BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In Re:	)	
US Wind Inc., for the Maryland Offshore Wind Project	)	Appeal No._____
Permit Number: Permit-to-Construct 047-0248; NSR-2024-01; PSD Approval PSD-2024-01	)	

PETITION FOR REVIEW OF PERMIT TO CONSTRUCT, PREVENTION OF SIGNIFICANT DETERIORATION APPROVAL, AND NONATTAINMENT NEW SOURCE REVIEW APPROVAL FOR US WIND, INC.'S MARYLAND OFFSHORE WIND PROJECT

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On June 6, 2025, the Maryland Department of the Environment, acting under delegated authority from the Environmental Protection Agency (EPA), issued a Permit to Construct, a Prevention of Significant Deterioration Approval, and a Nonattainment New Source Review Approval authorizing construction and early operations for the Maryland Offshore Wind Project (Project)—an industrial-scale offshore wind facility to be built just 10 miles off their coastline.

Petitioners, the Mayor and City Council of Ocean City and the Commissioners of Worcester County, Maryland, challenge the issuance of the final air permit and approvals. Petitioners ask the Board to reverse the Maryland Department of the Environment's decisions to grant the permit and approvals and remand them back to the Department to review for failure to comply with the following requirements of the Clean Air Act:

1. The Maryland Department of the Environment approved operations before an Operations Permit was issued;
2. The permit was approved after the statutory one-year deadline for issuing the permit;
3. The Maryland Department of the Environment failed to complete the alternatives analysis required under the Clean Air Act;
4. There was no notice and comment on the final permit approved;
5. The Maryland Department of the Environment did not require any offsets for emissions; and

6. The Maryland Department of the Environment issued the permit without obtaining complete and accurate information on the emissions that would be generated by vessels to construct and maintain the Project.

Factual Background

The Maryland Offshore Wind Project is a 79,707-acre wind facility that will be located approximately 10 miles offshore of Ocean City, Maryland. The Project, as approved, includes 114 turbine generators, each standing 938 feet tall, up to four offshore electric power substations, a meteorological tower standing over 300 feet tall, miles of inter-array and interlink cables, and up to four export cables.

In August 2023, US Wind, Inc., the Project's developer, submitted an air quality permit application to the Maryland Department of the Environment seeking approval to construct and operate a new major emissions source on the Outer Continental Shelf—the Maryland Offshore Wind Project. The application sought a permit for a new major source subject to Prevention of Significant Deterioration (PSD) approval, Nonattainment New Source Review (NSR) approval, and state air quality permitting for construction and operations and maintenance.[1] The application covered a range of offshore emission-generating activities, including the use of marine vessels (jack-up barges, cable-laying vessels, tugs, heavy transport vessels, and crew transfer vessels), as well as offshore substations and backup generators.

[1] U.S. Wind, Inc., *Maryland Offshore Wind Project Outer Continental Shelf Air Permit Application* (Aug. 2023, Revised Nov. 2023), https://mde.maryland.gov/programs/permits/AirManagementPermits/Documents/US%20Wind/USWindAirQualityPermitApplicationAug2023Nov2023.pdf.

As the permit application states, before any construction can begin, US Wind "is required by the OCS Air Regulations in 40 Code of Federal Regulations . . . Part 55.4, to obtain an air permit for the proposed construction and operation and maintenance . . . of the Project."[2] On June 6, 2025, more than a year after the application was deemed administratively complete, the Maryland Department of the Environment issued a permit to construct, a PSD approval, and an NSR approval in connection with the construction of the Project. Although the permit and approvals were issued by Maryland, they regulate a source that is located on the federal Outer Continental Shelf and is governed by the Outer Continental Shelf Air Regulations.

Although the Maryland Department of the Environment did hold two hearings on the proposed permit and approvals, the permit they issued did not match the permit the Department held the hearings on.[3] The permit also purported to authorize US Wind to commence operations without an operating permit,[4] and the Department decided not to

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[2] *Id.* at 1-1.

[3] *See* Maryland Department of the Environment, *Public Hearing Transcript and Comments Received* (June 6, 2025) at 161, https://mde.maryland.gov/programs/permits/AirManagementPermits/Documents/PublicHearingTranscriptCommentsReceived.pdf (showing how US Wind requested changes to an emissions table as a written comment during the public comment period, leaving the public unable to comment on it); *see also* Attachment 1, Maryland Department of the Environment, *Final Determination Concerning A Permit-to-Construct, PSD Approval, and NSR Approval Application Submitted by US Wind, Inc. for the Construction and Commissioning of the Maryland Wind Offshore Project* (June 6, 2025) at 5-6.

[4] *See* U.S. Wind, Inc., *Maryland Offshore Wind Project Outer Continental Shelf Air Permit Application*, at 2 (Aug. 2023, Revised Nov. 2023), https://mde.maryland.gov/programs/permits/AirManagementPermits/Documents/US%20Wind/USWindAirQualityPermitApplicationAug2023Nov2023.pdf; Attachment 2, Maryland Department of the Environment, *US Wind Permit to Construct* (June 6, 2025), at 16 ("[T]he Permittee shall submit to the Department a complete application for a Title

consider any alternatives to the Project.[5] The Department authorized the permit and approvals with no offsets for 98% of the project emissions and without knowing what the emissions would be from the vessels that would be required to construct and maintain the Project.[6]

Statutory and Regulatory Authority

The EPA regulates facilities on the Outer Continental Shelf under 40 C.F.R. Part 55.[7] Under 40 C.F.R. § 55.3(b), sources—defined as "any equipment, activity, or facility which emits, or has the potential to emit, any air pollutant,"[8]—within 25 miles of a state's seaward boundary are subject to both federal air requirements and the air pollution control requirements of the nearest onshore area.[9]

The Clean Air Act's "Prevention of Significant Deterioration" (PSD) provisions make it unlawful to construct or modify a major emitting facility in "'any area to which

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V Operating Permit (Part 70) within twelve months of the commencement of operation of the Maryland Offshore Wind Project.").

[5] *See* Attachment 1, *Final Determination Concerning A Permit-to-Construct, PSD Approval, and NSR Approval Application* at 1 ("[T]he Department made a tentative determination to issue a permit-to-construct that would authorize construction of the offshore wind project as proposed in the Company's applications."). *See* Attachment 5, Maryland Department of the Environment, *Non-Attainment New Source Review (NSR) Approval Final Determination and Fact Sheet* (June 6, 2025) at 5, 8-9. The Department mentioned it must consider alternatives, and yet no such analysis can be found in the Department's records.

[6] Attachment 3, Maryland Department of the Environment, *Prevention of Significant Deterioration Approval Final Determination and Fact Sheet* (June 6, 2025) at 4.

[7] *See* 56 Fed. Reg 63774-01 (Dec. 5, 1991) ("The EPA is proposing a new part 55 of chapter I of title 40 of the Code of Federal Regulations. This Part would establish requirements to control air pollution from outer continental shelf ('OCS') sources. . . . The proposed requirements apply to all OSC sources.").

[8] 40 C.F.R. § 55.2.

[9] 40 C.F.R. § 55.3(b).

[the PSD program] applies'" without a permit.[10] Additionally, the Act's "Nonattainment Source Review" (NSR) provisions mandate that permits to construct may only be issued if the proposed source meets emissions limitations and standards.[11]

Ocean City and Worcester County Are Entitled to Appeal

Ocean City and Worcester County satisfy the requirements for filing a petition for review under 40 C.F.R. § 124.19, which states that "[a]ny person who filed comments on the draft permit or participated in a public hearing on the draft permit may file a petition for review"[12] and must demonstrate that each challenge to the permit decision is based on a "finding of fact or conclusion of law that is clearly erroneous; or . . . [a]n exercise of discretion or an important policy consideration that the Environmental Appeals Board should, in its discretion, review."[13]

Ocean City and Worcester County participated in the public comment process by providing written and oral comments.[14] Additionally, each issue raised in this petition was raised during the public comment period, as required by 40 C.F.R. § 124.19 and § 124.13.[15]

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[10] *Util. Air Regul. Grp. v. E.P.A.*, 573 U.S. 302, 308 (2014) (quoting 42 U.S.C. § 7475(a)(1)).
[11] 42 U.S.C. § 7403.
[12] 40 C.F.R. § 124.19(a)(2).
[13] 40 C.F.R. § 124.19(a)(4).
[14] *See* 40 C.F.R. § 124.19(a)(2). Ocean City and Worcester County both filed public comments and attended the public hearing held on January 9, 2025. *See* Attachment 4, Maryland Department of the Environment, *Public Hearing Transcript and Comments Received* (last visited July 2, 2025).
[15] 40 C.F.R. § 124.19(a)(4)(iii) ("Petitioners must demonstrate, by providing specific citation to the administrative record, including the document name and page number, that each issue being raised in the petition was raised during the public comment period

Jurisdiction

This petition for review falls within the Board's jurisdiction. Because the Project is located on the federal Outer Continental Shelf,[16] the permits and approvals authorizing its construction and operation are subject to the federal clean air quality requirements set forth in 40 C.F.R. Part 55. This Board has jurisdiction over this petition because the permit and approvals were issued under federal law and authorize construction on the Outer Continental Shelf. Although the Maryland Department of the Environment has the delegated authority to issue the challenged permit and approvals,[17] the EPA retains oversight under its Outer Continental Shelf Air Regulations.[18]

Much of the Maryland Offshore Wind Project will lie on the Outer Continental Shelf. The closest turbine will be located about 10 nautical miles offshore and the farthest will extend to about 27 nautical miles.[19] Construction activities, including cable laying

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(including any public hearing) to the extent required by § 124.13."); 40 C.F.R. § 124.13 ("All persons, including applicants, who believe any condition of a draft permit is inappropriate or that the Director's tentative decision to deny an application, terminate a permit, or prepare a draft permit is inappropriate, must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period (including any public hearing[.]").

[16] *See* 40 C.F.R. § 55.2 ("OCS source means any equipment, activity, or facility which: (1) Emits or has the potential to emit any air pollutant; (2) Is regulated or authorized under the Outer Continental Shelf Lands Act . . . (3) Is located on the OCS or in or on waters above the OCS.").

[17] *See* 40 C.F.R. § 55.11; 40 C.F.R. § 52.1070.

[18] *See* 40 C.F.R. § 55.6; 40 C.F.R. § 55.11 ("The Administrator will withdraw a delegation of any authority to implement and enforce any or all of this part if the Administrator determines that: (1) The requirements of this part are not being adequately implemented or enforced by the delegated agency, or (2) The delegated agency no longer has adequate regulations as required by § 55.11(b) of this part.")

[19] *See* U.S. Wind, Inc., *Maryland Offshore Wind Project Outer Continental Shelf Air Permit Application*, at 1-4 (Aug. 2023, Revised Nov. 2023),

and offshore substation installation, will take place on the Outer Continental Shelf. The permitted source includes emission-generating activities from cable-laying vessels, jack-up barges, support tugs, offshore substations, and diesel generators, all of which will operate and assist with construction on the Outer Continental Shelf.

Under federal law, the Outer Continental Shelf is a "federal enclave"[20] and "the Federal Government [has] complete 'jurisdiction, control, and power of disposition' over the [Outer Continental Shelf], while giving the States no 'interest in or jurisdiction' over it."[21] The legal status means that emissions sources located on the Outer Continental Shelf are subject to federal law, not state law.[22] And "history reinforces that the [Outer Continental Shelf] should be treated as an exclusive federal enclave, not an extension of a State[.]"[23]

The Clean Air Act and EPA's Outer Continental Shelf Air Regulations require that federal requirements be applied directly to Outer Continental Shelf sources, including those related to permitting, emissions controls, and operational standards.[24] The Maryland Department of the Environment issued a single permit covering emissions from the entire

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https://mde.maryland.gov/programs/permits/AirManagementPermits/Documents/US%20Wind/USWindAirQualityPermitApplicationAug2023Nov2023.pdf.

[20] *Parker Drilling Mgmt. Servs., Ltd. v. Newton*, 587 U.S. 601, 612 (2019).

[21] *Id.* at 609.

[22] *Id.* at 604 ("[A]ll law on the OCS is federal law, administered by federal officials.").

[23] *Id.* at 614.

[24] *Taylor Energy Co. LLC v. United States*, 975 F.3d 1303, 1305 (Fed. Cir. 2020) (quoting *Parker Drilling*, 587 U.S. at 607)("[A]lthough the Act deems an adjacent state's laws to be federal law on the OCS to the extent they are 'applicable and not inconsistent' with other federal laws and regulations, state law cannot be adopted as surrogate federal law if federal law addresses the relevant issue.").

facility—including activities located exclusively within federal jurisdiction. That includes the Project's primary construction vessels, such as pile-driving barges and cable-laying ships, which will be stationed offshore for extended periods and are expected to generate almost all of the Project's emissions.

Although the permit and approvals—required for the Project to move forward—reference the Outer Continental Shelf Air Regulations at 40 C.F.R. Part 55, the Maryland Department of the Environment did not substantively apply or analyze their provisions as required under the Clean Air Act. The Maryland Department of the Environment did not identify the specific requirements of the corresponding onshore area or evaluate how those requirements apply to Outer Continental Shelf sources.

Nor did the Department of the Environment comply with 40 C.F.R. § 55.13, which requires direct implementation of federal standards for Outer Continental Shelf sources.[25] Maryland's permit and approvals include no analysis under § 55.13, no determination that its requirements are satisfied, and no indication that those requirements were incorporated into the permit. By failing to apply the requirements of 40 C.F.R. § 55.13, the Maryland Department of the Environment treated the permit as if it were a state-issued construction authorization rather than a federal permit subject to mandatory requirements for Outer Continental Shelf sources. That approach is inconsistent with the Clean Air Act and the structure of 40 C.F.R. Part 55, which requires full application of federal standards even where implementation is delegated to a state agency. The failure to

[25] *See* 40 C.F.R. § 55.13.

incorporate those federal requirements is sufficient grounds to reverse and remand to ensure full compliance with the Clean Air Act and the Outer Continental Shelf Air Regulations.

The permit to construct and PSD and NSR approvals are subject to continuing federal oversight by the EPA. Under 40 C.F.R. § 55.6, applicants and delegated agencies must send copies of permit applications, public notices, preliminary determinations, and final actions to the EPA through the Regional Office.[26] As such, for this permitting process, the Maryland Department of the Environment was required to comply with those procedural safeguards, which exist because the EPA retains ultimate authority over Outer Continental Shelf permitting.

Even when the EPA delegates implementation to a state under 40 C.F.R. § 55.11, it retains the power to enforce any requirement if the agency fails to apply federal law adequately.[27] This federal oversight is not incidental—it reflects the nature of the Clean Air Act itself. Because the permit is issued under delegated federal authority and implements federal Clean Air Act requirements, it is subject to review by this Board under 40 C.F.R. Part 124.

The permit Maryland issued is not limited to temporary or short-term construction activities. Rather, the permit purports to authorize the full scope of Project development, including commissioning and long-term operations, with defined authorization for "Construction & Commissioning" (2025-2027) and "Total Operations and Maintenance"

[26] 40 C.F.R. § 55.6.
[27] 40 C.F.R. § 55.11.

(2026 and beyond).[28] Because the final permit includes both construction and operations—as well as PSD and NSR approvals—the permit is within the federal permitting program administered under federal law, which places it squarely within the Board's jurisdiction to review for compliance with the Clean Air Act's Outer Continental Shelf framework and the Clean Air Act.

