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LAWYERS

February 13, 2023 *By Electronic Submittal and U.S. Mail*

CVOW COP DEIS
Attn: Program Manager
Office of Renewable Energy Programs
Bureau of Land Management
45600 Woodland Road
Sterling, VA 20166
https://www.regulations.gov/document/BOEM-2022-0069-0001

Re: Draft Environmental Impact Statement for the Coastal Virginia Offshore Wind (CVOW) Commercial Project (Docket No. BOEM-2022-0069)

Dear Program Manager:

This firm represents the Committee for a Constructive Tomorrow (CFACT), the American Coalition for Ocean Protection (ACOP), and The Heartland Institute (Heartland)[1] on matters relating to federal and state government permitting for the Coastal Virginia Offshore Wind (CVOW) project. All three organizations – CFACT, ACOP, and Heartland – oppose the CVOW project on grounds that it will adversely affect the human and natural environment; pose unacceptable threats to federally-listed endangered species; cause environmental damage reaching across the globe; result in significant and long-lasting impacts on already at-risk populations in the United States and abroad; damage local tourism; generate unacceptable air quality impacts; interfere with defense-related and other radar; radically disturb long-standing uses of the outer continental shelf, in violation of the Outer Continental Shelf Lands Act (OCSLA); and utterly fail in its stated purpose of reducing greenhouse gas (GHG) emissions and stemming climate change. Worse, the project will cause these impacts while simultaneously driving up the cost of electricity for ratepayers in Virginia.

Upon release of the CVOW Draft Environmental Impact Statement (DEIS), CFACT, ACOP, and Heartland reviewed the various impact analyses that BOEM performed for the Project. While we appreciate the effort that BOEM has put forth, the final product falls well short of what the National Environmental Quality Act (NEPA) requires of an EIS. Below, we describe the various deficiencies of the DEIS and identify potential project effects that require new or additional study, disclosure, and mitigation. Because CFACT, ACOP, and Heartland have individual perspectives and concerns regarding the CVOW project, their respective comments are provided herein under their own headings. Note, however, that each organization joins in the comments made by the others.

[1] The Heartland Institute is a non-partisan, non-profit research institute that has been in operation since 1984. Heartland is one of the world's leading free-market think tanks, with a mission to discover, develop, and promote free-market solutions to social and economic problems.

I. INTRODUCTION

As explained in this letter, the DEIS fails to satisfy the analytical and public disclosure requirements of the National Environmental Policy Act (NEPA), including but not limited to its "hard look" mandate. Some deficiencies are systemic and pervade the entire document. For example, the DEIS does not clearly identify the significance thresholds that apply to each impact; nor does the DEIS explain or demonstrate how a particular impact compares to the significance threshold in question. In most cases, the DEIS simply declares that an impact is "negligible" or "minor" or "moderate" without (a) explaining what those terms mean in the context of the impact in question or (b) describing the analytical path by which BOEM determined that the description used – negligible, minor, moderate, or major – actually applies to the impact.

We also noticed that many of the most important impact evaluations are not actually set forth in the DEIS but instead are contained in extrinsic documents, such as the Biological Assessment that BOEM and Dominion Energy (the CVOW project applicant) prepared for the National Marine Fisheries Service pursuant to the federal Endangered Species Act (ESA). NEPA requires that the required analyses be provided in the DEIS, not other documents prepared to meet the demands of other statutes. (See, *Kern v. United States Bureau of Land Management*, 284 F.3d 1062, 1073-1074 (9th Cir. 2002); see also *Highway J Citizens Group. V. United States Dep't of Transp.*, 656 F. Supp. 2d 868, 887 (E.D. Wis. 2009)). Members of the public should not be required to track down and read non-NEPA documents. The whole purpose of the EIS is to provide the public with a single source for learning about the proposed project and its impacts. This purpose is defeated if the heart of the environmental impact analysis is contained not in the EIS but in other documents that the reader must search out and digest.

Another example relates to noise impacts. The Underwater Acoustics Appendix merely summarizes the COP Acoustics Appendix, which fails to address the potentially severe impact of operational noise. Thus, no proper impact analysis of operational noise has been done, especially on whales and other marine mammals.

The DEIS "Appendix J: Overview of Acoustic Modeling Report" begins with this statement of incorporation by reference:

> This appendix is focused on providing an overview of the methods, assumptions, and results of the technical acoustic modeling report prepared for the Project (COP Appendix Z; Dominion Energy 2022) and the accompanying exposure assessment included in the Letter of Authorization (LOA) application submitted to the National Marine Fisheries Service (NMFS) for incidental take authorization under the Marine Mammal Protection Act (MMPA) (Tetra Tech 2022a, 2022b).

As this statement indicates, BOEM has conducted little if any acoustic modeling as part of its environmental impact analysis of the Project. Worse, Appendix J further states that the acoustic modeling done by Dominion Energy was limited to *construction-related* noise and did not address the Project's *operational* noise:

> Primary noise-generating activities which have the potential to expose marine mammals to noise above recommended permanent threshold shift (PTS) and behavioral thresholds (NMFS 2018) include impact and vibratory pile driving during WTG and OSS foundation installation; impact pile driving during installation of goal post piles to support trenchless installation of the export cable offshore at the cable landing location; vibratory pile driving during cofferdam installation; and high-resolution geophysical (HRG) survey activities.

The quoted language shows neither BOEM nor Dominion has adequately assessed the potentially destructive noise from day-to-day operations of the completed wind generating system.[2] Citations to non-NEPA documents, such as Dominion's COP or the appendices attached thereto, will not suffice.

II. APPLICABLE LEGAL RULES AND STANDARDS

For any "major federal action" that "significantly affects" the "human environment," NEPA requires the federal agency in question (here, BOEM) to prepare a detailed EIS to ensure that the agency takes a "hard look" at the action's environmental consequences. (42 USC § 4332(c); *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332, 349 (1989).) If the agency does not conduct this "hard look" prior to the point of commitment, the agency deprives itself of the ability to "foster excellent action." (*See* 40 CFR § 1500.1(c); *Marsh v. Oregon Nat. Resources Council,* 490 U.S. 360, 371 (1989).

Along these same lines, NEPA requires that the EIS fully analyze all direct, indirect, and cumulative impacts of a proposed federal action or project. (40 CFR § 1502.16.) Direct effects include those "which are caused by the action and occur at the same time and place." (40 CFR § 1508.8(a).) Indirect effects include those "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." (40 CFR § 1508(b).) Indirect effects may also include growth inducing impacts and other effects that induce changes in land use patterns, population density or growth rates, and related effects on air and water and other natural systems, including ecosystems. (*Ibid.*) Cumulative impacts include those "which result from the incremental impact of the action when added to other past, present, and reasonably

[2] Note that Dominion's Letter of Authorization (LOA) application does not address operational noise at all.

foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time. (40 CFR § 1508.7.)

The EIS must provide a complete and accurate discussion of the proposed project's foreseeable environmental impacts, including those that cannot be avoided. (5 USC § 706(2)(D); 40 CFR § 1502.22.) However, when information is incomplete or unavailable, the EIS must "always make clear that such information is lacking." (40 CFR § 1502.21(a).) And if the missing information can be feasibly obtained and is necessary for a "reasoned choice among alternatives," the agency must include the information in the EIS. (40 CFR § 1502.21(b).) Where the cost of the data is too expensive to secure, the agency must still attempt to analyze the impacts in question. (40 CFR § 1502.21(c).)

The EIS must provide an accurate presentation of key facts and environmental impacts, as this is "necessary to ensure a well-informed and reasoned decision, both of which are procedural requirements under NEPA." (*Natural Resources Defense Council v. U.S. Forest Serv.*, 421 F.3d 797, 812 (9th Cir. 2005).) An EIS that is incomplete or provides misleading information can "impair[] the agency's consideration of the adverse environmental effects and . . . skew . . . the public's evaluation of the proposed agency action. (*Id.*, at 811.) For this reason, erroneous factual assumptions and misrepresentations of important facts can fatally undermine the information value of the EIS to the public and decision-makers. (*Id.*, at 808.)

