing from boulder relocation during cable laying activities. This is a glaring omission. The DEIS only analyzes boulder relocation impacts to other affected resources. Boulders present a threat to commercial fishing gear and commercial fishing operations. Boulder relocation from currently rocky bottom into potentially smooth bottom utilized by mobile bottom tending gear vessels represents a loss of fishable area. The cumulative impact of the Proposed Action together with other planned and approved projects presents the potential for significant changes to ocean bottom currently fished by commercial vessels. For the South Fork Wind Farm alone, a project containing only 15 turbines, Orsted expects to relocate 900 boulders.⁷⁸ For a project such as Revolution Wind, which is proposing 100 turbines, will the number be exponentially higher?

⁷⁴ DEIS, p. 3.9-39.

⁷⁵ Comments available here: [Regulations.gov](https://www.regulations.gov).

⁷⁶ See Revolution Wind COP, Volume 1, p 90 at <https://www.boem.gov/revolution-wind-cop-volume-i>.

⁷⁷ See [Orsted hit by £350m cable issues at offshore wind farms in UK and Europe \(energyvoice.com\)](https://www.energyvoice.com) and [Orsted says offshore UK windfarms need urgent repairs | Energy industry | The Guardian](https://www.theguardian.com).

⁷⁸ Personal communication at an Orsted in person meeting with Construction team and Marine Affairs team on September 20, 2022, at Superior Trawl in Narragansett, RI, attended by various fishing industry persons to discuss the specifics and details of South Fork Wind Farm's preparation and construction schedule.

We request that BOEM include estimates of number of boulders expected to be relocated for the Revolution Wind project, including cable routes, in the DEIS. These numbers are important for analysis purposes and a Cumulative Impact cables analysis. We also request that BOEM consider the enormity of the boulder plow equipment, available for viewing here: <https://www.youtube.com/watch?v=8p7NV3fnYa8>, and include the plowing of potentially hundreds or thousands of boulders in the project area (depending on the numbers estimated) in its impacts analysis to benthic habitats and EFH.

We herein incorporate all our previous comments to BOEM regarding offshore wind development by reference.

Thank you for the opportunity to comment.

Sincerely,
Meghan Lapp
Fisheries Liaison, Seafreeze Shoreside and Seafreeze Ltd.