Grounds for Appeal

1. The Permit to Construct Authorizes the Project to Begin Without An Operating Permit, In Flagrant Violation of Title V of the Clean Air Act[29]

Title V of the Clean Air Act unambiguously provides that "it [is] unlawful to *operate* any 'major source,' wherever located, without a comprehensive operating permit."[30] And the Clean Air Act requires the EPA Administrator to object to an operating permit "if [a] petitioner demonstrates to the Administrator that [a] permit is not in compliance with the requirements of [the Clean Air Act], including the requirements of the applicable implementation plan."[31]

Title V requires every operating permit to include

> enforceable emission limitations and standards, a schedule of compliance, a requirement that the permittee submit to the permitting authority, no less often than

[28] Attachment 2, Maryland Department of the Environment, *US Wind Permit to Construct* (June 6, 2025) at 2 (stating how construction proceeds in four campaigns, and the campaign of construction scheduled to end in 2025 is scheduled to begin operation in 2026).
[29] *See* 42 U.S.C. § 7661a(a).
[30] *Util. Air Regul. Grp.,* 573 U.S. at 309 (citing 42 U.S.C. § 7661a(a)) (emphasis in the original); *California Communities Against Toxics v. Env't Prot. Agency*, 934 F.3d 627, 638 (D.C. Cir. 2019) ("Major sources must obtain a permit in order to operate, and unless and until that permit is amended or set aside, the stringent requirements set forth therein must be complied with while that equipment is operational.").
[31] 42 U.S.C. § 7661d(b)(2).

every 6 months, the results of any required monitoring, and such other conditions as are necessary to assure compliance with applicable requirements of this chapter, including the requirements of the applicable implementation plan.[32]

In flagrant violation of Title V, the Permit to Construct purports to authorize U.S. Wind to commence operating next year (2026) without an operating permit. The permit includes a table that states:[33]

ARA Registration No.	Description	Anticipated Installation/Operation Dates
047-0248-9-0111	Year 1 – Construction & Commissioning	2025
047-0248-9-0112	Year 2 – Construction & Commissioning	2026
047-0248-9-0113	Year 3 – Construction & Commissioning	2027
047-0248-9-0114	Total Operations and Maintenance – Years 2 and beyond	2026

The permit to construct authorizes the permittee to begin operations in 2026, while construction is ongoing.[34] The permit also directs the permittee to submit a Title V operating permit application "[w]ithin twelve months of commencement of operation,"[35] meaning the Project will be in operation for potentially a year without a Title V operating permit. Such an authorization is directly contrary to Title V of the Clean Air Act.[36]

[32] 42 U.S.C. § 7661c(a).
[33] Attachment 2, *US Wind Permit to Construct* at 2.
[34] *See id.*
[35] *Id.* at 16.
[36] 42 U.S.C. § 7661.

In short, Maryland Department of the Environment has no authority to waive the requirements of Title V for the Maryland Wind Project, a major new source to be constructed offshore of Ocean City and Worcester County, Maryland.

Maryland's unlawful action in issuing this permit undermines the purpose of the Clean Air Act, which "establishes a comprehensive program for controlling and improving the nation's air quality through state and federal regulation."[37] Although the Act may be "[a]n 'experiment in cooperative federalism'" that divides responsibilities between EPA and the states,[38] the experiment does not authorize the Department to simply ignore Title V's requirements. The EPA, not the state, "formulat[es] national ambient air quality standards,"[39] while the states bear the "primary responsibility" for implementing those standards.[40] Because the Maryland wind permit violates those standards rather than implementing them, it is contrary to law and should be reversed and remanded to the state or else the Administrator should issue the permit himself.

2. The Permit and Approvals Are Invalid Because They Were Issued After the One-Year Time Limit Prescribed in the Clean Air Act

The Clean Air Act imposes a strict limit on the state department's authority to issue a permit: the state must either issue or deny a permit for a major source within one

[37] *BCCA Appeal Grp. v. E.P.A.*, 355 F.3d 817, 821–22 (5th Cir. 2003).
[38] *Luminant Generation Co. v. E.P.A.*, 675 F.3d 917, 921 (5th Cir. 2012) (quoting *Michigan v. E.P.A.*, 268 F.3d 1075, 1083 (D.C. Cir. 2001)).
[39] *Util. Air Regul. Grp.*, 573 U.S. at 308.
[40] *Id*.

year after it is deemed complete.[41] As it does with all state issuing authorities, the EPA oversees permits issued by Maryland's Department of the Environment to ensure they comply with the letter of the law.[42]

Where, as here, the state has not complied with clean air requirements, the EPA Administrator must issue an objection to the permit,[43] and the permit is sent back to the state permitting authority to correct the problem. If the problem is not corrected, the EPA will issue the permit itself.[44]

Here, US Wind's application was deemed administratively complete on January 4, 2024.[45] The Maryland Department of the Environment did not issue the permit and approvals until June 6, 2025—seventeen months after the application was deemed complete, and five months after the one-year statutory deadline.[46] By the time the Department issued the permit and approvals, it no longer had the authority to do so. The permit and approvals are therefore void, having been issued ultra vires.

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[41] *See* 42 U.S.C. § 7475(c)("Any completed permit application under section 7410 of this title for a major emitting facility in any area to which this part applies shall be granted or denied not later than one year after the date of filing of such completed application.").
[42] *See* 42 U.S.C. § 7661d(a)-(b); 40 C.F.R. § 70.8(a).
[43] *Sierra Club v. Johnson*, 436 F.3d 1269, 1273 (11th Cir. 2006) (citing 42 U.S.C. § 7661d(b)(2)).
[44] *See* 42 U.S.C. § 7661d(b)(3), (c).
[45] Appendix A, Required Environmental Permits and Consultations, BOEM FEIS, Volume 1, BOEM 2024-024, Docket Number: BOEM; Maryland Department of the Environment, *Public Hearing Transcript and Comments Received* (June 6, 2025) at 151, https://mde.maryland.gov/programs/permits/AirManagementPermits/Documents/PublicHearingTranscriptCommentsReceived.pdf.
[46] Maryland Department of the Environment, *First Notice* (June 6, 2025), https://mde.maryland.gov/programs/permits/AirManagementPermits/Documents/NoticeofFinalDetermination.pdf.

3. Maryland Failed to Conduct the Analysis of Reasonable Alternatives Required By the Clean Air Act

The Clean Air Act requires "an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source[s] [that] demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification."[47]

EPA's regulations and guidance documents emphasize that the alternative analysis must be conducted on a case-by-case basis, taking into account energy, environmental, and economic impacts.[48] Further, the Clean Air Act requires a public hearing where interested parties can present written or oral submissions on "the air quality impact of such source, alternatives thereto, control technology requirements, and other appropriate considerations[.]"[49] This approach ensures that the permitting authority evaluates the maximum degree of emission reduction achievable for each pollutant while considering the unique circumstances of the proposed project.

The Maryland Department of the Environment did not conduct the alternatives analysis required by the Clean Air Act. The Department did not evaluate alternative locations for offshore structures, cable routes, vessel operations, or construction methods,

[47] 42 U.S.C. § 7503(a)(5).
[48] *U.S. v. EME Homer City Generation, L.P.*, 727 F.3d 274, 279 (3d Cir. 2013) (citing 40 C.F.R. § 52.21(b)(12); 42 U.S.C. §§ 7479, 7602(k)).
[49] 42 U.S.C. § 7475(a)(2).

because it only evaluated the project "as proposed in the Company's applications."[50] The Maryland Department of the Environment seemingly relied on the siting decisions made by federal agencies, but prior siting decisions approved by a federal agency do not eliminate the obligation to consider whether the project could be modified to reduce emissions. The Clean Air Act requires this alternatives analysis as part of the preconstruction permitting process; it is not satisfied by deferring to earlier agency decisions. The Maryland Department of the Environment's failure to assess feasible alternatives—including less-polluting options—represents a fundamental failure to evaluate whether emissions could be avoided or reduced, as required by the Act.[51]

4. The Permit Contains Provisions That Were Never Subjected to Public Notice and Comment

Clean Air Act regulations require that all permit proceedings—whether for initial issuance or significant modifications—include "adequate procedures for public notice including offering an opportunity for public comment[.]"[52] That obligation extends to any significant change in emissions data, modeling assumptions, or other technical justifications for a major source permit.

During the public comment period, numerous commenters raised concerns about the completeness and accuracy of US Wind's emissions estimates.[53] Then in its Final

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[50] *See* Attachment 1, *Final Determination Concerning A Permit-to-Construct, PSD Approval, and NSR Approval Application* at 1.
[51] *See Helping Hand Tools v. U.S. Env't Prot. Agency*, 848 F.3d 1185, 1194 (9th Cir. 2016).
[52] 40 C.F.R. § 70.7(h).
[53] *See, e.g.,* Maryland Department of the Environment, *Public Hearing Transcript and Comments Received* (June 6, 2025) at 24 (Delegate Wayne Hartman's oral comment),

Determination, the Maryland Department of the Environment acknowledged that the application was inaccurate and allowed the applicant to submit revised modeling and updated emissions data.[54] The Maryland Department of the Environment then relied on that new data—which had never been open to public review or comment—to craft the terms of its final permit and approvals.[55] By accepting new data and amending the application after the closing of the comment period, the Maryland Department of the Environment violated federal public notice requirements.[56] These revisions materially changed the underlying analysis and directly affected whether the Project complied with air quality requirements. This bait-and-switch decision-making undermines the very purpose of public notice and comment—and directly violates the Clean Air Act. The permit and approvals should be reversed and reopened to allow fair and thoughtful public comment.

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https://mde.maryland.gov/programs/permits/AirManagementPermits/Documents/PublicHearingTranscriptCommentsReceived.pdf.

[54] *See* Attachment 1, *Final Determination Concerning A Permit-to-Construct, PSD Approval, and NSR Approval Application* at 9 (Response to Comment 4) ("US Wind, Inc. must provide updated potential NOx emissions to the Department prior to commencement of construction to confirm that the appropriate amount of ERCs will be obtained.").

[55] Attachment 1, *Final Determination Concerning A Permit-to-Construct, PSD Approval, and NSR Approval Application* at 5-6 (Response to Comment 1) ("US Wind, Inc. performed supplemental NAAQS and PSD Increment modeling analyses for the OSS Installation and Commissioning Periods described in their letter of comments. . . . Following review of the modeling analyses results, MDE concurs with US Wind, Inc. . . . As such, Part D(2), Table 4 of the PSD Approval now includes the revised, approved limits.").

[56] *See* 40 C.F.R. § 124.10; 40 C.F.R. § 70.7(h).

5. The Permit Fails to Require Adequate NOX Emissions Offsets for This Major Source of Pollution

Maryland lies within an ozone transport area, and is therefore required to comply with Clean Air Act nonattainment standards.[57] In nonattainment areas, new or modified major stationary sources must obtain emission reductions from the same or other sources in the nonattainment area to offset their increased emissions.[58] These offsets must ensure that the total tonnage of increased emissions is counterbalanced by an equal or greater reduction in actual emissions.[59]

In Worcester County the major source threshold for nitrogen oxides (NOx) is 100 tons per year.[60] The Maryland Offshore Wind Project will emit approximately 1,380 tons of NOx during construction and early operations, more than 13 times the threshold limit.[61] Yet the permit requires offsets for only 25 tons, all of which are intended to offset emissions associated with operations and maintenance.[62] That leaves 1,355 tons—more than 98% of the project's total NOx emissions—without any offset. The failure to offset nearly all of the emissions the permit to construct was issued to cover is itself sufficient grounds for reversal and remand.

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[57] 42 U.S.C. § 7511(c)(a).
[58] *See* 42 U.S.C. § 7503(a).
[59] 42 U.S.C. § 7503(c).
[60] Attachment 5, Maryland Department of the Environment, *Non-Attainment New Source Review (NSR) Approval Final Determination and Fact Sheet* (June 6, 2025) at 4.
[61] Attachment 3, *Prevention of Significant Deterioration Approval Final Determination and Fact Sheet* at 4.
[62] *See id.*

6. The Permit Set Emissions Allowances Without Knowing the Quantity of Anticipated Emissions Or the Types of Emission Sources the Permittee Would Use

The Clean Air Act requires that a decision to issue a permit or approval must be based on factual evidence, not speculation.[63] Here, the Maryland Department of the Environment issued the permit based not on verified emissions data, but on generic, hypothetical vessel configurations. The NSR approval fact sheet states:

> US Wind, Inc. has not yet contracted for the vessels it will require for the Maryland Offshore Wind Project. For the NSR Approval application, US Wind, Inc. used representative vessels and marine engines to calculate the project's potential emissions. The ability for US Wind, Inc. to contract for specific vessels will depend on the pool of vessels that are available on the timeline needed for deployment.[64]

The Clean Air Act prohibits agencies from approving a major new source using placeholder data for critical inputs.[65] Yet Maryland accepted emissions modeling for the Project that U.S. Wind based not on actual expected emissions, but on unspecified "representative" vessels that may or may not be used in construction and operation of the Project.[66] Without actual emission data, Maryland could not set realistic emissions limitations—and this Board cannot determine whether the limits the permit set are

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[63] *See* 42 U.S.C. § 7503(a) (stating that permits to construct and operate may be issued if the operator of the proposed new source has demonstrated the source is subject to, and in compliance, with all applicable emission limitations and standards).
[64] Attachment 5, Maryland Department of the Environment, *Non-Attainment New Source Review (NSR) Approval Final Determination and Fact Sheet* (June 6, 2025) at 7.
[65] *See* 42 U.S.C. § 7503(a) (stating that permits to construct and operate may be issued if the operator of the proposed new source has demonstrated the source is subject to, and in compliance, with all applicable emission limitations and standards); *see also New York v. U.S. E.P.A.*, 413 F.3d 3, 35 (D.C. Cir. 2005) ("EPA has failed to explain how it can ensure NSR compliance without the relevant data").
[66] *Id.*

appropriate or not. This agency decision, made without real data, is a classic example of arbitrary and capricious agency decision-making.

Conclusion

The permit and approvals granted to this Project fail to apply required federal requirements, were not timely issued, omit offsets for major emissions, and were finalized using revised data without public comment. Because the Project is an Outer Continental Shelf source permitted under federal law, this Board has jurisdiction. Petitioners ask the Board to review the decisions issuing the permit and approvals, and then reverse those decisions and remand to the Maryland Department of Environment for further action consistent with federal law.

Respectfully submitted,

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D.C. Bar No. 394907

Dated: July 7, 2025

Counsel for Petitioners

Statement of Compliance

This Petition for Review is 4,960 words in length and complies with the word limitation of 14,000 words in 40 C.F.R. § 124.19(d)(3).

/s/ Nancie G. Marzulla

Certificate of Service

I certify that a copy of the foregoing Petition for Review in the matter of US Wind Inc., for the Maryland Offshore Wind Project, Permit-to-Construct 047-0248; NSR-2024-01; PST Approval PSD-2024-01, was filed with the Environmental Appeals Board through its e-filing system on July 7, 2025, and were served on the following parties in the manner indicated.

By first-class U.S. mail to Lee Zeldin, Administrator of the United States Environmental Protection Agency, at Environmental Protection Agency, Office of the Administrator 1101A, 1200 Pennsylvania Avenue, NW, Washington, D.C. 20460 on July 8, 2025;

By first-class U.S. mail to Amy Van Blarcom-Lackey, Regional Administrator of Region 3 of the Environmental Protection Agency, at 4 Penn Center, 1600 JFK Blvd., Philadelphia, PA 19103-2029, on July 8, 2025;

By first-class U.S. mail to the Maryland Department of the Environment, at 1800 Washington Blvd., Baltimore, Maryland 21230, on July 8, 2025; and

By first-class U.S. mail to US Wind Inc., the permit applicant, at World Trade Center Baltimore, 401 East Pratt Street, Suite 1810, Baltimore, MD 21202, on July 8, 2025.

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ATTACHMENT 1

MARYLAND DEPARTMENT OF THE ENVIRONMENT
AIR AND RADIATION ADMINISTRATION

FINAL DETERMINATION CONCERNING A PERMIT-TO-CONSTRUCT, PSD APPROVAL, AND NSR APPROVAL APPLICATION SUBMITTED BY US WIND, INC. FOR THE CONSTRUCTION AND COMMISSIONING OF THE MARYLAND WIND OFFSHORE PROJECT

I. INTRODUCTION

The Maryland Department of the Environment (the "Department") received an air quality permit application from US Wind, Inc. on November 30, 2023 (electronically), and hardcopies received on December 7, 2023 for the construction and operation of the Maryland Offshore Wind Project (the Project) consisting of up to 121 wind turbine generators (WTG), up to four (4) offshore substations (OSS), and one (1) meteorological tower (Met Tower). The proposed project will be located approximately 10 nautical miles (NM) off the coast of Worcester County, Maryland on the outer continental shelf (OCS). The application package consisted of an air quality permit-to-construct application, an application for a New Source Review (NSR) Approval, and an application for a Prevention of Significant Deterioration (PSD) Approval.