In addition, if the EIS identifies a significant effect, the EIS must propose and analyze "appropriate mitigation measures." (40 CFR § 1502.14; *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 352-53 ["omission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA"].) Finally, the EIS must examine a reasonable range of alternatives to the proposed action, and focus on those that reduce the identified impacts of that action. So important is the alternatives analysis that the Council on Environmental Quality (CEQ) regulations describe it as the "heart" of the EIS. (40 CFR § 1502.14.) These same regulations require the agency to "[r]igorously explore and objectively evaluate all reasonable alternatives." (40 CFR § 1502.14(a).)

III. DEIS DEFICIENCIES

A. Impacts on North Atlantic Right Whales

Before discussing the respective individual comments of CFACT, ACOP, and Heartland, all three organizations wanted first to address what is perhaps the most pressing issue surrounding the CVOW project and BOEM's entire offshore wind energy program along the eastern seaboard, and that is the project-specific and cumulative impacts on the federally-endangered North Atlantic right whale (NARW), which is generally considered the most imperiled marine

mammal native to North America. Indeed, the total NARW population rests at approximately 330 individuals, and that number is dropping due to constant human-caused mortality, low calving rates, highly extended calving intervals, loss of prey species and access to foraging habitat, low and diminishing physical fitness, lack of genetic diversity, and extreme low abundance of reproductive females. Most whale experts agree that unless human-caused mortalities are immediately curtailed to zero, the NARW will become extinct in the next 30 to 60 years. For these reasons, it is imperative that BOEM, through the DEIS, examine closely, carefully, and comprehensively the CVOW project's potential to adversely affect NARW and exacerbate existing threats to the species. Unfortunately, the DEIS fails this basic task, leaving many impacts undisclosed, unstudied, and unmitigated.

We join in recent statements from lead biologists at the National Marine Fisheries Service (NMFS) who have recommended that offshore wind energy projects be pushed back a minimum of 20 kilometers from areas used by NARW for feeding and other life history activities. This recommendation, which was set forth in a letter from NMFS to BOEM, dated May 13, 2022, is completely ignored in the DEIS.

The following is a short list of project-related impacts on NARW that the DEIS failed to analyze sufficiently:

1. The DEIS fails to provide an accurate or adequate accounting of the number of NARW within the project area, which includes all transit corridors for vessels traveling between the wind development area (WDA) and supply ports.

2. The DEIS fails to provide an accurate or adequate projection of the number of vessels to be used in the construction, operation, and decommissioning of the project.

3. The DEIS fails to provide an accurate or adequate projection of the number of miles the various project vessels will travel through NARW habitat during construction, operation, and decommissioning of the project.

4. The DEIS does not use the best available commercial and scientific data to establish baseline environmental conditions within the project area. Specifically, the DEIS provides an insufficient assessment of the project area's role in NARW migration, foraging, mating, calving, and other life history stages. The DEIS also fails to provide information on the existence, location, abundance, and aggregation of zooplankton in the project area. This is a critical information deficit, given that NARW feed exclusively on zooplankton.

5. The DEIS provides insufficient information on the current and anticipated use of the areas near the project site by non-project vessels. This information is necessary to assess

the risk of NARWs being hit by vessels or entangled in fishing gear as a result of being pushed out of the project site by pile driving noise. In fact, the DEIS must assess all risks and impacts to NARW resulting from displacement caused by project-related noise, both construction and operational. This includes loss of preferred foraging areas, loss of preferred migratory corridors, increased energy demands to find food or to migrate, increased risk of predation, increased risk of vessel strikes, increased entanglement in fishing gear, and overall loss of body fitness.

6. The DEIS provides an incomplete discussion of the current imperiled status of the NARW. For example, it does not adequately address the NARW's sharply declining population, its low calving rate, the continued loss of reproductive females, and its ever-decreasing PBR (potential biological removal) rate.

7. The DEIS provides an inadequate analysis of pile driving noise on NARW, and uses a noise dispersion/attenuation model that deviates substantially from industry standard without explaining the justification for this decision.

8. The DEIS does not critically assess the proposed measures for protecting NARW from pile driving noise. Instead, the DEIS assumes without analysis that Protected Species Observers (PSOs), along with data from passive acoustic monitory (PAM) equipment, will enable the applicant to detect each and every NARW that may enter the pile driving Level A harassment zone.[3] There is no evidence to support this assumption. PSOs can only see whales on the surface of the water, not at depth. In addition, they cannot see beyond 1,500 meters in any direction. This distance is further diminished during times of poor lighting, rough seas, heavy swells, or fog. PAM systems only detect whales that are actively vocalizing; no-vocalizing whales will not be picked up at all. Baleen whales, including NARWs, are among the least vocal whales in the Atlantic Ocean, often going days, even weeks, without uttering a sound. Further PAM systems have a significant "miss rate" which results in many marine mammals going undetected.[4] This fact is not discussed in the DEIS, even though it bears directly on the efficacy of the mitigation measures and strategies that BOEM believes will protect the whale from project-related impacts. Note that the above-noted limitations on PSOs and PAM systems also apply to their ability to protect whales from project-related vessel strikes.

[3] Level A harassment noise is noise that has the potential to cause physical damage to the hearing organs of the animal in question and/or result in permanent threshold shift (PTS), which is a long-term reduction in hearing capability. Level B harassment noise is noise with the potential to disrupt normal species behavior, stimulate avoidance behaviors, and/or result in temporary threshold shift (TTS). However, Level B noise, as defined, is not intense enough to cause physical damage to hearing organs or cause PTS.

[4] "PAMGuard Quality Assurance Module for Marine Mammal Detection Using Passive Acoustic Monitoring," by CSA Ocean Sciences, Inc. (August 2020).

9. The DEIS provides an inadequate analysis of *operational* noise impacts on NARW. The Virginia OSW project will install and operate hundreds of large wind turbines. The noise impacts from such a huge array of large turbines have never been studied. In fact, the only field studies conducted on the issue involved five 6MW turbines off Block Island, RI. The noise signature of the Block Island wind farm simply cannot be compared to the noise signature that will be created by the industrial-scale Virginia OSW project. In addition, the EIS's operational noise analysis use sound propagation and attenuation model inputs that are not supported by the best available science and deviate substantially from industry practice, leading to a gross underreporting of the Project's noise impacts.

10. The DEIS fails to adequately assess the project's potential to alter water currents and stratification. This issue was raised in a letter, dated May 13, 2022, by Sean Hayes, PhD, of NOAA Fisheries to BOEM. According to Dr. Hayes, the long-term effects of altered stratification will likely affect the aggregation of zooplankton, causing the zooplankton to disperse. This is problematic, given that NARW can efficiently feed on zooplankton only when the zooplankton are aggregated in dense patches.

11. The DEIS fails to adequately assess the how the CVOW project, plus the other offshore wind energy projects slated for construction within NARW habitat, will affect the species cumulatively, especially when the total offshore wind impacts added to the stressors that already threaten the species (e.g., commercial vessel traffic).

12. In his letter, Dr. Hayes also recommended that all offshore wind projects be moved back at least 20 km from areas where NARW feed and engage in other life history behaviors. The DEIS does not mention this recommendation or consider an alternative consistent with it.

13. The DEIS's proposed mitigation measures for Project impacts on NARW, including vessel speed limits, include too many exemptions and exceptions to be effective, resulting in significant risks to NARW, including potential injury from vessel strikes and hearing damage from pile driving noise.

IV. INDIVIDUAL COMMENTS FROM HEARTLAND, ACOP, AND CFACT

A. Heartland's Comments re Inadequacies of DEIS for CVOW Project

Heartland submits the following comments regarding defects and inadequacies in the DEIS for the CVOW Project:

1. Global Mining and Air Pollution Impacts.

It is now common practice for federal regulatory agencies, such as BOEM, to describe how a proposed rules and federal action will allegedly benefit peoples in foreign countries, and then include those alleged benefits into the legally required calculation of the domestic benefits, impacts, and costs of the proposed action rule or action in question. In this case, the Biden Administration has touted the global benefits of BOEM's extensive offshore wind energy program, claiming it will reduce greenhouse gases (GHGs) and slow climate change.

The DEIS, however, does not address the global cost/impact side of the ledger, even though such indirect effects must be studied. (See 40 C.F.R. §§ 1502.16, 1508.8, 1508.25.) In the case of CVOWP, this would require accounting for air quality and other impacts on the wider world resulting from the mining, refining, manufacturing, and transporting the huge amounts of rare earth elements and critical minerals vital to the manufacturing and functioning of the magnets used in the CVOWP's offshore wind turbines, the cables and stations used to transmit and transform the electricity produced from turbine to final destination, and the battery back-up Dominion is planning to construct to maintain electric power supply and reliability from its intermittent CVOWP project.