On Thursday, June 13, 2024, an informational meeting was held at the Ocean City Convention Center, Rooms 201 and 202, located at 4001 Coastal Highway, Ocean City, Maryland, to provide interested parties opportunities to discuss with the Company and the Department the permit application and the proposed construction and commissioning of the offshore wind project.

After reviewing the application and other pertinent information, the Department made a tentative determination to issue a permit-to-construct that would authorize construction of the offshore wind project as proposed in the Company's applications. A draft permit with draft conditions was made available for public review at the following website: [https://mde.maryland.gov/programs/permits/AirManagementPermits/Pages/U.-S.-Wind-Maryland-Offshore-Wind-Project-.aspx] and at MDE headquarters located at 1800 Washington Boulevard in Baltimore, Maryland 21230. A Notice of the Tentative Determination, Public Hearing, and Opportunity to Submit Written Comments was published in the Worcester County Times on December 5, 2025, and again on December 12, 2024.

On January 9, 2025, a public hearing was held at the Ocean City Convention Center, Rooms 215, located at 4001 Coastal Highway, Ocean City, Maryland, to provide the public with an opportunity to submit comments on the Department's Tentative Determination and draft permit and approval documents.

II. COMMENTS RECEIVED AND THE DEPARTMENT'S RESPONSE

The public comment period on the application initially expired on January 13, 2025, but was extended until March 17, 2025 following public request for a one-time, 60-day extension. The comments received at the public hearing, and those submitted in writing during the public comment period, expressed concerns about the impact of the proposed new installation on the surrounding community. The Department's responses to the comments are attached.

III. DEPARTMENT'S FINAL DETERMINATION

The Department has reviewed the application and the comments received and has determined that the proposed construction and commissioning of the offshore wind project would not cause violations of any applicable air pollution control regulations.

The Department has made a final determination to issue the permit-to-construct, the PSD Approval, and the NSR Approval. A copy of the final permit and approval documents are included in the public docket.

MARYLAND DEPARTMENT OF THE ENVIRONMENT
AIR AND RADIATION ADMINSTRATION
RESPONSE TO COMMENTS
FOR THE
US WIND INC. - MARYLAND OFFSHORE WIND PROJECT
APPROXIMATELY 10 NAUTICAL MILES OFF THE COAST OF
WORCESTER COUNTY, MARYLAND

Hearing Date: January 9, 2025
Ocean City Convention Center
4001 Coastal Highway
Ocean City, MD 21842

Purpose of the Hearing:
The purpose of the public hearing was to receive comments on the Maryland Department of the Environment's Tentative Determination for an air quality permit to construct application submitted by US Wind, Inc. for the installation of up to 121 wind turbine generators, up to four (4) offshore substations, and one (1) meteorological tower to be located approximately 10 nautical miles off the coast of Worcester County, Maryland.

Attendance:
Approximately 95 members of the general public attended the hearing. The hearing was also attended by Maryland State Senator Mary Beth Carozza, District 38; Delegate Wayne Hartman, District 38C; Commissioner Anthony Bertino, Worcester County; Commissioner Joe Mitrecic, Worcester County; Chief Administrative Officer Weston Young, Worcester County; Robert Mitchell, Director of Environmental Programs, Worcester County; Mary Knight, Worcester County Planning Commission; Mayor Richard Meehan, Ocean City; Town Administrator Terence McGean, Ocean City; and Mayor Natalie Magdeburger, Fenwick Island, Delaware. Ms. Shannon Heafey of the Air and Radiation Administration (ARA) of the Maryland Department of the Environment (MDE or the Department) presided as Hearing Officer. Mr. Mario G. Cora presented ARA's hearing statement. US Wind, Inc. was represented by Mr. Dave Wilson. Mr. George Quade from For the Record, Inc. served as the hearing's court reporter.

Comment Period:
The comment period was open from December 5, 2024 through March 17, 2025, following a request for a one-time 60-day extension to the initial 30-day comment period. Comments were received from the public both at the hearing and in writing during the comment period. Some comments included references to, or copies of, publications such as newspaper articles, blogs, or study reports. The Department reviewed these references as part of our effort to evaluate and respond to the comments. MDE's assessment of these materials are addressed in the responses to each comment below, as applicable.

The public hearing transcript and written comments received are enclosed with this document.

In addition to adverse comments received as indicated in the Index on the following page, the MDE received over 75 comments expressing support for the project for the following reasons: the project will bring positive air quality impacts (generate clean energy and renewable energy, mitigate climate change, reduce air pollution due to net emissions reduction), the project will create jobs, the project is an additional source of electricity, and the project will protect public health and the environment.

Index:

Air Quality Issues

Other Issues

Comments and Responses:

Comment 1 – Daily Emissions Limits

US Wind, Inc. requested that the values in Table 4 of the draft PSD approval be increased based on the results of the modeling for simultaneous operations during the OSS Installation and OSS Commissioning Periods.

The limits in Table 4 of the draft PSD were based on only a single operation (i.e., Foundation Installation) and included vessels when operating in a maneuvering mode when near to an OSS or WTG. US Wind, Inc. proposed daily limits which included nine (9) operations discussed in the footnotes to Table 4 (and Table 1A of the draft PSD approval) and the contributions from both vessel transit and maneuvering modes of operation. US Wind, Inc. performed supplemental modeling which demonstrated compliance with the NAAQS and PSD increments

The following Table 4 shows the proposed changes that US Wind, Inc. requested to be included in the final PSD approval.

Table 4 – Daily Emissions Limits Pollutant Maximum C&C and O&M (tpd)

Pollutant	Maximum C&C during OSS Installation Periods[1] combined with O&M (tpd)	Maximum C&C during OSS Commissioning Periods[2] combined with O&M (tpd)	O&M (tpd)
NO_2	30.06	29.54	4.52
CO	3.37	3.89	0.59
PM-10	0.32	0.28	0.06
PM-2.5	0.31	0.27	0.05

1. OSS Installation Period consists of the following: Scour protection installation, WTG Installation, WTG Commissioning, OSS Installation (the Vessels listed as OSS Installation Vessels in Table 1A, excluding the Refueling Offshore Service Vessel and Hotel Jack-up Vessel), Inter-Array Cable Installation, Offshore Export Cable Installation; and O&M activities.

2. OSS Commissioning Period consists of the following: Foundation Installation, Scour protection installation, WTG Installation, WTG Commissioning, OSS Commissioning (the Vessels listed as OSS Installation Vessels in Table 1A, excluding the Heavy Lift Vessel, Tug, Topside Tug, Noise Mitigation Offshore Service Vessel, and Acoustic Monitoring Offshore Service Vessel), Inter-Array Cable Installation, Offshore Export Cable Installation; and O&M activities."

MDE Response

US Wind, Inc. performed supplemental NAAQS and PSD Increment modeling analyses for the OSS Installation and Commissioning Periods described in their letter of comments. This process was performed to ensure compliance during simultaneous operations for pollutants with respective short-term standards (1-hour and 8-hour CO, 1-hour NO2, and 24-hour PM-2.5 and PM-10). US Wind, Inc. provided all the modeling data files for the modeling analyses and tables of daily emissions to determine the maximum ambient concentrations to the Department for verification. The modeling analyses and its results were reviewed by the Department. The calculations that support the development of the requested daily emissions limits were also reviewed by the Department.

The NAAQS modeling analysis for each of the Offshore Substation (OSS) Installation or Commissioning Periods were reviewed by the Department. The results were summarized and presented in a table depicting the fact that the project impacts, plus background, do not exceed or threaten to exceed the NAAQS.

The results of the PSD Class II increment analysis were also reviewed by the Department. It was demonstrated that the simultaneous operation of multiple construction and Operation and Maintenance (O&M) operations would not cause or contribute to air pollution in violation of any of the applicable PSD Class II increments for pollutants with respective short-term standards (1-hour and 8-hour CO, 1-hour NO2, and 24-hour PM-2.5 and PM-10). The Department also reviewed the Class I increment analysis results for 24-hour PM-2.5 and PM-10, which demonstrated that the project impacts are well below the Class I increments with simultaneous operation of multiple construction and O&M operations.

Following review of the modeling analyses results, MDE concurs with US Wind, Inc. that the results support a revision of the daily emissions limits as requested. US Wind's request was granted by the Department. As such, Part D(2), Table 4 of the PSD Approval now includes the revised, approved limits.

Comment 2 – Simultaneous Operations

As stated in the comment letter, US Wind, Inc. "prepared supplemental NAAQS and PSD increment analyses to demonstrate compliance with the NAAQS and PSD increments for simultaneous (i.e., cumulative) operation of vessels from separate operating conditions."

US Wind, Inc. requested a few changes to the conditions listed in Part E, of the PSD Approval. As a result of their analysis, US Wind, Inc. requested condition E (3) to be updated, and the addition of two more conditions to be listed as E(4) and E(5) in the PSD approval. These revisions are required as part of the updates related to the revised daily limits proposed by US Wind, Inc. in a letter to the Department during the permit comment period. The proposed conditions and the rationale behind the request were presented in the letter of comment to the Department. To further supplement the above-mentioned changes, US Wind, Inc. also proposed the inclusion of an additional record keeping condition to be listed in the PSD Approval.

MDE Response

As stated earlier, US Wind, Inc. performed supplemental NAAQS and PSD Increment modeling analyses for the OSS Installation and Commissioning Periods described in their letter of comments. The described process and the results of the modeling analyses were reviewed by the Department and found to be appropriate.

The Department has updated Part E of the PSD Approval as follows:

"(3) To ensure compliance with the NAAQS and PSD increments and total daily emissions limits in Part D(2), Table 4 (Maximum C&C during OSS Installation Periods combined with O&M) of this Approval, vessels associated with the following activities may be operated simultaneously when each of the individual activities are located greater than 1.25 NM away from each other: WTG Installation, Scour Protection Installation, WTG Commissioning, OSS Installation (the Vessels listed as OSS Installation Vessels in Table 1A, excluding the Refueling Offshore Service Vessel and Hotel Jack-up Vessel), Inter-array Cable Installation, Export Cable Installation, and O&M. The separation distance shall be calculated based on the GPS coordinates of the center point of each activity (e.g., the monopile foundation attached to OCS).

(4) To ensure compliance with the NAAQS and PSD increments and total daily emissions limits in Part D(2), Table 4 (Maximum C&C during OSS Commissioning Periods combined with O&M) of this Approval, vessels from the following activities may be operated simultaneously when each of the individual activities are located greater than 1.25 NM away from each other: Foundation Installation, WTG

Installation, Scour Protection Installation, WTG Commissioning, OSS Commissioning (the Vessels listed as OSS Installation Vessels in Table 1A, excluding the Heavy Lift Vessel, Tug, Topside Tug, Noise Mitigation Offshore Service Vessel, and Acoustic Monitoring Offshore Service Vessel), Inter-array Cable Installation, Export Cable Installation, and O&M. Vessels associated with OSS Commissioning specified above and Export Cable Installation or Inter-array Cable Installation may be operated simultaneously at distances less than 1.25 NM away from each other. The separation distance shall be calculated based on the GPS coordinates of the center point of each activity (e.g., the monopile foundation attached to OCS).

(5) With submittal of the Report in condition C(3), which defines each vessel contracted, each anticipated representative vessel, and each marine and non-marine engine to be used during the initial C&C and O&M of the Maryland Offshore Wind Project, permittee may provide additional modeling for NAAQS and PSD increment compliance, upon approval from the Department, for simultaneous operations at distances less than 1.25 NM."

The Department will also add the following record keeping condition to Part G(1) of the PSD Approval:

"(j) For each vessel deployed during C&C and/or O&M, US Wind, Inc. shall record on a daily basis, the GPS coordinates of the center point of the operation (e.g., the monopile foundation attached to OCS) from the list of the following operations: Foundation Installation, Scour Protection Installation, WTG Installation, WTG Commissioning, OSS Installation, OSS Commissioning, Inter-array Cable Installation, Export Cable Installation, and O&M."

Comment 3 – Total Emissions

A Commenter asked for clarification regarding the total emissions in tons per year that will originate from the proposed construction.

MDE Response

A summary of total emissions is included in Part F, Item (3) of the Permit to Construct (PTC) and copied below. The referenced table shows the limits that US Wind, Inc. must comply with for emissions of NOx, CO, PM_{10}, $PM_{2.5}$, VOC, SO_2, lead (Pb) and GHG (as CO_{2eq}) from the Maryland Offshore Wind Project, including periods of startup, shutdown, and malfunction under each of the following scenarios: (1) total per rolling 12-month period during the Construction and Commissioning (C&C) phase, (2) total for the entire C&C phase which includes both C&C and O&M emissions and begins on the C&C Start Date and ends when the last wind turbine generator to be constructed begins producing commercial power, and (3) total per rolling 12-month period during the Operation and Maintenance (O&M) phase.

The number presented in each of the columns is the maximum emissions limit. As such annual emissions rates are expected to be less than the stated limits for each pollutant under each of the scenarios.

Pollutant	Maximum C&C and O&M, Combined During C&C (tons/rolling 12-months)	Total for the Entire C&C Phase, which includes both C&C and O&M Emissions (tons)	Maximum O&M (tons/rolling 12-months)
NOx	616	1380	25
CO	149	344	24
PM-10	20	45	0.66
PM-2.5	19	44	0.65
VOC	11	26	2
SO_2	2	4	0.07
Pb	0.003	0.007	0
GHG (as CO_2e)	41,673	95,898	6,763

Comment 4 – Emissions Offsets

A commenter stated that "any offsets that are needed for this project should be located in Worcester County." The commenter also stated that Worcester County is the "only county being impacted by this." Another commenter asked "where are the offsets in Worcester County?"

MDE Response

These comments relate to the timing required, the jurisdiction, and the location from which emissions offsets should be obtained. Offsets are also known as "emission reduction credits" or ERCs. ERCs for this project were addressed in Section VII, Emission Reduction Credits (ERCs) of the New Source Review (NSR) Approval.

As stated in the referenced section of the NSR Approval, the offsets of new emissions in a nonattainment area must meet two important objectives:

(1) to ensure reasonable progress toward attainment of the National Ambient Air Quality Standards (NAAQS). (As such, the offset ratio must be greater than 1.0); and

(2) to provide a positive air quality benefit.

Emissions credits must come from the same non-attainment area or an area with an equal or higher nonattainment classification which contributes to nonattainment in the corresponding onshore area of an outer continental shelf source. 42 U.S.C. § 7503(c); 42 U.S.C. § 7627.

Citing Clean Air Act Section 173 (a)(1)(A) and Section 173 (c)(1), as well as 40 C.F.R. Part 51, Appendix S, EPA has determined that offsets apply only to emissions during operation and maintenance. In keeping with these practices, for the Maryland Offshore Wind Project, offsets are required based on operation and maintenance emissions.

In accordance with COMAR 26.11.17.03B(3)(b), the minimum NOx emissions offset ratio for Worcester County is 1.15 to 1.0. The Maryland Offshore Wind Project's potential O&M annual NOx emissions is 25 tons per year; therefore, NOx ERCs in the amount of 29 tons will be required from the same or more restrictive ozone non-attainment area. This requirement is federally enforceable and the ERCs shall be obtained before construction of the project is commenced. US Wind, Inc. must provide updated potential NOx emissions to the Department prior to commencement of construction to confirm that the appropriate amount of ERCs will be obtained.

As stated in Section IV of the NSR Approval, "the Maryland Offshore Wind Project is required to comply with the air quality requirements applicable in Worcester County, the Corresponding Onshore Area (COA). Worcester County is in an attainment/unclassifiable area for the 2008 and 2015 ozone NAAQS, however; because Worcester County is located in the Ozone Transport Region, the Clean Air Act requires major sources of VOC or NOx to be subject to the requirements which would be applicable to major stationary sources if the area were classified as a moderate non-attainment area for ozone. 42 U.S.C. § 7511c(b)(2).

Prior to construction, US Wind, Inc. must obtain the required amount of ERCs to offset the project's emissions. While the ECRs may originate from Worcester County, compliant ERCs may also originate from a moderate or higher nonattainment area which contributes to Worcester County, pursuant to 42 U.S.C. § 7503(c). The Department will verify that ERCs obtained by US Wind, Inc. meet all applicable requirements.

Comment 5 – Sulfur Hexafluoride Emissions

Several comments relate to the air quality impacts associated with sulfur hexafluoride (SF_6) emissions that could be emitted from the project.

A commenter also expressed concerns and stated that the SF6 is used in the turbines, and it is very dangerous. Another commenter stated their concerns regarding the impacts of SF_6 on climate change, due to the high global warming potential greater than carbon.

MDE Response

These comments relate to the potential release of sulfur hexafluoride (SF_6) from the project and their potential air quality impacts.

Sulfur hexafluoride (SF_6) is a synthetic fluorinated compound with an extremely stable molecular structure and unique dielectric properties. According to EPA

(https://www.epa.gov/eps-partnership/sulfur-hexafluoride-sf6-basics, accessed May 14, 2025), "the U.S. electric power industry has used SF_6 in circuit breakers, gas-insulated substations, and other switchgear used in the transmission system to manage the high voltages carried between generating stations and customer load centers."

Section 2.2.3.1 of U.S. Wind's application addresses SF_6 in switchgear:

"US Wind may use sulfur hexafluoride (SF-6) to insulate electrical equipment at each WTG and OSS, potentially resulting in fugitive greenhouse gas emissions from unexpected equipment leakage. Due to its extremely stable chemical properties, SF-6 is commonly used in electrical equipment to provide insulation for switchgear and to quench arcs. However, US Wind has not designed the electric requirements for the WTGs and OSSs and thus, the potential for SF-6 emission, if any, are currently unknown for this OCS air permit application. US Wind will request suppliers to assess the use of SF-6 alternatives, where such equipment would meet the safety and performance requirements of the supplied equipment. If the use of SF-6 alternatives would be technically and economically feasible for any supplied equipment, US Wind will file supplemental greenhouse gas emissions information regarding fugitive SF-6 emissions."

MDE is aware of the potent greenhouse potential of SF_6, when compared to an equivalent amount of carbon dioxide (CO_2), and its impact from a climate change perspective. For practical purposes, this information must be available soon after US Wind, Inc. has finalized the design phase of the electrical equipment for the WTG and OSS, and prior to the delivery and installation of the electrical equipment for the WTG and OSS. At such time, US Wind, Inc. will be required to assess the potential for SF-6 fugitive emissions, notify MDE and adjust the GHG (as CO2e) emission estimates, accordingly.

As stated in Part E(1) of the Permit to Construct, C&C shall not commence until MDE has reviewed and approved these changes. If the updated potential to emit estimates show that any of the regulated pollutants (including greenhouse gas emissions) exceed the thresholds for PSD and NSR review, then the Permittee will be required to perform the appropriate updates to the previous NSR and PSD Approval requests.

Comment 6 – Engine Emissions Limits

Several comments relate to the emissions limitations for the engines powering the vessels that will support the construction, commissioning, and operations and maintenance of the turbines. A commenter stated that "Tier V emission standards should be" required for the engines powering the vessels. Related to this subject another commenter also stated that "the controls proposed are not enough to protect the local population from the impacts from the project."

MDE Response

In their application, US Wind, Inc. performed a detailed applicability determination of the regulatory requirements pertaining to the control of emissions for the proposed installations at the OCS.

As stated in the permit application, “pursuant to 40 CFR § 55.13(c), US Wind, Inc. is subject to the requirements listed in the new performance standards (NSPS) that apply to OCS sources in the same manner as in the corresponding onshore area (COA). Because the NSPS regulations of 40 C.F.R. Part 60 only apply to stationary sources and not to mobile sources supporting the construction, commissioning, and operations and maintenance of land based facilities, the Department generally agrees with US Wind, Inc.’s contention that only the OCS source emissions (i.e., the stationary source activities) are subject to NSPS.” However, the broad definition of OCS source contained in 40 C.F.R. § 55.2 provides that some marine vessel engines and non-road engines be subject to NSPS. Specifically, the definition includes vessels only when they are “permanently or temporarily attached to the seabed and erected thereon and used for the purpose of exploring, developing, or producing resources therefrom” or “physically attached to an OCS facility, in which case only the stationary sources aspects of the vessels will be regulated.” As such 40 C.F.R. Part 60, Subpart IIII would apply to both the marine engines while the vessels are regulated as OCS sources, and the permanently installed diesel generators on OSS Internal combustion engines (i.e., generating sets) located on an OSS.

The NSPS subpart IIII regulation allows non-emergency stationary CI internal combustion engines with a maximum engine power of 3,000 horsepower or less being installed on marine offshore installations to be certified to meet emission standards pursuant to either §60.4201(a) or (f). Section 60.4201(a) requires Tier 4 standards for new non-emergency engines under 40 C.F.R. Part 1039. Section 60.4201(f) requires applicable Tier standards from 40 C.F.R. Part 1042 depending on the engine size and model year. Based on recent LAER determinations for offshore wind projects discussed in Section 4 and a review of the relevant regulations, the lowest emitting diesel-fired electric generators are generators certified to the highest Tier standard in 40 Part 1039 (i.e., Tier 4).

As part of the PSD Approval, all vessels contracted by US Wind, Inc. must be equipped with marine engines (main and auxiliary) that meet the most stringent, applicable EPA Tier or MARPOL Annex VI emissions standard available and at a minimum, are engines certified to EPA Tier 2 emissions standards or MARPOL Annex VI emissions standards for foreign flagged vessels.

The permit to construct (PTC) also requires that all vessels contracted by US Wind, Inc. be equipped with marine engines (main and auxiliary) that meet the most stringent, applicable EPA Tier or MARPOL Annex VI emissions standard available at the time the marine vessel is hired for the specific work required in the timeframe required.

For the non-marine portable diesel generator engines and the permanent diesel generator engines, US Wind, Inc. is required to ensure that each of the engines is certified to meet the EPA Tier 4 emission standard from 40 C.F.R. § 1039, that applies to each engine. For the non-marine portable diesel generator engines used during C&C and O&M and for the permanent diesel generator engines on the four (4) OSS used during O&M, US Wind, Inc. shall ensure that each of the engines is certified to meet the EPA Tier 4 emission standard from 40 C.F.R. § 1039, that applies to each engine.

Finally, it is important to mention that at the current moment there are no Tier V standards. As such, the proposed permit and approval requires the most stringent tier standards for the engines powering the vessels when available.

Comment 7 – Air Quality Impacts

Commenters stated that "the approval of these air quality permits will allow US Wind to produce 41,673 tons of CO_2 per year during their first three years of construction and operations."

In addition, there was a concern about the proposed estimated NOx emissions during the construction and commissioning phases of the project, and their potential impacts on smog and acid rain, including the potential impact on water quality.

Another commenter stated that "dozens of boats that will be required for construction, and later maintenance and operations," henceforth potentially producing significant amounts of NOx emissions.

A commenter stated that Worcester County currently has no significant stationary emission sources in the area and that the construction process and daily operations will add NOx and fine particulate to the air.

MDE Response

MDE is aware of the estimated potential carbon dioxide (CO_2) and NOx emissions that will occur during the construction and commissioning phases of the project. The construction, commissioning, and operation and maintenance of the wind turbine generators (WTGs) and OSS will necessitate the use of marine vessels. In the United States, and throughout the world, offshore projects are built and maintained with the use of a maritime fleet, which at the present time still rely heavily on vessels that use fossil fuels to power propulsion engines. The maritime industry continues to build newer, more efficient vessels with engines that now produce lower emissions per heat input, and have also explored more innovative technologies including the use of hybrid models.

During its technical review, the Department reviewed the contents of the permit application as well as the applicable emissions standards and regulations for similar sources (vessels).

As a major source of NOx emissions in the Ozone Transport Region, major non-attainment New Source Review (NSR) requirements apply. NSR requires the lowest achievable emissions rate, or LAER. All contracted vessels must be equipped with marine engines (main and auxiliary) that meet the most stringent, applicable EPA Tier or MARPOL Annex VI emissions standard available and at a minimum, that the engines be certified to EPA Tier 2 emissions standards or MARPOL Annex VI emissions standards for foreign flagged vessels. These requirements ensure that NOx emissions from the associated vessels are maintained at the lowest possible level than can be achieved for this project.

For other pollutants, Prevention of Significant Deterioration (PSD) requirements apply. PSD review was required for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ as estimated emissions of these pollutants exceeded their respective significance thresholds for Worcester County, the corresponding onshore area. Potential estimated emissions of CO_2 did not exceed the CO_2 significance threshold of 75,000 tpy, so PSD review was not required for emissions of CO_2.

As part of the PSD Approval, US Wind, Inc. was required to implement best available control technology (BACT) as a control strategy for the applicable list of pollutants, including NO_2.

However, since LAER must be at least as stringent as BACT, the LAER strategy for NOx emissions was also considered BACT for NO_2 emissions from the OCS sources (vessels). For emissions of CO, PM_{10}, and $PM_{2.5}$ from OCS sources, the Department determined that BACT would be the same EPA Tier and MARPOL Annex VI emissions standard requirements for those pollutants from vessel engines and the use of good combustion practices. EPA Tier and MARPOL standards are the most stringent standards currently available ensuring that emissions of PSD pollutants are maintained as low as possible for this project.

Although the project did not trigger PSD review for CO_2 emissions, it is expected that implementation of the applicable LAER and BACT controls described in the foregoing paragraphs will have the co-benefits of helping to reduce CO_2 emissions. As stated earlier, US Wind, Inc. will be required to use the most stringent EPA Tier and MARPOL Annex VI emissions standard requirements for NOx, NO_2, CO, PM_{10}, and $PM_{2.5}$. In addition, US Wind, Inc. must also use good combustion practices which will increase the energy consumption efficiency of the vessels, resulting in lower emissions.

Under the PSD review, US Wind, Inc. was required to demonstrate that the proposed project's emissions will not cause or contribute to a violation of any National Ambient Air Quality Standard (NAAQS) in Worcester County. The NAAQS are concentrations in the ambient air that are established by EPA at levels intended to protect human health and welfare, with an adequate margin of safety. US Wind, Inc. was required to use dispersion models as a tool to project the ambient concentration that will result from the proposed OCS source emissions and to evaluate the impact of that source's emissions on the NAAQS.

The results of the NAAQS modeling analysis for each C&C and O&M scenario were presented in the PSD Factsheet, Table 5. As shown in Table 5, the project impacts, plus background, did not exceed or threaten to exceed the NAAQS.

US Wind, Inc. was also required to demonstrate compliance with PSD Class I areas. These are areas that are designated as requiring special protection from the effects of pollutants emitted by PSD sources due to the pristine quality of their natural resources. There is one Class I area within 300 km of the project centroid: Brigantine Wilderness area located in the Edwin B. Forsythe National Wildlife Refuge in New Jersey, approximately 126 kilometers north of the project. In addition, the northeast corner of the Shenandoah National Park, which is approximately 290 km away, was also included in the Class I area impact analysis upon the Department's request.

US Wind, Inc. conducted modeling to assess the impacts on visibility and nitrogen and sulfur deposition in both Class I areas, as well as the Assateague Island National Seashore Class II area, as per the request of the National Park Services (NPS). A procedure, as described in the Federal Land Manager's (FLM) Air Quality Related Work Group ("FLAG") guidance (2010), was used to determine the potential air quality related values (AQRV) impacts in the Class I area. Following the FLAG guidance, CALPUFF was used for the AQRV analysis.

US Wind, Inc. submitted a Class I AQRV modeling report to the FLM. After its review, the FLM determined that the proposed project is not anticipated to cause significant visibility impairment to Class I areas. However, the FLM requested that the Department include daily emissions limits to minimize the potential of visibility impairments as more wind turbine projects are built in the area. The daily emissions limits, based on the values used in the modeling analyses, were included in Part D of the PSD Approval.

Comment 8 – Potential Wake Effects

Comments related to the potential significant impact of the wake effect from the offshore wind turbines. A commenter asked, "if a permit can be denied only based on the potential impact of this effect." There have been some concerns on how the potential wake effect may also impact or increase ozone levels.

Another commenter shared concerns related to the potential impact that wind turbines could have due to the potential increase in the ozone layer in nearby urban areas.

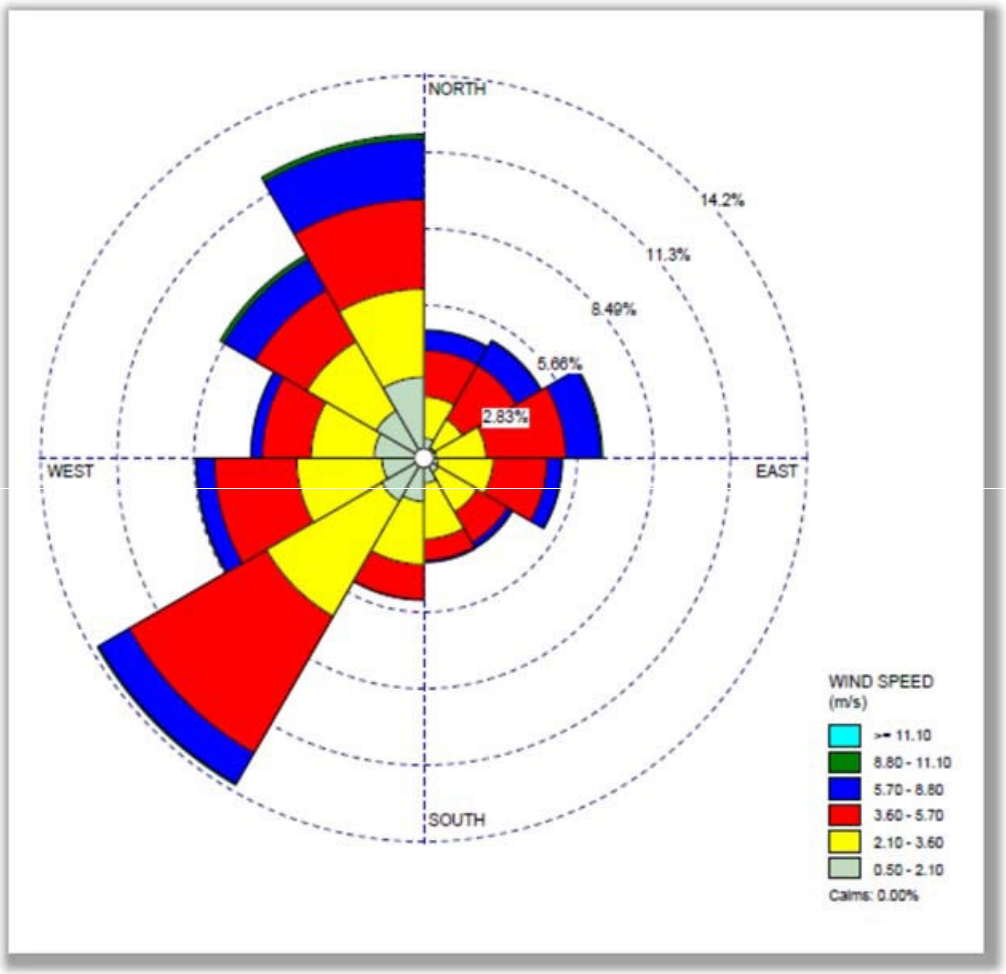
MDE Response

Wake effect" refers to the phenomenon downstream from a wind energy facility, which results from the changes in wind speed caused by the impact of turbines on each other. When wind passes through a turbine, the blades extract energy from the wind, which reduces the wind speed and changes its direction in the area immediately downstream of the turbine, creating a "wake" region characterized by reduced wind speed and turbulence.

Wind turbine wake effects would have minimal to no impact on the ozone (O_3) levels along Maryland's coastline, or near more local areas (i.e., Ocean City) and inland areas in nearby counties on the Eastern shore. The wind farm (turbines) will be operating at a distance of approximately 10.0 nautical miles (~18.5 km, 11.5 miles) offshore from the nearest shoreline.