The International Energy Agency notes that offshore wind requires more scarce minerals, rare earth elements, and other critical metals per kilowatt hour of energy produced, than any other source of electric power generation, renewable and non-renewable alike. The vast majority of these critical minerals and elements are mined abroad, and almost all the refining is done in China alone.

A single on-shore wind turbine requires up to three metric tons of copper and magnets, composed in large part from difficult to mine and refine rare earth elements. Much larger offshore wind turbines will require even more copper and magnets composed of rare earth elements. Thousands of pounds of ore must be mined to produce a single pound of rare earth elements, and a significant amount of rare earth elements are required for the magnets used in wind turbines. That does not include the metals and sheathing for the cables and transformers. In addition, between 200,000 and 1,500,000 pounds of earth must be mined and moved to produce the lithium, cobalt, copper, nickel, and other metals and trace elements necessary to produce a battery pack for a single electric vehicle. This means billions of tons will have to be mined and refined to produce the thousands of batteries that will compose the large-scale battery facilities Dominion plans to use to back up and regulate the electricity produced by the CVOWP project. The DEIS should but does not analyze this impact. (*South Fork Band of W. Shoshone v. U.S. Dep't of Interior,*

558 F.3d 718, 725 (9th Cir. 2009) ["air quality impacts associated with transport and off-site processing of five million tons of refractory ore are prime examples of indirect effects that NEPA requires be considered."].)

Aside from the water polluting toxic sludge produced during the refining process to extract and purify the trace minerals from raw ore, the mining itself produces dust and the factories refining it emit air pollution. The fact that all this air pollution occurs thousands of miles away in countries with little or no environmental protection laws and limited, if any, enforcement —certainly no laws or policing comparable in stringency to those of the in the United States—should not exempt BOEM from acknowledging, analyzing, and disclosing the air pollution resulting from the CVOW project. These emissions, contrary to BOEM's claims based on its limited accounting, are likely to be major and negative, not minor, moderate, or beneficial.

In the light of the federal government's stated position that EISs for fossil fuel-related energy and transportation projects must account for their construction and operational emissions, the CVOW EIS must be held to the same standard. And since the vast majority of the emissions from activities devoted to discovering, acquiring, refining, producing finished products, and transporting, the vast majority of the raw material and finished products used in assembled turbines will be produced far away, it is arbitrary and capricious for BOEM to limit its accounting for air emissions to "the airshed within 25 miles (40 kilometers) of the Wind Farm Area (corresponding to the OCS permit area) and the airshed within 15.5 miles (25 kilometers) of onshore construction areas and ports that may be used for the Project." The CVOWP project will have profound emission implications far beyond the area considered by BOEM and assessed in the DEIS.

2. Local and Global Environmental Justice Impacts

In all of its regulations and EISs, the Biden administration is careful to highlight and account for the "Environmental Justice" impacts that a proposed rule or project will produce. BOEM's CVOWP EIS, however, glosses over these impacts, asserting they will be either "negligible," "minor," or even "beneficial," depending on the alternative under review. This position is untenable if one considers the broader, comprehensive Environmental Justice impacts, cradle to grave, of the development of the CVOWP.

The Congo is the largest producer of the cobalt necessary for various technologies critical to the Biden administration's net-zero GHG reduction goals. Cobalt is a necessary component of the CVOWP. Most cobalt in the Congo is mined under appalling working

conditions at small mines.[5] Child labor is not the exception but the norm there.[6] Even the Biden administration's own State Department has acknowledged that child labor is rife in the production of cobalt. Increasing the demand for cobalt will increase pressure on cobalt miners to produce, meaning either more children will be put to work, or existing child laborers will be forced to work harder under dangerous conditions.[7] These facts on the ground hardly smack of concern for environmental justice.

In China, where most raw minerals and finished green energy products are produced, mining is conducted using forced or slave labor, often of persecuted religious minorities, like Falun Gong followers and Uighurs. Once again, the Biden administration acknowledged this problem, having signed the Uighur Forced Labor Prevention Act in 2021 and blocking the importation of thousands of Chinese-made solar panels. Still, the reality of today's supply chain, combined with insufficient intelligence on the ground to track forced labor in manufacturing, and less still the development raw materials, it is likely that the CVOWP will be built using or containing minerals, rare earth elements, and parts produced using Chinese slave labor. This should be considered by BOEM in its assessment of the Environmental Justice implications in BOEM's CVOWP EIS. Failure to do so is arbitrary and capricious.

The U.S. government should not be offshoring its pollution in constructing the CVOWP, nor should it ignore the environmental justice considerations of the labor conditions under which the CVOWP's core components are created.

3. Impacts from Decommissioning Wind Turbines

The DEIS also fails to adequately assess impacts from decommissioning the wind turbines. Because of their composition, turbines are exorbitantly expensive, if not impossible, to recycle. As a result, most decommissioned turbines are dismantled, cut up and crushed, transported to, and stored in landfills. BOEM's EIS specifically states Dominion is required to "reuse, recycle, or responsibly dispose of all materials" from the operation of the CVOWP project upon decommissioning, and the company is also required to submit a plan to do so. There is no evidence that BOEM considered the air quality or environmental justice impacts of the decommissioning in its EIS for the CVOWP.

The process and machinery required to decommission, recycle, transport, or otherwise properly dispose of decommissioned and dismantled wind turbines and associated

[5] *Cobalt Red: How the Blood of the Congo Powers Our Lives* by Siddharth Kara, St. Martin's Press (2023).
[6] *Id.*
[7] *Id.*

materials—batteries, magnets, wiring, electronics, transformers, and other materials—will produce air emissions that are unaccounted for in BOEM's CVOWP EIS.

In addition, there are a limited number of waste facilities approved to store decommissioned wind turbines. And because they take up so much space, there are fewer still that are accepting them. Therefore, new landfills will be needed to store the thousands of decommissioned turbines, including those from the CVOWP. Existing landfills and waste facilities are typically located where land is relatively inexpensive. New facilities will likely follow this pattern. These areas also happen to be in or near vulnerable communities, such as the rural poor and near-majority minority communities. As such, the end-of-life treatment of the CVOWP's decommissioned turbines and associated materials raises long-term, cumulative, environmental justice concerns for low-income and minority populations, yet the DEIS does not address this impact. BOEM's failure to account for the environmental justice impacts of the solid waste disposal issues related to CVOWP in its EIS is arbitrary and capricious.

4. Impacts on NARW.

With respect to the EIS's analysis of Project impacts on NARW, BOEM has acknowledged that there are data gaps in its assessment of the potential impacts of CVOWP on the NARW population. The public is being kept in the dark about these potential impacts by Dominion's efforts to cloak them in secrecy. The entire section of Dominion's Construction and Operations plan delivered to BOEM on endangered species is unavailable for public review, treated as a propriety and confidential business matter. This is unacceptable and unjustified.

In 2021, the National Marine Fisheries Service (NMFS) determined that the maximum Potential Biological Removal (PBR) standard—defined as "the maximum number of individuals, not including natural mortalities, that may be removed from a marine mammal stock while allowing the stock to reach or maintain its optimum sustainable population"— for the NARW to be 0.7 whales in any single year.[8] In practical terms this means, according to the NMFS, NARWs cannot afford to suffer the loss of even a single whale above natural mortality due to any type of human cause. One additional whale death in a year makes it likely the endangered NARW species will inevitably slide to extinction.

Collisions with ships are the single biggest anthropogenic cause of death of NARWs. In recognition of this fact, the NMFS recently closed public comments on a proposed rule

[8] This definition of PBR comes from *Strahan v. Secretary, Massachusetts Executive Office of Energy and Environmental Affairs*, 458 F.Supp.3d 76, 93 (D. Mass. 2020).

that would impose stricter speed restrictions on vessels traveling through various areas of NARW migration corridors during the times whales are known to pass through those areas. Under the rule currently under consideration, "[a]ll vessels 65 feet (19.8 meters) or longer must travel at 10 knots or less in certain locations (called Seasonal Management Areas or SMAs) along the U.S. east coast at certain times of the year to reduce the threat of vessel collisions with endangered North Atlantic right whales." Even before the revised rule has been finalized, NMFS announced, that it may consider a proposal offered by the Center for Biological Diversity and other environmental groups that would expand the size and time periods covered by the SMAs and apply the 10-knot or less rule to smaller vessels.