Near Ocean City, the wind generally blows from the northwest toward the southeast or from the southwest toward the northeast. This is documented in the wind rose created using wind speed and direction collected at Ocean City Airport (taken from Appendix B – Meteorological Data Evaluation, US Wind – Maryland Offshore Wind Project Air Quality Modeling Protocol).

Observed Wind Data – Ocean City Airport



Since the wind near Ocean City is generally moving off-shore, and because the wake effect is felt in the same direction as the wind is blowing but after (i.e. behind) the wind turbine, the wake of the wind turbine generators would generally be moving toward the open ocean. Figure 1-2 in the permit application shows the location of the wind farm in relation to the coastline. Based on the prevailing wind, the wakes of the wind turbine generators will predominantly be on the east, or the northeast side of the wind farm on the open ocean side, not toward the coastline.

Additionally, for offshore wind development projects, the “wake effect” may be more of a consideration in the design of the offshore wind farm spacing, rather than the potential for onshore air quality impacts.

In terms of the design, the consideration of this effect provides some technical rationale to determine how far apart turbines are spaced. Individual turbine wind generators need to be spaced far away from each other, so that the impact of the wake effect that may be created by one turbine does not produce a negative effect on another. This is important to enhance the overall power production from the wind farm.

The U.S. EPA addressed this question as part of the comments received during the permitting process for a nearby offshore wind project, Coastal Virginia Offshore Wind Project (https://www.epa.gov/system/files/documents/2024-04/response-to-comments-for-cvow-c-ocs-air-permit-4-9-24.pdf, accessed May 19, 2025). In their response, the U.S. EPA concluded that reductions in wind speed (wake effect) are likely to be minimal and have little to no effect on onshore ozone concentrations. The Department reviewed the response cited here and found that the same conclusion applies to US Wind’s proposed project, as the design considerations and methodology used are similar to the Virginia project.

Furthermore, as part of the permit application US Wind performed air quality modeling for potential emissions of ozone. Ozone modeling is presented in Section 5.4 of the permit application. The results of the modeling for ozone were presented in Table 5.2. of the permit application. The Department reviewed the results presented by the company and found them to be acceptable. The results showed that there was no significant impact from the project on ground level ozone and demonstrated compliance with the National Ambient Air Quality Standard (NAAQS) for ozone.

Comment 9 – Green Energy Project

Commenters expressed their concern and stated that the proposed wind farm is not a green energy project.

MDE Response

MDE acknowledges the concern regarding how beneficial the proposed project will be towards the environment. Green energy is a concept that is defined differently when consulting different stakeholders, including both governmental and non-governmental organizations.

According to the U.S. Energy Information Administration, “renewable energy is energy from sources that are naturally replenishing but flow limited.” (U.S. Energy Information Administration, https://www.eia.gov/energyexplained/renewable-sources/, last accessed May 6, 2025). The major types of renewable energy sources are Biomass, Hydropower Geothermal Wind, and Solar. *Id*. The use of

wind energy represents only 9 percent of the entire renewable energy portfolios in 2023." *Id*. The agency also stated that "renewable energy can play an important role in U.S. energy security and in reducing greenhouse gas emissions." Id. According to the U.S. EPA, "green power is a subset of renewable energy. It represents those renewable energy resources and technologies that provide the greatest environmental benefit." (U.S. Environmental Protection Agency, https://www.epa.gov/green-power-markets/what-green-power, last accessed May 6, 2025) The U.S. EPA also stated "that within the U.S. voluntary market, green power is defined as electricity produced from solar, wind, geothermal, biogas, eligible biomass, and low-impact small hydroelectric sources. To qualify as green power, this renewable electricity must also go above and beyond what is otherwise required by mandate or requirement. In other words, green power is voluntary, or surplus to regulation." *Id*.

MDE recognizes that like any other renewable energy project, the equipment that will be used to construct, commission, and later operate and maintain the wind turbines will be provided by marine vessels that burn fossil fuel (mostly marine diesel engines). It is expected that this industry will eventually transition into more hybrid modalities in the future. However, the impact of the emissions from marine vessels used to support the Maryland Offshore Wind Project are significantly lower than emissions generated from traditional natural gas-fired or coal-fired power plants themselves, which also require periodic maintenance often supported by vehicles or locomotives producing additional supplemental emissions.

Comment 10 – Permit Application Review Process

Commenters stated that the Department has ignored the concerns of the citizens and has rushed to issue the air quality permit for the wind farm.

In addition, another commenter expressed their concern and asked if the staff involved with the review of this project "have any experience at all previously with evaluating wind turbine projects."

MDE Response

MDE acknowledges the concern regarding the permit review process for the first offshore wind project in Maryland. In accordance with 42 U.S.C. § 7475(c), permits for a major emitting facility must be granted or denied not later than one year after the date of filing of a complete application.

The Department received the air quality permit application from US Wind, Inc. on November 30, 2023 (electronically), and hardcopies received on December 7, 2023. A completeness review was performed and the application was deemed complete on January 4, 2024.

A notice was placed in the Worcester County Times on May 23, and 30, 2024 announcing a scheduled informational meeting to discuss the permit to construct application. The informational meeting was held on Thursday, June 13, 2024, at

the Ocean City Convention Center, Rooms 201 and 202, located at 4001 Coastal Highway, Ocean City, Maryland 21842. The Informational Meeting consisted of an open house format poster session that began at 5:30 p.m. to 7:00 p.m., followed by a question-and-answer session from 7:00 p.m. to 8:00 p.m.

After the public meeting, the Department commenced its detailed technical review. As part of this review process, the Department assembled a technical team of seven engineers and an air quality modeler with expertise in air quality permitting and modeling. The contents of the permit application were evaluated using an internal peer review process to perform a detailed review of emissions calculations, assumptions taken, proposed regulatory framework, applicable regulations, and air quality modeling files. The review included extensive collaboration with the Department's U.S. EPA Region 3 counterparts. This process culminated in the preparation of the necessary documentation for a tentative determination to issue the permit and approvals. A public hearing was held on Thursday, January 9, 2025, at Ocean City Convention Center, located at 4001 Coastal Highway, Ocean City, Maryland to provide interested parties an opportunity to comment on the Department's tentative determination and draft permit conditions, and/or to present other pertinent concerns about the proposed facility.

MDE maintains a dedicated staff with the technical background and expertise to administer the State's air quality permits program. The U.S. EPA has delegated authority to MDE to issue federal permits in the state of Maryland pursuant to the Clean Air Act. The program has issued numerous PSD and NSR approvals and air quality Permits to Construct for major sources of pollution in Maryland. Although the construction of an offshore wind farm presented a new and distinctive project in terms of energy production scope, the technical aspects of the air quality analysis were similar to a review of any other major source (e.g., power plant). In summary, the Department's technical team possesses the necessary transferable skills to conduct an assessment on the potential impacts originating from this project.

The Department disagrees with comments that consideration of the air quality permit for this project has been rushed. As stated in the permit application, the location of the proposed offshore wind lease area is the result of a multi-year effort by state and federal regulatory agencies to identify OCS areas suitable for offshore renewable energy development." MDE is well aware that US Wind, Inc. has engaged now for nearly a decade in the project planning, including an extensive review of site characterization and an assessment of potential impacts to the proposed site area. US Wind, Inc. first contacted MDE in 2015 during the early stages to seek and obtain approval for an air quality permit authorizing the installation of a diesel fired electrical generator for a meteorological tower to gather site specific data.

Throughout the years, US Wind, Inc. has engaged with a number of federal and state agencies to comply with a myriad of permitting and evaluation requirements. US Wind, Inc. has also conducted numerous studies, including environmental, economic, cultural, and visual resources, and use conflicts. As stated in the permit

application, as part of the project, US Wind, Inc. “conducted project screening and siting evaluations and a review of potential impact producing factors on various resources, including physical, biological, socioeconomic and others.” These evaluations are presented in the US Wind Construction and Operations Plan (COP). US Wind’s plans and permit applications have been extensively evaluated by other State and federal agencies and subject to public scrutiny and comment over a significant period of time. As such, the process has taken more than one-year (beyond the timeframe contemplated in 42 U.S.C. § 7475(c)) and was not rushed. Also, see MDE Response to Comment 11, below.

Comment 11 – Permit Issuance Timeline

A commenter stated that MDE failed to act within the Clean Air Act’s statutory deadline to either grant or deny the permit within one year after the application was deemed complete and therefore is prohibited from granting the permit. The commenter stated that the current permit application was deemed complete by the Department more than one year ago without the permit being issued. As such, now that one more year has passed, the current permit application is now time barred.

MDE Response

The Department acknowledges the concern regarding the time that has elapsed in the permitting process. The Department also acknowledges that more than one year has passed since the permit application was deemed complete, and the referenced statutory requirement of 42 U.S.C. § 7475(c) expressed by the commenter.

During the past year, and since the permit application was deemed administratively complete on January 4, 2024, the Department actively engaged with US Wind, Inc., as well as numerous internal and external stakeholders with the necessary expertise to assist in the review. The nature of the project required public review, which presented the challenge to accomplish two different public involvement milestones (a public information meeting, and a public hearing). The timing and communication of the informational meeting and public hearing must meet both Maryland and federal requirements including adequate public notice and prescribed timelines for opportunities for the public to comment.

Although the project was complex and included three separate determinations and permit actions (Permit to Construct, New Source Review Approval, and Prevention of Significant Deterioration Approval), the Department was able to propose the draft documents for EPA review and public comment by December 5, 2024, approximately 12 months from the date the application was determined to be administratively complete. The public comment period was open through March 17, 2025 following a one-time 60-day extension requested by the public and required by Maryland law.

Although the Department, as the delegated permitting authority, had a statutory duty to either grant or deny the permit application within one calendar year of its completeness determination, the Clean Air Act does not prohibit MDE from

finalizing its determination now. The Clean Air Act does not expressly prohibit the issuance of a permit pursuant to 42 U.S.C. § 7475 solely because the deadline in that section was missed. To the contrary, section 304 of the Act recognizes causes of action against the EPA (or its delegated permitting authority) for failure to act by a statutorily-imposed deadline, authorizing a cause of action for an agency's failure to perform a nondiscretionary duty or to compel unreasonably delayed. 42 U.S.C. § 7604(a). Under prior deadline lawsuits, the courts have ordered permitting authorities to act where a deadline has been missed. See e.g. *Sierra Club v. EPA*, 762 F.3d 971, 978 (9th Cir. 2014). An alternative reading consistent with the commentor's position would not make sense, as the permitting authority could not be forced to act before the statutory deadline, but would be prohibited from acting anytime thereafter—essentially forcing an applicant into a never ending cycle of permit submissions that an agency could avoid acting on.

Following the close of the public comment period, the Department has reviewed all public comments and with this Response to Comments document is now prepared to issue a final determination. By that action, the Department is remedying its failure to timely act and, in any case, has not unreasonably delayed the final determination.

Comment 12 – Marine Vessel Fleet

A commenter expressed concern and stated US Wind, Inc. has "significantly underestimated the marine vessel fleet that will be required to maintain the Maryland Offshore Wind Project 114 turbines by orders of magnitude." In particular, this concern relates to the use of vessels for crew transfer, turbine maintenance, and system monitoring.

MDE Response

The Department performed a technical review of the contents that were provided in the permit application. US Wind, Inc. submitted detailed information about the most representative vessels that would be needed to support the various phases of the project. In addition, the permit application also contained appropriate operational assumptions. These assumptions included but were not limited to trip estimates, hours of operations, average speeds, engine size, and other pertinent information to support the detailed emissions calculations. US Wind, Inc. based their vessel types, numbers, and other vessel inputs in part on the tool provided by the Bureau of Ocean Energy Management (BOEM) and recently approved OCS air permits.

The Department recognizes that during the construction and operations phases, US Wind, Inc. may be required to adjust the vessel operations to reflect conditions or operational scenarios in the future. Recognizing the variability that future operational scenarios may present, the permit approvals provide for monitoring, record keeping and reporting conditions to track vessel information and associated emissions to show compliance with emissions limits. To accommodate for the mentioned potential future variabilities, the permit contains the following conditions to account for future changes to the project emissions, based on changes to the

project vessels and their operation (Permit To Construct, Part E – Construction Conditions):

(1) Prior to the C&C Start Date, the Permittee shall provide the Department an initial report, for review and approval, that defines each vessel contracted, each anticipated representative vessel, and each marine and non-marine engine to be used during C&C and O&M of the Maryland Offshore Wind Project. The report shall include, at a minimum, the following information:

(a) All the information required by Part H(7)(a), (b), (c), and (d) of this permit;
(b) Updated Potential to Emit estimates and calculations for NOx, CO, PM-10, PM-2.5, VOC, SO2, lead (Pb) and GHG (as CO2e) as per the emission estimation methods as required in Part G of this permit.

US Wind, Inc. has provided the following additional response addressing these concerns:

In US Wind, Inc.'s point of view the "commenter assumes one round trip by a crew transfer vessel (CTV) per turbine and uses the flawed assumption to suggest that US Wind underestimates vessel trips during the operations and maintenance phase of the offshore wind project. One CTV can bring 4 to 8 teams of maintenance personnel on board, allowing the CTV to visit 4 to 8 turbines per trip. Even if CTVs could bring only 2 teams of technicians, US Wind's number of necessary CTVs (4) is a conservative estimate."

US Wind, Inc. also states that the commenter cited and relied on the information that was presented in a ten-year-old paper that assumes that any individual "failure" at a wind turbine requires at least one dedicated repair visit. However, US Wind, Inc. states that currently "minor electrical system repairs may be addressed from shore via the Supervisory Control and Data Acquisition (SCADA) system or could be attended to during a preventative maintenance visit."

US Wind, Inc. states that "the commenter also suggested that emissions to transport large cranes or other equipment are not included in US Wind's estimates." In response, US Wind, Inc. states that "large cranes would be needed in only very limited circumstances because technicians can access nacelles internally via an elevator in the tower." US Wind, Inc. included unexpected annual major maintenance as illustrated in Table A-39, from US Wind's application, in their comment letter with multiple trips per year of repair vessels in addition to CTVs.

The Department finds that the assumptions taken by US Wind, Inc. to prepare the emissions estimates are appropriate. As mentioned earlier, the proposed permit approvals provide for monitoring, record keeping and reporting conditions to track emissions, sufficient to show compliance with the emissions limits.

Comment 13 – Jones Act Compliance

"US Wind's application fails to address a safe water vessel to bring the permit and the project into compliance with the Jones Act. From US Wind's own Mariner's page, a documented vessel DMMSI Number 993672393, a 419-foot vessel, safe water vessel, that has been anchored off the end of the Delaware Bay shipping channel, and at the Maryland-Delaware line on the edge of the US Wind OCS-A 0490 lease area, the Delaware-Ocean City, Maryland line since at least December of 2024…US Wind has not documented any indications that they have accounted for a safe water vessel classification, nor the pollution that the vessel emits over the course of this project."

MDE Response

Although the statements in this comment are outside the purview of air quality approval and air permitting, the Department asked US Wind, Inc. to clarify the specific requirements for the vessel operations for the project. US Wind, Inc. has provided the following response:

US Wind, Inc. will be required to comply with the Jones Act as stated in US Wind's approved Construction and Operations Plan (Volume I Section 4.0).

The referenced Section 4.0, states that "the vessels employed on the Project will be required to comply with applicable USCG and Jones Act regulations for conducting operations in US waters. All foreign flag vessels employed on the Project will, in addition to USCG and Jones Act requirements, be required to meet International Maritime Organization (IMO) and International Marine Contractors Association (IMCA) requirements."

The air quality permit considers project vessel emissions from the Construction and Commissioning Start Date through the Operations and Maintenance Phase. The operation of the referenced 419-foot vessel occurred before the Construction and Commissioning Start Date.

Comment 14 – Severe Weather

A commenter stated that "wind turbines have never been in existence in a hurricane prone area here on the east coast of Maryland." The commenter further questioned, "how will these wind turbines be able to stand up to this type of destructive weather?"

Another commenter also voiced concern of the possibility of tornados in the areas and how it may affect the offshore wind farm. The commenter stated that "wind turbines do not stand up well to tornado-force winds, the speed of which can be less than hurricane winds and are certainly of less duration."