With these facts as background it is incomprehensible that BOEM would pursue plans to allow, encourage, permit, and indeed subsidize the CVOWP in the middle of NARW critical migration corridors.

As proposed, the CVOWP is directly in the NARWs' annual migration path. Dominion Energy has applied to erect 176 wind turbines, covering an area approximately 10 miles by 15 miles, equal to the size of 85,000 football fields, 27 miles off the coast of Virginia Beach. Each turbine will sit atop a monopole extending a minimum of 80 feet into the water and about 120 feet into the ocean floor, and its height above the water will top 620 feet.

During the construction phase of this project, dozens of ships and service boats will traverse NARWs' migration route, making hundreds if not thousands of roundtrips from shore to individual turbines and back. Even after construction has ended, service boats will pass in and out of the area to perform routine maintenance, or to conduct repairs when problems arise with one or more turbines, the wires connecting them to each other, and related infrastructure. Increasing boat and ship traffic in NARW migration routes raises the chances of additional ship strikes on the whales significantly.

It is inconceivable that the increased ship traffic necessitated during all stages of the CVOWP's development, construction, operation, and decommissioning will not increase the threat of collusions with NARWs.

Even more importantly, NARWs, like other whale species, are highly sensitive to sound, which they use to navigate, locate prey, identify and avoid predators, and communicate with one another. The sonar used to map out the CVOWP's proposed terrain, the blasting of piles to anchor each turbine, and the subsea infrasound and vibrations generated during the turbines' operations are virtually guaranteed to force the few remaining NARWs out of their critical migration routes and into one of the busiest shipping corridors in the world.

This will make a bad situation worse, as ship collisions are one of the largest causes of NARW mortality. Further, unless the whales adapt to tolerate the sound, they will be forced to swim farther away from their preferred migration corridor to find their obligate food source – zooplankton. And there is no guarantee that this extra expenditure of energy will be fruitful, as NARWs can only be sustained nutritionally when they can feed on large and dense aggregations of zooplankton, and such aggregations exist only in certain locations.

Even if the whales somehow prove able to adapt to and tolerate the sound, it is almost certainly going to take time, time the whales don't have, given their PBR has dropped to 0.7.

In a letter sent to Department of Interior officials on May 13, 2022, Sean Hayes, chief of the protected species branch at NOAA's National Northeast Fisheries Science Center wrote:

> Additional noise, vessel traffic and habitat modifications due to offshore wind development will likely cause added stress that could result in additional population consequences to a species that is already experiencing rapid decline. Wind turbines may disrupt the dense concentration of zooplankton that the whales depend on for sustenance, potentially forcing them to spend more energy and take more risks searching elsewhere for food.

Recently, ten whale and sea life conservation organizations sent a letter to BOEM specifically objecting to the Biden administration moving forward with offshore wind plans and approvals without a comprehensive environmental impact statement demonstrating that such projects would have no deleterious impacts on NARW populations. The present BOEM EIS for the CVOWP does not provide that assurance; rather it says it is an area where further research is necessary. As the groups write, such research should be completed, with a conclusion that no harm to the NARW will occur, before the agency's EIS is considered completed and filed. As the letter says:

BOEM, under Biden-Harris Administration, continues to decline to make an Environmental Impact Statement (EIS) prior to lease sale of ocean areas, even knowing that such lease sales, with 100% certainty, will result in sea floor exploration/SAP activities requiring ensonification, and knowing that based on the sound frequency at which NARW communicate, adverse effects on the remaining NARW population of such sound-producing site-characterization activities are highly likely. Likewise, BOEM, continues to issue determinations of

"no significant impact" in Environmental Assessments of lease area exploratory activities ("site characterization") by the lessee-developers. There is reason to find that such determinations are inappropriate, and that a full review of such activity is warranted.

The groups are correct. Determinations of "no significant impact," or "negligible to moderate," or "minor," or even, amazingly enough "beneficial," depending upon the alternative discussed in BOEM's EIS, are premature, making the determination arbitrary and capricious. BOEM is a regulatory agency and its actions are circumscribed by law. It is imperative that BOEM not only collects all the available facts but conducts research where there are acknowledged gaps, before issuing its EIS for the CVOWP.

The fate of the NARW literally depends on BOEM doing its job in order to understand the scope and types of impacts offshore wind projects create and to design mitigation measures that will effectively protect this highly-imperiled species. BOEM has consistently failed to discharge this duty, and the CVOW EIS continues this unfortunate trend. This situation must be corrected before permits are granted for the CVOW project and pre-construction activities begin.

5. Impacts on Fish, Invertebrates, and Their Habitat

BOEM's EIS also fails to adequately consider the latest research published on offshore wind project's impacts on "Finfish, Invertebrates, and Essential Fish Habitat." BOEM concludes that, depending upon the alternative chosen, the CVOWP will have either "Minor to Moderate," "Negligible to Moderate," or possibly even "beneficial" impacts on fish, invertebrates, and the habitat in an around the CVOWP. The latest research on the impact of large offshore wind developments on the environment is not so sanguine.

A recent study published in the peer-reviewed journal *Nature Communications* found offshore wind industrial facilities do previously unrecognized harm to marine ecosystems. A team of scientists from various German research institutes and universities examined industrial wind projects in the North Sea, where the world's largest offshore wind project is found. Quantitative modeling conducted for the study indicates that the "wind wake" effect of offshore wind farms could dampen annual primary production in the area encompassed and beyond by the wind farms by more than 10 percent. Less food for fish or endangered whales is not a "moderate" or "beneficial" impact. The same modeling indicates offshore industrial wind projects slow ocean currents, resulting in decreased cycling of dissolved oxygen in and around wind projects, which produces low oxygen concentrations. Lower oxygen levels are also detrimental to marine life. The

authors ultimately conclude that "off shore wind farm developments can have a substantial impact on the structuring of coastal marine ecosystems on basin scales."

Separately, these negative effects on the marine ecosystem in offshore wind farm areas indicate the CVOWP will harm many species and disrupt ecosystem interconnections. Cumulatively, the harm will probably be much greater, wreaking great harm on all marine life.

To be fair to BOEM, this research was only published recently, which signals the agency may have been unaware of it as it put the finishing touches on the EIS for the CVOWP. However, it is available now, and with the EIS not yet finalized, this research should be accounted for before BOEM concludes the CVOWP will have little or no negative impacts on fish, ocean invertebrates, and marine habitats.

In short, BOEM's EIS for the CVOWP is incomplete and inadequate. It fails to fully consider a wide range of negative environmental impacts that the CVOWP poses. The EIS's determination of the impacts of the project on air quality, environmental justice, the NARW, and other marine species and their habitat were, when not arbitrarily limited in scope, woefully incomplete. Dominion and each of the agencies involved in permitting should transparently disclose any research or studies examining these issues in order to allow the public to weigh the relative merits of the CVOWP in an informed fashion and to enable public officials to make educated decisions. Unless and until BOEM completes a more comprehensive and thorough EIS for the CVOWP and plans to mitigate any potential harm are fully developed, neither federal nor state governments should issue licenses, permits, or otherwise provide support for the CVOWP.

B. ACOP's and CFACT's Comments re Inadequacies of DEIS for CVOW Project

ACOP[9] and CFACT submit the following comments regarding defects and inadequacies in the DEIS for the CVOW Project:

ACOP and CFACT are especially concerned about the potential cumulative impact of commercial-scale offshore wind projects on the Atlantic coast. The DEIS fails to include an adequate analysis of such impacts. Approval of the CVOW Construction and Operations Plan (COP) will make impacts on our ocean environment worse.

As discussed in detail below, BOEM has not properly followed all the requirements of NEPA, the Administrative Procedures Act, the Endangered Species Act (ESA), and the Outer Continental Shelf Lands Act (OCSLA) in preparing this DEIS. The DEIS underestimates the

[9] ACOP represents beach communities and policy institutes from North Carolina to Maine.

threats on the endangered NARW, the ability of the Coast Guard to conduct Search & Rescue operations, national security, and pristine ocean views.

Electricity generated by the Project will most likely displace zero or low emission power sources, meaning that the Project will not cause total emissions to fall to any significant degree. At best, each metric ton of carbon dioxide saved may cost $8,400/ton, well in excess of any value of such emission reductions. We note fourteen of twenty-four issues covered in the DEIS have moderate to major adverse impacts either from the direct impacts of the proposed project, or from cumulative impacts of all the planned projects covering an area the size of Connecticut with almost 3,300 structures and thousands of miles of cables. Major impacts on endangered species, commercial fishing, vessel safety, cultural resources, and scientific research by themselves justify disapproval of the project. Proposals to mitigate some adverse impacts with financial compensation do not satisfy requirements in OCSLA to avoid unreasonable interference with historic ocean uses. Quite simply, BOEM should not continue the approval process for this project.

1. <u>President Biden's Executive Order 14008 is Irrelevant to Purpose and Need of CVOW Project.</u>

   The DEIS describes the Project's purpose as the need to follow the President's Executive Order 14008, "Tackling the Climate Crisis at Home and Abroad". As the Supreme Court determined in *West Virginia v. EPA* (2022), the Executive Branch has no authority to regulate carbon dioxide without a law passed by Congress. As the purpose of the offshore wind project is to reduce carbon dioxide emissions the Executive Order is irrelevant and these comments should be removed from the DEIS.

2. <u>Project Will Contribute to NARW's Slide Toward Extinction</u>

   As noted above, in 2021, the National Marine Fisheries Service (NMFS) determined the PBR for NARW to be 0.7, which is down from 0.9 in 2019. According to NMFS, this means that for the species to recover, the population cannot sustain, on average over the course of a year, the death or serious injury of a single individual due to human causes. In addition, BOEM's own conclusions support a zero-mortality policy for the NARW. The Draft EIS states in at least five instances the following language concerning the impact of the Project on the NARW:

   > Due to its life history and current stock status, impacts on NARWs resulting from all IPFs (impact producing factor) and combined with ongoing and planned actions, including the Proposed Action or Alternative A-1, are expected to be **major** (emphasis in original) because a

> measurable impact is anticipated that could have population-level effects and compromise the viability of the species. (Section 3.15.2. pp. 33-34)

Nearly identical statements indicating a "compromise of the species" is found at Sec. 3.15. 3.3, pp. 23,24; Sec. 3.15.6.1, pp.34,35; Table 3.15, and Sec. 2-40. A "major impact" is defined as "impacts on individual marine mammals or their habitat that would be detectable and measurable: they would be of severe intensity, can be long lasting and permanent, and would be extensive". Sec. 3.15.2.1

Despite these statements, however, the DEIS merely calls for "minimization" and "mitigation" of harm to NARW, not 100 percent avoidance of such harm. Given that the right whale's PBR is now down to 0.7, any harm to the whale that contributes to mortality will necessarily push the species towards extinction. For this reason, "minimization" and "mitigation" falls short of complete avoidance is simply not sufficient.

The EIS goes on to conclude that BOEM is obligated to follow the dictates of Executive Order14008, "Tackling the Climate Crisis at Home and Abroad", which calls for the massive wind power industrialization of federal waters off the East Coast. By approving a project that will compromise the viability of the NARW and directly contravenes both the BOEM's own policies regarding endangered species protection, BOEM is acting in an arbitrary and capricious manner.

The EIS makes it clear that NMFS bears the responsibility of deciding what the human "take" of the NARW may be during the life of the Project. However, it is also clear that NMFS will rely on the information contained in the EIS to inform its decision. The EIS suggests that Dominion Energy may receive an acceptable "take" ruling from NMFS which will allow the Project to proceed by using "mitigation" and "minimization" techniques that will sufficiently protect the NARW from human-caused killing.

But the public is deprived of knowing what those mitigation techniques may be, because Dominion has redacted them from public view. Appendix R of the COP, Threatened and Endangered Species Review", which discusses this issue has been redacted. This redaction is in violation of the MMPA, the ESA, and NEPA, which require public participation in the review process for the EIS. A cursory explanation of the NARW protection techniques is contained on pp. 17-18 of the EIS, but even these are couched in general, non-specific terms, e.g., "Dominion Energy would implement several measures to avoid, minimize, and mitigate mammal physical disturbances, strikes, and collision".

As noted earlier, the NARW cannot absorb any further losses, so anything short of complete avoidance of the species will not only result in a significant impact under

NEPA; it will also result in "take" and "jeopardy" under the ESA. Thus, the federal government must insist on complete *elimination* of all human-caused harm to the NARW arising from the Project.

Finally, there is the matter of the CVOW project's construction and operational noise impacts on NARW. This Project is nearly double the size of the world's biggest offshore arrays today. The turbines and monopiles will be enormous, so it is likely that the noise levels of construction and operations will be tremendous and its impacts unknown. The resulting harm to the NARW and other endangered species is thus potentially severe, and the draft EIS in its current form does not by any reasonable measure adequately address this threat.

Here are some examples:

- The DEIS does not properly analyze the likely magnitude and reach of the Level A and Level B harassment noise generated by the turbines.[10] BOEM appears to have done very little acoustic analysis, relying instead on the questionable claims of the Project developer (Dominion Energy) which has a vested financial stake in the project.
- The EIS does not properly assess the likely, direct impacts of this excessive noise on the NARW and other endangered species. The noise is likely to be stressful, confusing, debilitating and damaging, as well as drowning out essential communication between individual sea mammals. Drowning out the protective low volume mother and calf communication is a special concern.
- The EIS does not properly analyze likely NARW behavioral responses to adverse noise impacts, particularly the efforts of whales to avoid them. Comprehensive behavioral modeling is thus required and should be part of the EIS.
- The EIS does not properly assess the likely life-threatening results of these adverse impacts to behavioral responses. For example, impaired hearing and avoiding the noise generated by wind turbines is likely to lead to greater frequency of vessel strikes. The resulting death rate needs to be estimated pursuant to the whale's current and down-trending PBR.
- The EIS does not consider the obvious noise mitigation strategy (or alternative) of locating the Project where its excessive noise will not adversely interfere with successful migration. The migration path should be an exclusion zone for any potential life-threatening noise from the Project.

3. DEIS Fails to Demonstrate How Project Will Achieve Its Stated Purpose

To be legally adequate, an EIS must explain how the proposed Action – here, the construction of 205 massive offshore wind turbines - will achieve its stated purpose. In CVOW's case, the DEIS indicates that the Action is being proposed because there is "a worldwide climate crisis", and because the Action will result in a net reduction of carbon dioxide in the atmosphere. But the analysis stops there. How exactly will this CO_2 reduction result in the lowering of worldwide climate temperatures? There is no discussion of this issue, nor any analysis of it whatsoever. The EIS appears simply to assume that reduction of CO_2 resulting from this action will somehow reduce the "impacts of climate change". Does this mean a reduction of atmospheric temperature? The elimination of "extreme weather"? If so, by how much? What is the specific point? Also, does this mean that once the offshore wind project is operational, fossil-fuel generated electricity will be removed immediately from the grid? If the amount of fossil-fuel generated electricity will not diminish as the result of the project, then it would appear that the project's purpose is not so much to reduce greenhouse gas (GHG) emissions, but to provide a cleaner energy source for new economic growth that would not occur **but for** the project. (See Draft EIS predictions of substantial employment growth from Virginia OSW project.) In other words, the project will have no climate change benefit at all; it will merely enable growth with less *additional* GHG emissions than would be the case if the growth was supported solely by fossil-fuel generated electricity. The EIS must explain exactly whether and how the project's much-touted climate change benefits will be realized in light of the significant economic growth the project is supposed to generate.

The US government's own leading climate model, that adopted by the International Conference on Population and Climate Change (ICPCC), is called "Model for the Assessment of Greenhouse Gas Induced Climate Change" (MAGICC). It was developed by the National Center for Atmospheric Research. The model predicts that even if *all* human-caused CO_2 in the US, from every source, including transportation, electrical generation, industry, agriculture, and animal exhalation - *all* of it - were reduced to zero tomorrow, there would be no measurable improvement in climate temperature by the year 2100

A NEPA-compliant EIS must discuss the relationship between the Action and the major environmental purpose underlying it. The EIS fails to do so, and therefore its justification for the action is arbitrary, capricious, and legally inadequate.