MDE Response

Although the statements in this comment are outside the purview of air quality approvals and air quality permitting, the MDE asked US Wind, Inc. to address these concerns. US Wind, Inc. states that in their Construction and Operations

Plan in Volume II, Section 2.5.2 Extreme Wind Conditions describes past and forecast extreme wind conditions, including hurricane conditions, in the Lease area. Offshore wind turbines are rated for extreme wind speeds and are being installed on the east coast of the Unites States. While outside of the Department's area of expertise and statutory decision-making responsibilities, MDE finds this response reasonable.

Furthermore, in Volume I, Section 2.3. of the Final Environmental Impact Statement (FEIS) that was prepared by BOEM as part of the supporting documents for the US Wind's project (https://www.boem.gov/renewable-energy/state-activities/maryland-offshore-wind-final-environmental-impact-statement-eis, accessed May 15, 2025), there is a discussion of "Severe weather and natural events," including how they are considered in the design of the components of wind farms and were considered in US Wind Inc.'s design. As stated in this section, severe weather does periodically occur in the vicinity of the wind development area and engineering design criteria have been established for wind farm components, such as wind turbine generators, to account for the stresses of severe weather." According to the FEIS, US Wind, Inc. has followed those design criteria.

Another relevant publication found by the Department relates to the Block Island Wind Farm. This project is the only fully constructed offshore wind farm on the Atlantic Coast at the present time. The only information about the wind farm as it related to severe weather was provided in a blog entitled, "How Do Wind Turbines Survive Severe Weather and Storms?" (https://www.energy.gov/eere/articles/how-do-wind-turbines-survive-severe-weather-and-storms?nrg_redirect=465731#:~:text=Block%20Island's%20First%20Test,Island%20after%20the%20winds%20diminished, accessed May 15, 2025).

According to the blog article, the wind farm withstood the winter storm Stella in March 2017 without serious damage. It was stated that the "wind farm sustained wind speeds higher than 70 mph during the automatic shutdown and successfully powered back up to serve Block Island after the winds diminished."

Based on the information that was provided by US Wind, Inc. as well as the information that has been published on this topic, it appears that offshore wind farms would be designed to withstand a variety of weather conditions. As stated earlier, while outside of the Department's area of expertise and statutory decision-making responsibilities, MDE finds that US Wind, Inc. considered severe weather conditions as part of the design of their wind farm components and operations.

Comment 15 – Fishery Resources, Biodiversity, Ecosystems, and Marine Environments

A commenter stated that one hundred percent of his fishery is in and around the wind-leased area. The commenter further stated that this project could greatly negatively affect its fishing business.

Another commenter stated that “that insufficient research and data collection are being used to justify moving forward with a project that will have long-range negative impacts of the environment, marine life, commercial fishing, and the hospitality industry, and an enormous cost to Maryland’s rate payers and taxpayers at a time when Maryland faces a budget crisis.”

MDE Response

These comments are also outside the purview of air quality approval and air quality permitting. However, the Department asked US Wind, Inc. to clarify how the project may negatively affect nearby fishery resources, biodiversity, ecosystems, and marine environments, including economic impacts.

US Wind, Inc. states that the offshore wind project has been extensively reviewed over several years for potential environmental impacts by the Bureau of Ocean Energy Management and numerous other agencies including the National Marine Fisheries Service, resulting in the Federal Environmental Impact Statement (FEIS) and Record of Decision (ROD) in 2024.

US Wind, Inc. also states that the FEIS and ROD found that the project would not destroy the environment, would not have irreversible long-term impacts on environmental and socioeconomic resources, and would have multiple beneficial effects. The direct jobs in Maryland and additional electricity added to the grid in a time of extremely high demand would benefit the state. Ratepayer impacts were extensively reviewed by the Maryland Public Service Commission and found to be under a defined ratepayer cap, as required.

Studies at offshore windfarms constructed off the U.S. east coast are underway, and the first before-after-control-impact study at the Block Island Wind Farm off Rhode Island demonstrates a reef effect and increased fish around the installed turbines. BOEM’s FEIS found the potential impacts to fisheries from US Wind’s project could be minor to major, with minor beneficial effects for for-hire recreational fishermen, and therefore potential major impacts to fisheries are required to be mitigated. The Maryland Department of Natural Resources and US Wind signed a Memorandum of Understanding on May 13, 2025 to define mitigation for commercial and for-hire recreational fishermen, above and beyond what is required in US Wind’s federal approvals.

In should be noted that the FEIS also found that the “no action” alternative impacts to fisheries, where US Wind’s project is not built, were also minor to major, with moderate impacts (not benefits) to for-hire recreational fisheries. This conclusion is based on the continued regional trend of reductions in fisheries in the project’s offshore federal lease area due to ongoing human activities as well as the effects of climate change through warming waters, changes in fish distribution and abundance, and ocean acidification.

Comment 16 – Public Safety Zone

A commenter stated that "MDE should ensure that US Wind establishes an enforceable public safety zone within the project lease area in accordance with 40 CFR §55.8 and §55.13 and 33 CFR §147. US Wind's modeling analysis supporting its proposed emission limits utilized 500-meter exclusion zones for its construction & commissioning (CC) activities. This 500-m safety exclusion zone was integral in establishing the project's working ambient air boundary and should preclude public access. Without formally establishing these 500-meter safety exclusion zones utilized in US Wind's modeling analysis, there is no mechanism to ensure the National Ambient Air Quality Standards and PSD will be protected during the CC phase of this project. MDE should include a requirement in the final PSD approval that requires US Wind to establish an enforceable 500-meter exclusion zone to prevent incursion into the exclusion zone by unauthorized entities."

MDE Response

MDE acknowledges the concern regarding the importance of establishing an enforceable public safety zone within the project lease area in accordance with 40 CFR §55.8 and §55.13 and 33 CFR §147. These regulations, although related, each contain specific purposes. For example, 33 C.F.R. § 147 addresses safety zones for OCS sources; while 40 C.F.R. § 55.8 addresses reporting requirements; and 40 C.F.R. § 55.13 addresses federal requirements for OCS sources.

In Section 5.2.5, of the Air Quality Modeling Analysis as part of the permit application, US Wind, Inc. referred to the 500-meter exclusion zone. US Wind, Inc. stated that, "the modeled receptors varied based on the type of construction and O&M activity." US Wind, Inc. further stated that, "during construction, it is assumed that a 500-meter exclusion zone will be established to keep the public away from the immediate area of the activity." US Wind, Inc. provided the details of the safety zone in the "Project's Navigation Safety Risk Assessment (US Wind, May, 2022) that has been provided to the BOEM as part of the Construction and Operations Plan (COP)." Furthermore, US Wind, Inc. stated that "the receptor field was placed adjacent to the activity in areas where the public could have access. For the purposes of modeling, it is assumed that the construction vessels are located at the center of the receptor grid and the exclusion zone is 500 m in all directions."

US Wind, Inc. also referred to the 500-meter exclusion zone in Section 4.4, of the Air Quality Modeling Protocol that was prepared as part of the permit application.

The Department reviewed the comment opinion pertaining to the need for a condition in the final PSD approval that will require US Wind, Inc. to establish an enforceable 500-meter exclusion zone to prevent incursion into the exclusion zone by unauthorized entities. The request is appropriate and as such, a condition will be included in the final PSD approval as well as in the permit to construct that will require US Wind, Inc. and/or the U.S. Coast Guard to establish an enforceable 500-meter exclusion/safety zone to prevent incursion into the exclusion/safety zone by unauthorized entities. The condition will be included as part of the reporting requirements in each of the mentioned documents.

The proposed condition will read as follows: “The Permittee shall provide a copy of the Permittee’s request for establishment of temporary safety zones and the temporary final rule for the 500-meter temporary safety zones established by the U.S. Coast Guard. In the event the U.S. Coast Guard does not establish a 500-meter safety zone, the Permittee shall establish an enforceable 500-meter exclusion zone to prevent incursion by unauthorized entities. The Permittee and/or the U.S. Coast Guard will monitor temporary exclusion/safety zones to prevent incursion into the exclusion/safety zones by unauthorized entities and report any incursion to the Department that results in an emissions exceedance as specified in Part H(9) of the permit to construct. [Ref: 40 C.F.R. § 55.8, 40 C.F.R. § 55.13, and 33 C.F.R. § 147].”

ATTACHMENT 2

KEEP PERMIT AT SITE

CONTROL NO. B - 07918

Wes Moore
Governor

Serena McIlwain
Secretary

State of Maryland

DEPARTMENT OF THE ENVIRONMENT

Air and Radiation Administration
1800 Washington Boulevard, Suite 720
Baltimore, MD 21230

[X] Construction Permit [ ] Operating Permit

PERMIT NO. As Listed on Page 2

DATE ISSUED June 6, 2025

PERMIT FEE $57,000.00 (Paid)

EXPIRATION DATE In accordance with COMAR 26.11.02.04B

LEGAL OWNER & ADDRESS

US Wind, Inc.
401 East Pratt Street
Baltimore, MD 21201
Attn: Mr. Jeffrey Grybowski, CEO
US Wind, Inc.

SITE

Maryland Wind Energy Area (WEA)
Atlantic Ocean
Offshore, Ocean City, Maryland
Lat 38.352747° N; Long 74.753546° W
Premises # 047-0248
AI # 153737

SOURCE DESCRIPTION

Installation of a wind energy project (Maryland Offshore Wind Project), in a lease area approximately 18.5 km (11.5 miles, 10.0 nautical miles [NM]) off the coast of Maryland on the outer continental shelf (OCS) consisting of up to 121 wind turbine generators (WTG), up to four (4) offshore substations (OSS), and one (1) meteorological tower (Met Tower).

This source is subject to the conditions described on the attached pages.

Program Manager

Director, Air and Radiation Administration

(NOT TRANSFERABLE)

INDEX

This permit-to-construct is issued to cover the Maryland Offshore Wind Project as regulated under 40 CFR, Part 55. The sources are categorized based on date of occurrence as follows:

ARA Registration No.	Description	Anticipated Installation/Operation Dates
047-0248-9-0111	Year 1 – Construction & Commissioning	2025
047-0248-9-0112	Year 2 – Construction & Commissioning	2026
047-0248-9-0113	Year 3 – Construction & Commissioning	2027
047-0248-9-0114	Total Operations and Maintenance – Years 2 and beyond	2026

Part A – Definitions

AQRV means Air Quality Related Values.

ARA means Maryland Department of the Environment Air and Radiation Administration. Also referred to as MDE-ARA.

Best Available Control Technology ("BACT") is an emissions limitation which is based on the maximum degree of control that can be achieved. It is a case-by-case decision that considers energy, environmental, and economic impact. BACT can be add-on control equipment or modification of the production processes or methods. This includes fuel cleaning or treatment and innovative fuel combustion techniques. BACT may be a design, equipment, work practice, or operational standard if imposition of an emissions standard is infeasible.

BOEM means Bureau of Ocean Energy Management.

Category 1 means relating to a marine engine with specific engine displacement below 7.0 liters per cylinder. Category 1 for marine engines is defined at 40 C.F.R. § 1042.901 ("Definitions").

Category 2 means relating to a marine engine with a specific engine displacement at or above 7.0 liters per cylinder but less than 30.0 liters per cylinder. Category 2 for marine engines is defined at 40 C.F.R. § 1042.901 (“Definitions”).

Category 3 means relating to a reciprocating marine engine with a specific engine displacement at or above 30.0 liters per cylinder. Category 3 for marine engines is defined at 40 C.F.R. § 1042.901 (“Definitions”).

Centroid means the center of the Wind Development Area.

CFR means Code of Federal Regulations.

COMAR means Code of Maryland Regulations.

Commence construction refers to commencing construction within the Wind Development Area. This is the date on which the owner or operator has all necessary preconstruction approvals or permits and has either:

(1) Begun, or caused to begin, a continuous program of actual construction, to be completed within a reasonable time as determined by MDE; or

(2) Entered into binding agreement or contractual obligation, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of actual construction to be completed within a reasonable time as determined by MDE.

Consecutive 12-Month Rolling Period means the 12-month period, recalculated for each calendar month, which includes that month and the 11 months prior.

Construction and Commissioning Phase, or *C&C*, begins on the C&C Start Date and ends when the last wind turbine generator (“WTG”) to be constructed begins producing commercial power.

Construction and Commissioning Phase Start Date, or *C&C Start Date*, is the first day any vessel, equipment, or activity, that meets the definition of an Outer Continental Shelf “OCS” source, operates, occurs, or exists in the Wind Development Area.

Construction and Operations Plan (COP). The COP describes the construction, operations, and conceptual decommissioning plans under the commercial lease, including the project easement. [30 CFR 585.620 et seq.]

Corresponding Onshore Area (“COA”) means, with respect to any existing or proposed Outer Continental Shelf (OCS) source located within 25 miles of a State's seaward boundary, the onshore area that is geographically closest to the source or another onshore area that the Administrator designates as the COA, pursuant to 40 C.F.R. § 55.5.

Crew Transfer Vessels means all self-propelled vessels that are not Ocean-going Vessels and are used for carrying personnel to and from off-shore and in-harbor locations (including, but not limited to, off-shore work platforms, construction sites, and other vessels) from the staging area to the WDA.

Daily Emissions means the facility-wide emissions of a given pollutant in a day from all emission sources at the OCS Facility and emissions from vessels servicing or associated with the OCS Facility while enroute to or from the OCS Facility when within 25 nautical miles ("NM") of the OCS Facility.

Day means a calendar day, including weekends and federal/state holidays.

DNREC means Delaware Department of Natural Resources and Environmental Control.

EIAPP means Engine International Air Pollution Prevention.

Engine load factor (%) means the engine daily load factor for a given marine or non-marine engine calculated as follows:

(1) For each marine engine of a marine vessel, the daily load factor (%) shall be calculated and recorded daily by dividing the actual daily fuel use rate (gallons/day, over a 24-hour period) of a specific vessel by the maximum daily fuel rate for the vessel (gallons/day, assuming all vessel engines operating at their maximum rated kW power for 24 hours/day). The calculated daily load factor (%) shall apply to each marine engine of that vessel.

(2) For each non-marine engine used to power OSSs and WTGs during C&C and the permanent non-marine engines on the OSSs during O&M, the daily load factor (%) shall be calculated and recorded daily by dividing the actual daily fuel use rate (gallons/day, over a 24-hour period) of a specific engine by the maximum daily fuel rate for that engine (gallons/day, assuming engine operating at its maximum rated kW power for 24 hours/day). The calculated daily load factor (%) shall apply to each nonmarine engine.

EPA means United States (U.S.) Environmental Protection Agency. Also referred to as USEPA.

EPA-certified means has obtained a certificate of conformity for an engine family that complies with the emission standards and requirements in the standard-setting part.

ERC means Emissions Reduction Credit.

Foreign-flagged vessel means a vessel of foreign registry, or a vessel operated under the authority of a country other than the United States.

GHG means Greenhouse Gas.

Harbor Craft ("HC"), also called *"Commercial Harbor Craft",* means any private, commercial, government, or military marine vessel including, but not limited to, passenger ferries, excursion vessels, tugboats, ocean-going tugboats, towboats, push-boats, crew, and supply vessels, work boats, pilot vessels, supply boats, fishing vessels, research vessels, U.S. Coast Guard vessels, hovercraft, emergency response harbor craft, and barge vessels that do not otherwise meet the definition of ocean-going vessels or recreational vessels.

IAPP means International Air Pollution Prevention.

International Air Pollution Prevention ("IAPP")-certified means has obtained a certificate that documents compliance with MARPOL Annex VI.

Lowest Achievable Emissions Rate ("LAER") means the most stringent emission limitation contained in the implementation plan of any State for such class or category of source, or the most stringent emission limitation achieved in practice by such class or category of source.

LSMGO ("LSMGO" or "low sulfur marine diesel fuel oil") means diesel fuel with a maximum sulfur content of 1,000 ppm.

Marine engine means a nonroad engine that is installed or intended to be installed on a marine vessel (marine engine is defined at 40 C.F.R. § 1042.901). This includes a portable auxiliary marine engine only if its fueling, cooling, or exhaust system is an integral part of the vessel. A fueling system is considered integral to the vessel only if one or more essential elements are permanently affixed to the vessel. There are two kinds of marine engines:

(1) Propulsion marine engine, or 'main' engine, means a marine engine that moves a vessel through the water or directs the vessel's movement.