4. DEIS Fails to Acknowledge Increases in that Wind and Solar Energy Generation since 2009 Have Replaced Reliable, Zero-Emissions Nuclear Power, Not Fossil-Fuel Generated Energy; Thus "Renewable" Power Has Not Reduced Emissions.

Between 2009 and 2021 all of the emissions reductions in PJM 13 state regional grid and Virginia have come from natural gas replacing coal as seen in the table below. Despite state mandates for wind and solar power by 2021, they only accounted for 2.6% of electric demand, and only covered some of the demand growth. Renewables played little or no role in reducing fossil fuels. With nuclear power projected to decline in the future BOEM and Dominion Energy must demonstrate how this trend will change in the future.

PJM and VA change in electric generation fuel source 2009 to 2021, million MWhs

	PJM				Virginia		
Fuel	2009	2021	Change		2009	2021	Change
Coal, Petroleum, other gas	352.6	185.8	-166.8		27.1	4.0	-23.1
Natural Gas	65.4	313.8	248.3		12.2	53.4	41.2
Nuclear, Hydro, wood	258.5	288.7	30.2		30.8	32.5	1.7
Wind, Solar	5.7	34.9	29.2		0	3.3	3.3
Total Demand	686.3	823.1	136.8		108.5	125.2	16.7
Total Generation	686.3	823.1	136.8		70.1	93.5	23.4
Imports					38.4	31.7	-6.7

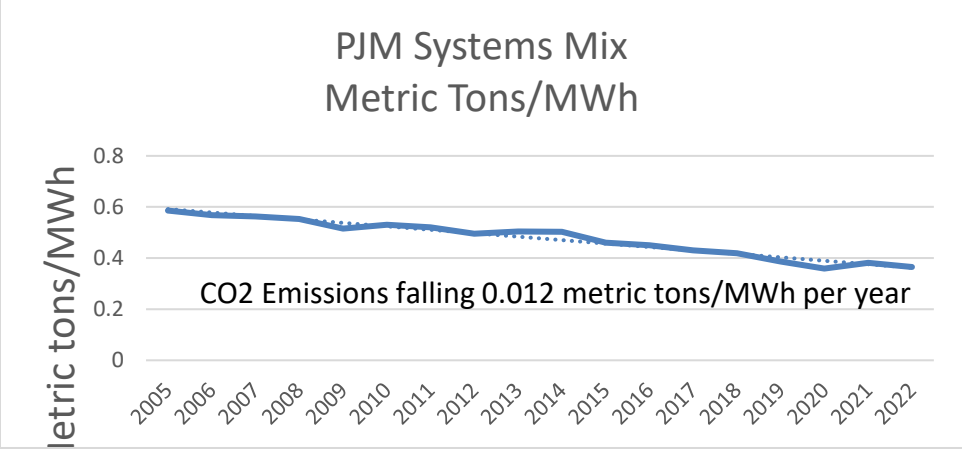
Source: US Energy Information Agency Detailed State Data

Nuclear plants produce predictable power about 95% of the time compared to CVOW, which is expected to produce power only 42% of the time. The 2,587 MW CVOW project will generate about 9.5 million MWhs/year. According to the Virginia utility commission[2] CVOW will cost electric customers $21.5 billion over 35 years for a premium cost of about $614 million a year, or a guaranteed price of $64.50/MWh. This is approximately three times more than the per MWh cost of electricity produced by existing nuclear power plants.

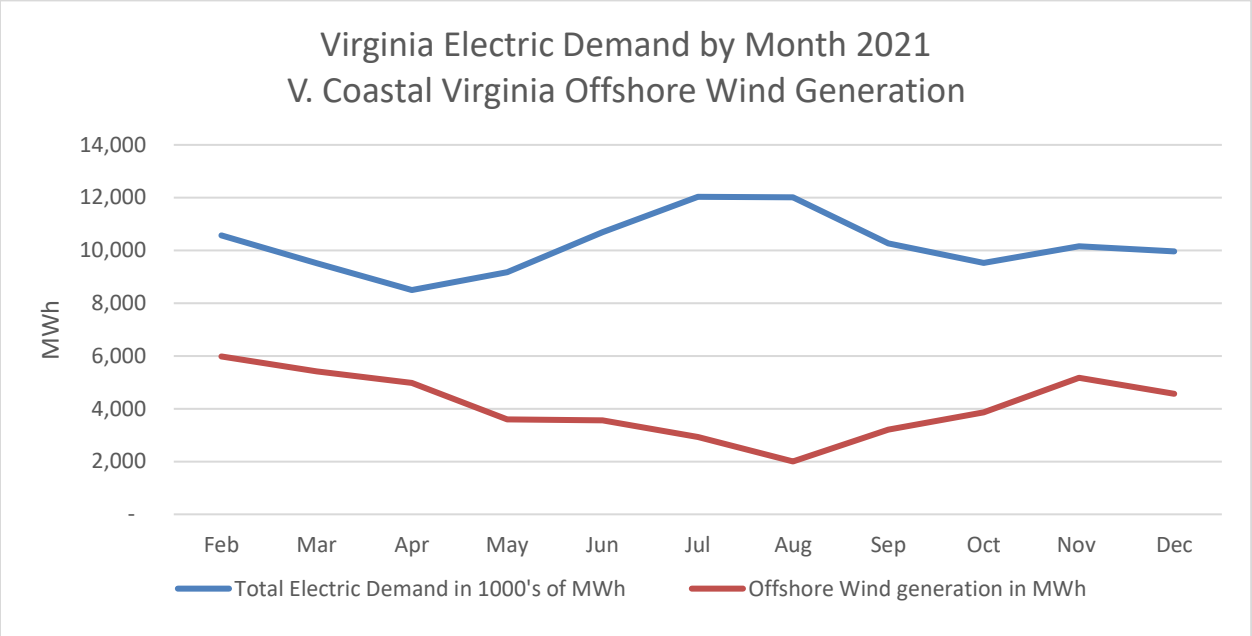
The chart above indicates that the power from CVOW will, at best, replace imports from other PJM regional grid states.

As shown in the chart below, the regional electric grid is getting more efficient every year, and has done so for the last 18 years. The efficiency improvement will likely continue without the CVOW. It is likely the CVOW project will replace power now

imported from the regional grid so the project will only save about 2.9 million metric tons of carbon dioxide a year. Electric customers will pay $21.5 billion, and taxpayers will pay another $2.9 billion in tax subsidies to save that 2.9 million tons a year for an outrageous cost of almost $8,400/ton.



The chart below was produced using actual operations data from the CVOW prototype project. It shows that offshore wind generates the least amount of power in the summer when it is most needed. Dominion has not released time of day power generation data which also might be occurring when it is least needed. California often produces so much renewable power when it is not needed it must curtail (shut down) generation. The New York Independent System Operator[3] is projecting offshore wind will have to be curtailed some of the time. Dominion needs to release generation time of day information and project curtailment rates for the CVOW.



Source: US Energy Information Agency Form 923

5. <u>DEIS Fails to Identify Adequate Alternatives or Mitigation Measures for Project Impacts on Commercial Fisheries, Existing Coastal Viewsheds, Scientific Research Activities, Cultural Resources, Navigation, and Vessel Traffic.</u>

   (Fisheries Impacts) According to the DEIS, "BOEM anticipates that the impacts from ongoing and planned actions, including the Proposed Action would result in **major adverse impacts** on commercial fisheries and moderate adverse impacts on for-hire recreational fishing in the analysis area, driven largely by the presence of structures. Impacts would include the temporary or permanent reduction in catch or loss of access to fishing areas due to the presence of construction activities or changes in fish and shellfish populations that are the basis of fishing activities. This could include abandonment of fishing locations due to difficulty in maneuvering fishing vessels, fear of allisions increased risk of collisions with construction or lay vessels, and fear of damage or loss of deployed gear. Impacts could also include alterations in the management of fisheries resources due to changes in fishing effort (duration, location, methodology), which may impact quota allocation in certain sectors." The DEIS, however, fails to identify or describe any alternative that would reduce or avoid this impact and still meet most of the project objectives. Nor does the DEIS recommend adequate mitigation measures for reducing this impact.

(Visual Impacts) The DEIS states, "The daytime presence of offshore turbines and substations, as well as their nighttime lighting, would change perception of ocean scenes from natural and undeveloped to developed. In clear weather, the turbines would be an unavoidable presence in views from the coastline, with moderate to minor effects on seascape character and landscape character. The cumulative impacts of offshore wind development would be moderate. The main drivers for this impact rating are the major visual impacts associated with the presence of structures, lighting, and vessel traffic. **Visual impact from the Virginia Beach Boardwalk would be major** (20.9 miles)." The DEIS, however, fails to identify or describe any alternative that would reduce or avoid this impact and still meet most of the project objectives. Nor does the DEIS recommend adequate mitigation measures for reducing this impact.

(Scientific Research Impacts) The DEIS states, **"**Various federal, state, and educational organizations regularly conduct scientific research, including aerial- and ship-based scientific surveys, within the geographic analysis area. This includes long-term and seasonal scientific surveys conducted by NOAA and Virginia Institute of Marine Science (VIMS) for several regional programs. Some survey programs of note included the following: NOAA's NEFSC Atlantic Bottom Trawl Survey, Marine Recreational Information Program, Fisheries Large Pelagics Survey, Longline shark survey, Northeast Area Monitoring and Assessment Program survey, and Real-time Opportunity for Development Environmental Observations. Independent data are collected during these surveys to inform stock assessments, set harvest quotas, and support other fisheries management goals. Major Impacts defined as the affected activity would experience unavoidable disruptions to a degree beyond what is normally acceptable. Collectively, these developments would prevent NOAA from continuing scientific research surveys or protected species surveys under current vessel capacities, would affect monitoring protocols in the geographic analysis area, could conflict with state and nearshore surveys, and may reduce opportunities for other NOAA scientific research studies in the area. Impacts on NOAA scientific research and surveys would qualify as **major** because entities conducting surveys and scientific research would have to make significant investments to change methodologies to account for unsampleable areas, with potential long-term and irreversible impacts on fisheries and protected-species research as a whole, as well as on the commercial fisheries community." The DEIS, however, fails to identify or describe any alternative that would reduce or avoid this impact and still meet most of the project objectives. Nor does the DEIS recommend adequate mitigation measures for reducing this impact.

(Cultural and Historical Resource Impacts) According to the DEIS, "BOEM anticipates that the cumulative impacts on cultural resources associated with the Proposed Action and other ongoing and planned activities would be **moderate to major** due to the long-term or permanent and irreversible impacts on archaeological (marine and terrestrial)

resources, and historic aboveground resources including the First Cape Henry Lighthouse NHL." The DEIS, however, fails to identify or describe any alternative that would reduce or avoid this impact and still meet most of the project objectives. Nor does the DEIS recommend adequate mitigation measures for reducing this impact.

(Navigation and Vessel Traffic Impacts) The DEIS states, "The modification of usual traffic routes for some ship types due to the presence of wind farm structures. Impacts on navigation and vessel traffic would also include changes to navigational patterns and the effectiveness of marine radar and other navigation tools. This could result in delays within or approaching ports, increased navigational complexity, detours to offshore travel or port approaches, or increased risk of incidents such as collision and allision, which could result in personal injury or loss of life from a marine casualty, damage to boats or turbines, and oil spills. Furthermore, the presence of the WTGs could complicate offshore search and rescue operations or surveillance missions within the Wind Farm Area and lead to abandoned search and rescue missions and resultant increased fatalities. Some commercial fishing, recreational, and other vessels would choose to avoid the Wind Farm Area altogether, leading to some potential funneling of vessel traffic along the Wind Farm Area borders. BOEM anticipates the overall impacts on navigation and vessel traffic from ongoing and planned activities, including the Proposed Action, would be **minor to major** and short and long term, due primarily to the increased possibility for marine accidents, which could produce significant disruptions for ocean users in the geographic analysis area." The DEIS, however, fails to identify or describe any alternative that would reduce or avoid this impact and still meet most of the project objectives. Nor does the DEIS recommend adequate mitigation measures for reducing this impact.

Clearly, the proposed Project will have major impacts on traditional uses of the outer continental shelf. Some compensating actions are offered such as reimbursement for lost fishing gear and adoption of Aircraft Detection Lighting System. However, a December 14, 2020 letter[4], page 12, from the Department of the Interior Solicitor to Interior Secretary David Bernhardt states:

> *"It is important to observe that any compensation system established by a lease to make users of the lease area whole financially does not negate interference – indeed the creation of such a system presumes interference. As such, any proposed compensation process should not be viewed as 'curing' any 8(p)(4(I) interference since the statute does not provide for such a cure."*

The letter also discusses the Secretary's duty to prevent interference with reasonable historic uses in federal waters, such as fishing, navigation and the viewshed by denying offshore wind projects in accordance with the Outer Continental Shelf Lands Act (OCSLA) Subsection 8(p).

Major impacts to historic ocean uses cannot be overlooked at the discretion of the Secretary. Lawsuits have been filed regarding these very questions against the Vineyard Wind project, the first BOEM approved offshore wind project. We recommend no further offshore wind project Final EIS and Record of Decision be published until these cases are heard.

6. DEIS Underestimates Project Impacts on Radar

According to the DEIS, "Proximity to the turbines is the primary factor that determines the degree of radar signal degradation. Smaller vessels operating in the vicinity of the Project may experience radar cluttering and shadowing." The impacts on radar are currently listed as minor.

Following is a summary of the key issues of radar interference by offshore wind turbines. There are major unknowns exacerbated by the fact the largest installed turbines are only about 600' tall while the turbine proposed for CVOW range between 850' and 1,040' with equivalently larger blade diameters. Study titles are underlined with quotation marks for direct quotes.

- United States Coast Guard, Port Access Route Study: Northern New York Bight[5]

  "Conducting this study, three recurring themes were raised that were determined to fall outside the scope of this study. Specifically, potential Offshore Renewable Energy Installations (OREI) impacts to Coast Guard Search and Rescue (SAR) operations, the impacts of Wind Turbine Generators on the efficacy of marine vessel radar, and potential impacts to vessels fishing in Wind Energy Areas."

- Wind Turbine Generator (WTG) Impacts to Marine Vessel Radar (MVR) (2022)[6]

  "WTGs are large structures predominantly constructed of steel. As a result, they generally have significant electromagnetic reflectivity and the capacity to interfere with radar systems in their vicinity. Additionally, the rotating blades can return large and numerous Doppler-shifted reflections as the blades move relative to a receiving radar system. The installation of WTGs towering hundreds of meters above the sea surface across the U.S. OCS therefore poses potential conflicts with a number of radar missions supporting air traffic control, weather forecasting, homeland security, national defense, maritime commerce, and other

activities relying on this technology for surveillance, navigation, and situational awareness. Upcoming COPs include WTGs with hub heights and rotor diameters approaching 175 m and 250 m, respectively."

"Due to their size, structure, and proposed placement offshore, the maritime community expressed concern that WTGs may cast radar shadows, obfuscating smaller vessels exiting wind facilities in the vicinity of deep draft vessels in Traffic Separation Schemes. Other possible forms of radar interference that may preclude safe navigation within an offshore wind facility, such as radar clutter and mirror effects (false signaling). WTGs may produce strong reflected, multiple, and side lobe echoes that can mask or complicate the identification of real targets. A loss of contact with smaller vessels due to the various forms of MVR interference could complicate MTS operations, and is therefore particularly consequential when conducting maritime surface SAR operations in and adjacent to an offshore wind farm."

"MVRs are not optimized to operate in the complex environments of a fully populated, continental shelf wind farm. There is no simple MVR modification resulting in a robust WTG operating mode. Additionally, in contrast to investments by developers and operators of air traffic control and military radar systems, compelling WTG mitigation techniques for MVR have not been substantially investigated, implemented, matured, or deployed."

"Conclusion 1: Wind turbines in the maritime environment affect marine vessel radar in a situation-dependent manner, with the most common impact being a substantial increase in strong, reflected energy cluttering the operator's display, leading to complications in navigation decision-making."

"Finding 5.2: WTGs lead to interference in MVR, including strong stationary returns from the wind turbine tower, the potential for a strong blade flash return for certain geometries, and Doppler spread clutter generated along the radial extent of the WTG blade, which could obfuscate smaller watercraft or stationary objects such as buoys. Additionally, own vessel platform multipath is a significant challenge for returns from WTGs, leading to ambiguous detections and a potentially confusing operator picture."