(2) Auxiliary marine engine means a marine engine not used for propulsion.

MARPOL means The International Convention for the Prevention of Pollution from Ships.

Maryland Offshore Wind Project means the activities and emission sources that will occur within the BOEM Lease Area OCS-A 0490, as well as marine vessels while en route to and from the OCS location of the project when within 25 nautical miles of the OCS Lease Area's boundary and as regulated under 40 CFR, Part 55; which will include approximately 2 gigawatts of nameplate capacity within the OCS Lease Area and up to 121 wind turbine generators, up to four (4) offshore substations, and one (1) meteorological tower, interconnected to the onshore electric grid by up to four (4) 230-275 kV export cables into onshore substations in Delaware.

NAAQS means National Ambient Air Quality Standards.

Nautical Mile ("NM") is a unit of length defined as 1.1508 statute miles.

Nearest Onshore Area ("NOA") means, with respect to any existing or proposed OCS source, the onshore area that is geographically closest to that source." [Ref: 40 C.F.R. § 55.2].

NSR means Non-Attainment New Source Review.

NWR means National Wildlife Refuge.

Ocean-going Vessel means a commercial, government, or military vessel meeting any one of the following criteria:

(1) a vessel greater than or equal to 400 feet in length overall as defined in 50 C.F.R. § 679.2, as adopted June 19, 1996;

(2) a vessel greater than or equal to 10,000 gross tons per the convention measurement (international system) as defined in 46 C.F.R. 69.51-.61, as adopted September 12, 1989; or

(3) a vessel propelled by a marine compression-ignition engine with a per-cylinder displacement of greater than or equal to 30 liters.

OCS means Outer Continental Shelf.

OCS Facility means the entire wind development area once the first OCS source is established in a wind development area. The first OCS source is established once any equipment or activity that meets the definition of an OCS source is located within a wind development area.

OCS Lease Area means the area within the designated Renewable Energy Lease Area OCS-A 0490, awarded by the Bureau of Ocean Energy Management ("BOEM") and located about 10.0 nautical miles (11.5 statute miles) off the coast of Maryland.

OCS Lease Area Boundary means the boundaries of the lease area as defined by the BOEM lease.

OCS Source means any equipment, activity, or facility which:

(1) Emits or has the potential to emit any air pollutant;

(2) Is regulated or authorized under the Outer Continental Shelf Lands Act ("OCSLA") [Ref: 43 U.S.C. § 1331 *et seq.*]; and

(3) Is located on the OCS or in or on waters above the OCS.

This definition shall include vessels only when they are:

(1) Permanently or temporarily attached to the seabed and erected thereon and used for the purpose of exploring, developing or producing resources therefrom, within the meaning of section 4(a)(1) of OCSLA (43 U.S.C. § 1331 *et seq.*); or

(2) Physically attached to an OCS facility, in which case only the stationary sources aspects of the vessels will be regulated.

Offshore Substation ("OSS") means a common interconnection point for power generated by the Wind Turbine Generators that increases the voltage for transmission to the onshore electrical grid.

Operation and Maintenance Phase, or *O&M*, is the period that begins on the operation and maintenance phase start date.

Operation and Maintenance Phase Start Date, or *O&M Start Date*, is the first day the Maryland Offshore Wind Project produces commercial power.

Permittee includes US Wind, Inc.; its successor(s) that operate the permitted project; its contractors; and any agents or parties acting on its behalf that conduct activities regulated by this permit, including but not limited to vessel, barge, and equipment operation.

Potential to emit means the maximum capacity of a source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is enforceable as a practical matter.

PSD means Prevention of Significant Deterioration.

"Responsible official" means one of the following:

(1) For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or another person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of that person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(a) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25,000,000 in second quarter 1980 dollars, or

(b) The delegation of authority to the representative is approved in advance by the Department;

(2) For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

(3) For a municipal, State, federal, or other public agency: either a principal executive officer or ranking elected official; for the purposes of this chapter and COMAR 26.11.03, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency, for example a regional administrator of EPA; or

(4) For affected sources:

(a) The designated representative insofar as actions, standards, requirements, or prohibitions concerning acid rain emissions under Title IV of the Clean Air Act or the regulations promulgated under it; and

(b) The designated representative for any other purpose under this chapter or COMAR 26.11.03. [COMAR 26.11.02.01(47)]

Tier 1 means relating to the Tier 1 emission standards, as shown in Appendix I to 40 C.F.R. Part 1042.

Tier 2 means relating to the Tier 2 emission standards, as shown in 40 C.F.R. § 1042.104 and Appendix I to 40 C.F.R. Part 1042.

Tier 3 means relating to the Tier 3 emission standards, as shown in 40 C.F.R. § 1042.101 and § 1042.104.

Tier 4 means relating to the Tier 4 emission standards, as shown in 40 C.F.R. § 1042.101.

Ultra-low sulfur diesel (“*ULSD*”) means diesel fuel that is certified to meet the standards in 40 C.F.R. § 1090.305.

U.S.-flagged vessel means a vessel of U.S. registry, or a vessel operated under the authority of the United States.

USC and U.S.C. mean United States Code.

Wind Development Area ("*WDA*") is the designated Renewable Energy Lease Area OCS-A 0490, awarded by BOEM, located on the OCS. The project lease area is approximately 79,707 acres. At its closest point the WDA is approximately 10.0 nautical miles (11.5 statute miles) from the Maryland shoreline. Note that the term WDA is used before an individual OCS source is established. Once the first OCS source is established in the WDA, the entire WDA is considered the OCS Facility.

*Wind Turbine Generator ("*WTG") means equipment used to generate electricity from wind.

Part B – Project Sources

The information provided in Tables 1 and 2 is for description purposes and does not establish operating limits.

Table 1A – Types of marine vessels, and associated main and auxiliary marine engines, to be used during Construction and Commissioning (C&C)

Vessel Types to be used for Scour Protection Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kilowatts (kW)/engine)**
Fallpipe Vessel (HC)	1	Main engines (3): 4,500 Auxiliary engines (1): 492 Auxiliary engines (1): 1,200
Vessel Types to be used for Foundation Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Heavy Lift Vessel (HC)	1	Main engines (5): 4,500 Auxiliary engine (1): 4,500
Foundation Installation Tugs (HC)	4	Main engines (2): 2,540 Auxiliary engine (1): 199
Crew Transfer Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20
Noise Mitigation Offshore Service Vessel (HC)	1	Main engines (2): 3,310 Auxiliary engines (3): 499
Acoustic Monitoring Offshore Service Vessel (HC)	1	Main engines (2): 2,540 Auxiliary engine (1): 199
Environmental Crew Transfer Vessel (HC)	2	Main engines (2): 749 Auxiliary engine (2): 20
Vessel Types to be used for WTG Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**

Jack-up Vessel (HC) **[OCS Source]**	1	Main engines (3): 3,800 Auxiliary engines (1): 2,880
Tugs (HC)	3	Main engines (2): 2,540 Auxiliary engines (1): 199

Table 1A – Types of marine vessels, and associated main and auxiliary marine engines, to be used during C&C (continued)

Vessel Types to be used for WTG Commissioning	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Commissioning Crew Transfer Vessels (HC)	3	Main engines (2): 749 Main engines (2): 20
Vessel Types to be used for OSS Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Heavy Lift Vessel (HC)	1	Main engines (5): 4,500 Auxiliary engines (1): 4,500
Tug (HC)	2	Main engines (2): 2,540 Auxiliary engines (1): 199
Noise Mitigation Offshore Service Vessel (HC)	1	Main engines (2): 3,310 Auxiliary engines (3): 499
Acoustic Monitoring Offshore Service Vessel (HC)	1	Main engines (1): 2,500 Auxiliary engines (1): 199
Topside Tug (HC)	1	Main engines (2): 2,540 Auxiliary marine engines (1): 199
Refueling Offshore Service Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20
Hotel Jack-up Vessel (HC) **[OCS Source]**	1	Main engines (2): 2,350 Auxiliary engine (2): 1,000
Vessel Types to be used for Array Cable Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Cable Lay Vessel (HC)	1	Main engines (3): 1,750 Auxiliary engine (1): 1,750
Offshore Support Vessel (HC)	1	Main engines (1): 1,611 Auxiliary engine (2): 123
Crew Transfer Vessel (HC)	2	Main engines (2): 749 Auxiliary engine (2): 20
Trenching Vessel (HC)	1	Main engines (5): 3,000 Auxiliary engine (1): 3,000
Guard Crew Transfer Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20

Table 1A – Types of marine vessels, and associated main and auxiliary marine engines, to be used during C&C (continued)

Vessel Types to be used for Export Cable Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Cable Lay Vessel (HC)	1	Main engines (3): 1,750 Auxiliary engine (1): 1,750
Multipurpose Offshore Support Vessel (HC)	1	Main engines (1): 1,611 Auxiliary engine (2): 123
Trenching Vessel (HC)	1	Main engines (5): 3,000 Auxiliary engine (1): 3,000
Horizontal Directional Drilling Lift Vessel (HC)	1	Main engines (2): 2,350 Auxiliary engine (2): 1,000
Horizontal Directional Drilling Pull-In Vessel (HC)	1	Main engines (1): 1,611 Auxiliary engine (2): 123
Pull-In Support Vessel (HC)	1	Main engines (2): 392 Auxiliary engine (2): 135
Vessel Types to be used for Met Tower Installation	**Number of Vessels of this Type**	**Marine Engines: Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Heavy Lift Vessel (HC)	1	Main engines (5): 4,500 Auxiliary engine (1): 4,500
Tugs (HC)	3	Main engines (2): 2,540 Auxiliary engines (1): 199
Noise Mitigation Offshore Service Vessel (HC)	1	Main engines (2): 3,310 Auxiliary engines (3): 499
Acoustic Monitoring Offshore Service Vessel (HC)	1	Main engines (2): 2,540 Auxiliary engines (1): 199
Refueling Offshore Service Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20
Hotel Jack-up Vessel (HC) **[OCS Source]**	1	Main engines (2): 2,350 Auxiliary engine (2): 1,000

Table 1B. Types of marine vessels, and associated main and auxiliary marine engines, to be used during Operations and Maintenance (O&M)

Vessel Types to be used for Offshore Marine Operations	**Number of Vessels of this Type**	**Marine Vessel Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**

Fallpipe Vessel (Scour Protection Repairs) (HC)	1	Main engines (3): 4,500 Auxiliary engines (1): 492 Auxiliary engines (1): 1,200
Crew Transfer Vessel (OSS O&M Refueling Operations) (HC)	1	Main engines (2): 749 Auxiliary engines (2): 20
Jack-Up Vessel (WTG Inspection/Maintenance/Repairs Main Repair Vessel) (HC) **[OCS Source]**	1	Main engines (2): 2,350 Auxiliary engines (2): 1,000
Survey Vessel (WTG Inspection/Maintenance/Repairs Multi-role Survey Vessel) (HC)	1	Main engines (2): 392 Auxiliary engines (2): 135
Vessel Types to be used for Offshore Maintenance	**Number of Vessels of this Type**	**Marine Vessel Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Survey Vessel (Cable Inspection/Repairs Multi-role Survey Vessel) (HC)	1	Main engines (2): 392 Auxiliary engines (2): 135
Crew Transfer Vessel (Daily O&M and Miscellaneous) (HC)	4	Main engines (2): 749 Auxiliary engines (2): 20
Sportfisher (Daily O&M and Miscellaneous) (HC)	1	Main engines (2): 749 Auxiliary engines (2): 20

Table 2A – Non-Marine Engines – Portable Diesel Generator Engines used during C&C

Activity	Engine Description	Number of Engines	Maximum Engine Power (kW)
OSS Installation	OSS Installation Generator Engine **[OCS Source]**	4	150

Table 2B - Non-Marine Engines – Portable Diesel Generator Engines used during O&M

Activity	Engine Description	Number of Engines	Maximum Engine Power (kW)
Daily O&M and Miscellaneous (Electrical Service)	Generator Engine **[OCS Source]**	4	150

Table 2C. Non-Marine Engines – Permanent Diesel Generator Engines used during O&M

Activity	Engine Description	Number of Engines	Maximum Engine Power (kW)
OSS	OSS Generator Engine **[OCS Source]**	4	150

Part C – General Provisions

(1) The following Air and Radiation Administration (ARA) permit-to-construct applications and supplemental information are incorporated into this permit by reference:

(a) Application for Prevention of Significant Deterioration (PSD) Approval received on August 17, 2023 (hardcopies received on September 3, 2023), with revised application received November 30, 2023 (hardcopies received on December 7, 2023) for the construction of the Maryland Offshore Wind Project.

(b) Application for Non-Attainment New Source Review (NA-NSR) Approval received on August 17, 2023 (hardcopies received on September 3, 2023), with revised application received November 30, 2023 (hardcopies received on December 7, 2023) for the construction of the Maryland Offshore Wind Project.

(c) Application for Fuel Burning Equipment (Form 11) for the following vessels supporting the construction and/or operation of the Maryland Offshore Wind Project: Foundation Installation Fallpipe Vessel; Foundation Installation Heavy Lift Vessel; Foundation Installation Tugs; Foundation Installation Crew Transfer Vessel; Foundation Installation Offshore Support Vessel Noise Vessels; Foundation Installation Environmental Crew Transfer Vessels; Wind Turbine Generator Installation Jack-up vessel; Wind Turbine Generator Installation Tugs; Wind Turbine Generator Commissioning Crew Transfer Vessels; Offshore Substation Installation Heavy Lift vessel; Offshore Substation Installation Tug; Offshore Substation Installation Offshore Support Vessel; Offshore Substation Installation Topside Tug; Offshore Substation Installation Refueling Offshore Support Vessel; Offshore Substation Installation Hotel Jack-up vessel; Array Cable Lay vessel; Array offshore support vessel; Array Crew Transfer Vessel; Array trenching vessel; Array guard vessel; Export Cable lay

vessel; Export Cable Multipurpose Offshore Support Vessel; Export Cable Trenching Vessel; Export Cable Horizontal Directional Drilling Lift Vessel; Export Cable Horizontal Directional Drilling pull in Vessel; Export Cable pull in support vessel; Operation Scour Protection Repair Vessel; Operation Refueling Vessel; Operation Main Repair Vessel; Operation survey vessel; Operation Crew Transfer Vessel; and the Operation Environmental Monitoring Vessel, received on August 17, 2023 with revised forms received November 30, 2023.

(d) Application for Internal Combustion Engines (Form 44) received on August 17, 2023 (hardcopies received on September 3, 2023) with revised form received November 30, 2023 (hardcopies received on December 7, 2023) for the construction/installation of four (4) 150 kW electric generators, each to be located on the four Offshore Substations.

(e) Supplemental Information
- (i) Air Quality Impact Analysis for 24-hour PM-10, annual PM-2.5, 1-hour and annual NO_2 Impacts received on August 17, 2023, and revised copies on November 30, 2023;
- (ii) response to the Department's Supplemental Request for Additional Information for OCS Air Permit (i.e., revised Section 5, and revised Appendix A) received January 5, 2024;
- (iii) Class I AQRV Assessment Modeling Protocol, received on May 23, 2024;
- (iv) Class I AQRV Assessment Modeling Report, received on July 31, 2024;
- (v) revised potential to emit emission calculations, received on September 20, 2024, for air pollutants originating from various marine vessels, each powered by their own diesel engine and other construction equipment all servicing the construction and operation of the Maryland Offshore Wind Project using the EPA's "Ports Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions", EPA-420-B-22-011, April 2022; and
- (vi) narrative on vessel selection criteria and information on the assumption taken to support the facility wide potential to emit, received November 6, 2024;
- (vii) and supplemental modeling analysis for NAAQS and PSD increment for the simultaneous operations during the OSS Installation and OSS Commissioning Periods, received January 24, 2025.

If there are any conflicts between representations in this permit and representations in the applications, the representations in the permit shall govern. Estimates of dimensions, volumes, emissions rates, operating rates, feed rates and hours of operation included in the applications do not constitute enforceable numeric limits beyond the extent necessary for compliance with applicable requirements.