"Finding 5.3: When conducting maritime surface SAR operations in and adjacent to an offshore wind farm, use of MVR could be challenging because wind turbines can cause significant interference and shadowing that suppress the detection of small contacts."

"Finding 5.4: There is no currently available "WTG mode" for MVRs, and operator control of detection threshold to mitigate strong returns will frequently lead to the unintended consequence of suppressing detections of small targets."

"Finding 5.5: There is a paucity of field collected data to understand and evaluate the impacts of WTGs on currently deployed MVR models and support comprehensive development of ameliorating methods. Similarly, the impact of anomalous propagation and returns from range ambiguous regions on MVR is poorly understood due to lack of experimental data."

"Finding 6.1: In contrast to investments by developers and operators of air traffic control and military radar systems, compelling WTG mitigation techniques for MVR have not been substantially investigated, implemented, matured, or deployed."

The following figures consist of actual radar screens with false images:

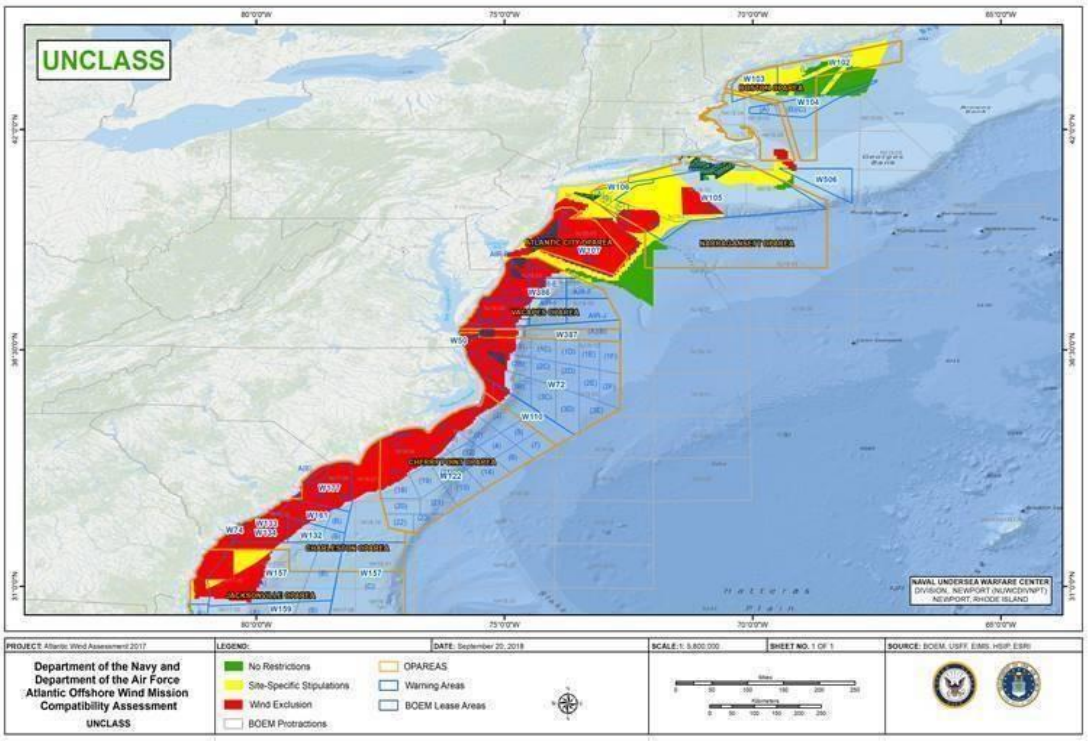
FIGURE 1.3 Photograph of the display of a shipboard radar operated in a U.K. wind farm.

Marico **FIGURE 2.10** Illustrative plan position indicator display for magnetron-based radar from the Kentish Flats experiments, where the points A, B, and C highlight the phenomena of multiple target echoes due to wind turbine generator–radar interaction, and Radar screen near 5 turbine Block Island RI 5 turbine project.

- Military Aviation and Installation Assurance Siting Clearinghouse coordinated within the Department of Defense (DOD) a review of the New York Bight Offshore Call Areas

  "Encroachment is often irreversible and as the New York Bight continues to see increased density of offshore wind energy development, few areas will remain free and clear to support DON training activities. Therefore, the DOD requests BOEM defer leasing all remaining unleased portions of W-107B/C as well as lease blocks in W-107A within 30 nautical miles of the New Jersey coastline if BOEM moves forward with leasing in the Hudson South Call Area. Any vertical obstructions in these areas would foreclose the DON's ability to safely conduct training missions in the region such as low-level rotary wing aircraft operations."

- Comments from Seafreeze, LTD. On Vineyard Wind Supplement to Draft Environmental Impact Statement.
  On pages 67 to 73, Seafreeze explained how offshore wind projects affect/interfere with military exclusion & restriction zones.



As these data indicate, the DEIS must identify project-related interference with radar as a major adverse impact and develop alternatives or mitigation measures to address it.

7. The EIS Ignores Economic Cost of Project's Visual Impacts on Tourism

The CVOW DEIS provides some data on the Project's anticipated visual impacts but it does not take the next step and assess how those visual impacts will affect tourism and the local economies that rely on it. A study by Lutzeyer et.al. (2017), "The Amenity Costs of Offshore Wind Farms: Evidence from a Choice Experiment,"[9] showed that these impacts can be significant. The Lutzeyer study worked with beach home rental companies, and surveyed only people who had recently rented a house on, or near the beach. The study found 38 percent of beach renters, when shown visual simulations of turbines 5 to 18 miles from shore, would likely not come back to a beach with daytime visible turbines. In addition, others would return only with a rental discount depending on the distance. According to the Lutzeyer study, "Overall, the willingness to accept estimates for the Never View class imply that these respondents would likely exit the local rental market if turbines were present, rather than make intensive margin tradeoffs among rental price and characteristics of the viewshed."

The Lutzeyer study also showed nighttime visualizations of red flashing aircraft warning lights. Under this scenario, 54 percent of respondents indicated they would not likely return to a beach with turbines visible at night. The DEIS does not discuss this study or apply its findings to the Project.

The DEIS also fails to discuss a 2015 viewshed analysis BOEM conducted for the New York Outer Continental Shelf Area (Renewable Energy Viewshed Analysis and Visual Simulation for the New York Outer Continental Shelf Call Area: Compendium Report OCS Study, BOEM 2015- 044)[10]. It simulated the visual impact of one hundred and fifty-two 6.2 MW wind turbines from 16 observation points in New York and New Jersey. Based on this study, officials in New York and BOEM determined that the proposed offshore wind turbine lease area off the Hamptons is too close and ruins the serene ocean viewshed. To address this impact, they created a 20 mile exclusion zone.[11] This, then, begs the question: Why is an exclusion zone OK for the Hamptons but not Virginia Beach?

Given that the CVOW wind turbines will be more than 30 percent taller, with larger blade diameters, than the turbines analyzed in the above-referenced studies, it is reasonable to assume that the Project's adverse visual impacts, as they relate to tourism, would

correspondingly be more significant, resulting in even more economic loss. This entire impact, however, is not evaluated in the DEIS.

V. CONCLUSION

As the foregoing comments demonstrate, the DEIS for the CVOW project is legally deficient and provides an inadequate analysis of project-related impacts on the human and natural environment. Some of those impacts are local, such as the Project's landside air and GHG emissions and the Project's potential to reduce tourism revenues. Other impacts are far-reaching and global, such as those connected to the mining of elements used in the wind turbine components. Still others will have the potential to drive the federally-endangered NARW – whose population has already dropped to approximately 330 individual – toward the brink of extinction. And for what? The DEIS fails to show how the CVOW project, individually or in combination with the other industrial-scale offshore wind farms planned for the Atlantic seaboard, will actually reduce current GHG emission levels or otherwise have a positive effect on climate change.

The DEIS, as currently written, is legally inadequate, and its defects cannot be cured by simply making "fixes" in the *Final* EIS. Instead, BOEM must prepare a new DEIS that addresses the deficiencies identified herein and then re-release that document for another round of public review and comment.

Very truly yours,

David P. Hubbard
of
Gatzke Dillon & Ballance LLP

DPH/rlf

cc: CFACT
ACOP
The Heartland Institute

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