(2) Upon presentation of credentials, representatives of the Maryland Department of the Environment ("MDE" or the "Department"), the EPA, and the Worcester County Health Department shall at any reasonable time be granted, without delay and without prior notification, access to the Permittee's property and permitted to:

(a) inspect any construction authorized by this permit;

(b) sample, as necessary to determine compliance with requirements of this permit, any materials stored or processed on-site, any waste materials, and any discharge into the environment;

(c) inspect any monitoring equipment required by this permit;

(d) review and copy any records, including all documents required to be maintained by this permit, relevant to a determination of compliance with requirements of this permit;

(e) obtain any photographic documentation or evidence necessary to determine compliance with the requirements of this permit; and

(f) the Department may exercise its right of entry through use of an unmanned aircraft system to conduct inspections, collect samples, or make visual observations through photographic or video recordings.

(3) The Permittee shall notify the Department prior to increasing quantities and/or changing the types of any materials referenced in the application or limited by this permit. If the Department determines that such increases or changes constitute a modification, the Permittee shall obtain a permit-to-construct prior to implementing the modification.

(4) Nothing in this permit authorizes the violation of any rule or regulation or the creation of a nuisance or air pollution.

(5) If any provision of this permit is declared by proper authority to be invalid, the remaining provisions of the permit shall remain in effect.

(6) This permit-to-construct is issued in conjunction with the non-attainment New Source Review (NSR) Approval No. NSR-2024-01 and the Prevention of Significant Deterioration (PSD) Approval No. PSD-2024-01.

(7) Subsequent to issuance of this permit, the Department may impose additional and modified requirements that are incorporated into a State permit-to-operate issued pursuant to COMAR 26.11.02.13.

(8) In accordance with COMAR 26.11.03.01, the Permittee shall submit to the Department a complete application for a Title V Operating Permit (Part 70) within twelve months of the commencement of operation of the Maryland Offshore Wind Project.

(9) Any notifications, records, reports, plans, and documents referenced in this permit-to-construct shall be made available to the EPA as specified in this permit-to-construct or upon request by the EPA.

Part D – Applicable Regulations

(1) The Maryland Offshore Wind Project is subject to all applicable federal air pollution control requirements including, but not limited to, the following:

(a) All applicable terms, provisions, emissions standards, testing, monitoring, record keeping, and reporting requirements included in federal New Source Performance Standards (NSPS) promulgated under 40 CFR 60, Subparts A and Subpart IIII for Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE).

(b) All applicable terms, provisions, emissions standards, testing, monitoring, record keeping, and reporting requirements included in the National Emissions Standards for Hazardous Air Pollutants (NESHAP) promulgated under 40 CFR 63, Subparts A and Subpart ZZZZ for Standard of Performance for Reciprocating Internal Combustion Engines (RICE).

Note: The Permittee will meet the requirements of 40 CFR Part 63, Subpart ZZZZ by meeting the requirements of 40 CFR Part 60, Subpart IIII.

(c) All reports and notifications required under 40 CFR 60, Subpart IIII and 40 CFR 63, Subpart ZZZZ, respectively, shall be submitted to the following:

The Administrator
Compliance Program
Maryland Department of the Environment
Air and Radiation Administration

(2) The Maryland Offshore Wind Project subject to all applicable federally enforceable State air pollution control requirements including, but not limited to, the following regulations:

(a) COMAR 26.11.02.04B – Permits to Construct and Approvals.

"A permit to construct or an approval expires if, as determined by the Department:

(i) Substantial construction or modification is not commenced within 18 months after the date of issuance of the permit or approval, unless the Department specifies a longer period in the permit or approval;

(ii) Construction or modification is substantially discontinued for a period of 18 months after the construction or modification has commenced; or

(iii) The source for which the permit or approval was issued is not completed within a reasonable period after the date of issuance of the permit or approval."

(b) COMAR 26.11.02.09A – Sources subject to Permits to Construct and Approval.

"A person may not construct or modify or cause to be constructed or modified any of the following sources without first obtaining, and having in current effect, the specified permits to construct and approvals: (6) All sources, including installations and air pollution control equipment, except as listed in Regulation.10 of this chapter ---- -- permit to construct required."

(c) COMAR 26.11.02.13A – Sources Subject to State Permits to Operate.

"Except for a source that is covered by a Part 70 permit, a person may not operate or cause to be operated any of the following source without first obtaining, and having in current effect, a State permit to operate as required by this regulation: (61) Any other source that the Department determines has the potential to have a significant impact on air quality."

(d) COMAR 26.11.02.19C – Information Required to be Maintained by a Source.

"(1) Beginning January 1, 1994, the owner or operator of a source for which a permit to operate is required shall maintain records necessary to support the emission certification, including the following information:
   (a) The total amount of actual emissions of each regulated pollutant and the total of all regulated pollutants;
   (b) An explanation of the methods used to quantify the emissions and the operating schedules and production data that were used to determine emissions, including significant assumptions made;
   (c) Amounts, types, and analyses of all fuels used;
   (d) Emission data from continuous emission monitors that are required by this subtitle or EPA regulations, including monitor calibration and malfunction information;
   (e) Identification, description, and use records of all air pollution control equipment and compliance monitoring equipment, including significant maintenance performed, malfunctions and downtime, and episodes of reduced efficiency of this equipment;
   (f) Limitations on source operation or any work practice standards that significantly affect emissions; and
   (g) Other relevant information as required by the Department.

(2) The logs and other records of information required by §C(1) of this regulation shall be retained for a period of 5 years and made available to the Department upon request.

(3) If the owner or operator of a source for which a permit to operate is required fails to maintain or provide the data required by this section, which the Department requests in order to verify the emissions during the previous calendar year, the annual emission-based fee for that source shall be based on the estimated allowable emissions, as defined in COMAR 26.11.01.01B(4), of that source, as determined by the Department."

(e) COMAR 26.11.02.19D – Emission Certification.

"(1) The responsible official designated by the owner or operator of a source for which a permit to operate is required shall

certify, as provided at Regulation .02F of this chapter, the actual emissions of regulated air pollutants from all installations at the plant or facility.

(2) Certification shall be on a form obtained from the Department and shall be submitted to the Department not later than April 1 of the year following the year for which certification is required."

(f) COMAR 26.11.03.02 – Applications for Part 70 Permits.
A. General Requirement.
"A person who owns or operates a source for which a Part 70 permit is required by Regulation .01 of this chapter shall submit a timely and complete application for an initial permit or renewal of an existing permit on forms provided by the Department and in accordance with this regulation."

(g) COMAR 26.11.06.12 – Control of NSPS Source.
"A person may not construct, modify, or operate, or cause to be constructed, modified, or operated, a New Source Performance Standard (NSPS) source as defined in COMAR 26.11.01.01C, which results or will result in violation of the provisions of 40 CFR 60, as amended."

(h) COMAR 26.11.06.14 – Control of Prevention of Significant Deterioration Sources.
COMAR 26.11.06.14B – General Requirements.
"(1) A person may not construct, modify, or operate, or cause to be constructed, modified, or operated, a Prevention of Significant Deterioration (PSD) source, as defined in COMAR 26.11.01.01B(37), which will result in violation of any provision of 40 CFR §52.21, as amended."

(i) COMAR 26.11.09.05E – Visible Emissions Limits for Stationary Internal Combustion Engine Powered Equipment.

"(1) Definitions. For the purpose of this section:

(a) "Idle" means the condition during which the engine is not performing the useful net work that enables the piece of equipment to accomplish its designated purpose.

(b) "Internal combustion engine" (hereafter "engine") means all engines except those used for propulsion of ships or vehicles licensed to operate upon the public highway within the State, or engines

employed solely for agricultural and recreational purposes unless they are an integral part of a stationary installation.

(2) Emissions During Idle Mode. A person may not cause or permit the discharge of emissions from any engine, operating at idle, greater than 10 percent opacity.

(3) Emissions During Operating Mode. A person may not cause or permit the discharge of emissions from any engine, operating at other than idle conditions, greater than 40 percent opacity.

(4) Exceptions.

(a) Section E(2) does not apply for a period of 2 consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system.

(b) Section E(2) does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods:

(i) Engines that are idled continuously when not in service: 30 minutes;

(ii) All other engines: 15 minutes.

(c) Section E(2) and (3) do not apply while maintenance, repair, or testing is being performed by qualified mechanics."

(j) COMAR 26.11.09.07A – Sulfur Content Limitations for Fuel.
"A person may not burn, sell, or make available for sale any fuel with a sulfur content by weight in excess of or which otherwise exceeds the following limitations: (1) In Areas I, II, V, and VI: (c) Distillate fuel oils, 0.3 percent."

(k) COMAR 26.11.17.03 – Non-attainment Provisions for Major New Sources. – General Conditions.
COMAR 26.11.17.03A. "A person who proposes to construct or modify an emissions unit subject to this chapter may not commence construction of the emissions unit without first obtaining all permits and approvals required under this subtitle."

COMAR 26.11.17.03B(1), which requires the Permittee to certify that all existing major stationary sources owned and operated by Permittee in Maryland are in compliance with all applicable emissions limitations or are on an approved federally enforceable plan for compliance.

COMAR 26.11.17.03B(2), which requires the Permittee to meet an emission limitation which specifies the lowest achievable emission rate (LAER).

COMAR 26.11.17.03B(3)(b), which requires the Permittee to meet a nitrogen oxides (NOx) emission offset ratio of 1.15:1.

(3) The Maryland Offshore Wind Project is subject to all applicable State-only enforceable air pollution control requirements including, but not limited to, the following regulations:

(a) COMAR 26.11.06.08 – Nuisance.
"An installation or premises may not be operated or maintained in such a manner that a nuisance or air pollution is created. Nothing in this regulation relating to the control of emissions may in any manner be construed as authorizing or permitting the creation of, or maintenance of, nuisance or air pollution."

(b) COMAR 26.11.06.09 – Odors.
"A person may not cause or permit the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created."

(4) The Permittee shall comply with all requirements, including emission limitations and standards, specified in the Prevention of Significant Deterioration Approval No. PSD-2024-01.

(5) The Permittee shall comply with all requirements, including emission limitations and standards, specified in the New Source Review Approval No. NSR-2024-01.

Part E – Construction Conditions

(1) Prior to the C&C Start Date, the Permittee shall provide the Department an initial report, for review and approval, that defines each vessel contracted, each anticipated representative vessel, and each marine and non-marine engine to be used during C&C and O&M of the Maryland Offshore Wind Project. The report shall include, at a minimum, the following information:

(a) All the information required by Part H(7)(a), (b), (c), and (d) of this permit;

(b) Updated Potential to Emit estimates and calculations for NOx, CO, PM-10, PM-2.5, VOC, SO_2, lead (Pb) and GHG (as CO_2e) as per the emission estimation methods as required in Part G of this permit.

[Note: As stated in the permit application, the Permittee has not designed the electric requirements for the WTGs and OSSs, and therefore has not determined whether sulfur hexafluoride (SF-6) will be used to insulate electrical equipment. As a result, if this material is used in the future as described, the Permittee will be required to assess the potential for SF-6 fugitive emissions, notify the Department, and adjust the GHG (as CO_{2e}) emission estimates, accordingly.**]**

C&C shall not commence until the Department has approved the report in writing. If the updated potential to emit estimates show that any of these pollutants exceed the thresholds for PSD and NSR review, then the Permittee will be required to perform the appropriate updates to the previous NSR and PSD Approval requests.

(2) For any vessel or non-marine engine substitutions during the life of the Maryland Offshore Wind Project, the Permittee shall provide the information required by Part E(1) of this permit, prior to use of that vessel or engine.

(3) In accordance with 40 CFR §60.4209(b), "if you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached."

Part F – Operating and Monitoring Conditions

(1) Prior to the O&M Start Date, the Permittee shall provide the Department a report, for review and approval, that defines each vessel contracted, and each marine and non-marine engine to be used during O&M of the Maryland Offshore Wind Project. The report shall include, at a minimum, the following information:

(a) All the information required by Part H(7), (a), (b), (c), and (d) of this permit;

(b) Updated Potential to Emit estimates and calculations for NOx, CO, PM-10, PM-2.5, VOC, SO_2, lead (Pb) and GHG (as CO_2e) as per the emission estimation methods as required in Part G of this permit.

(c) A complete application for a temporary permit-to-operate. O&M shall not commence until the temporary permit-to-operate is issued.

(2) The Permittee shall operate the Maryland Offshore Wind Project in accordance with specifications included in the application and any operating procedures recommended by equipment manufacturers unless the Permittee obtains from the Department written authorization for alternative operating procedures.

(3) Total emissions of NOx, CO, PM-10, PM-2.5, VOC, SO_2, lead (Pb) and GHG (as CO_2e) from the Maryland Offshore Wind Project shall be less than the following limits including periods of startup, shutdown, and malfunction:

Table 3 – Emissions Limits

Pollutant	Maximum Annual C&C and O&M, Combined During C&C (tons/12-months rolling)	Total for the Entire C&C Phase, which includes both C&C and O&M Emissions (tons)	Maximum O&M (tons/12-months rolling)
NOx	616	1380	25
CO	149	344	24
PM-10	20	45	0.66
PM-2.5	19	44	0.65
VOC	11	26	2
SO_2	2	4	0.07
Pb	0.003	0.007	0
GHG (as CO_2e)	41,673	95,898	6,763

(4) The Permittee shall comply with the following NSPS requirements for the Maryland Offshore Wind Project:

(a) Vessels contracted by the Permittee shall be equipped with marine engines (main and auxiliary) that meet the most stringent, applicable EPA Tier or MARPOL Annex VI emissions standard available at the time the marine vessel is hired for the specific work required in the timeframe required. Marine vessels with the next highest-tier engines may be hired and deployed, if the Permittee documents the basis for its conclusion that the highest-tier vessel, and any other higher-tiered vessels, is not available. The engines may also meet the next most stringent emission standards if the total emissions associated with the use of a vessel with an engine(s) that meet the most stringent emission standards would be greater than the total emissions associated with the use of the vessel with an engine(s) that meet the next most stringent emission standards.

For purposes of this subparagraph, when determining the total emissions associated with the use of a vessel with a particular engine, the Permittee shall include the emissions of the vessel that would

occur when the vessel would be in transit to the OCS source from the vessel's starting location.

(b) Each main and auxiliary marine engine on Crew Transfer Vessels shall be certified to EPA Tier 4 emission standards for engines greater than 600 kW and EPA Tier 3 emission standards for engines 600 kW or less.

(c) Other than Crew Transfer Vessels, each Category 1 main and auxiliary marine engine of a vessel shall be certified to the applicable engine EPA Tier emission standard specified in 40 CFR §1042.101, meeting Tier 2 requirements at the minimum.

(d) Other than Crew Transfer Vessels, each Category 2 main and auxiliary marine engine shall be certified to the applicable engine EPA Tier emission standard specified in 40 CFR §1042.101, meeting Tier 2 requirements at the minimum.

(e) Other than Crew Transfer Vessels, each Category 3 main and auxiliary marine engine shall be certified to the applicable engine EPA Tier emission standard specified in 40 CFR §1042.104, meeting Tier 2 requirements at the minimum.

(f) Other than Crew Transfer Vessels, for marine engines (main and auxiliary) onboard foreign-flagged marine vessels, each engine shall be certified to the applicable engine emission standard specified in 40 CFR §1043, meeting MARPOL Annex VI requirements at the minimum.

(g) For Non-Marine Engines, Portable Diesel Generator Engines used during C&C and O&M, the Permittee shall ensure that each of the portable diesel generator engines is certified to meet the EPA Tier 4 emission standard from 40 CFR §1039, that applies to each engine.

(h) For Permanent Diesel Generator Engines on OSS during O&M, the Permittee shall ensure that each of the portable diesel generator engines is certified to meet the EPA Tier 4 emission standard from 40 CFR §1039, that applies to each engine.

[Ref: 40 CFR §60.4201 and §60.4204]

(5) The Permittee must operate and maintain the Maryland Offshore Wind Project to achieve the emission standards as required in 40 CFR §60.4204. [Ref: 40 CFR §60.4206]

(6) The Permittee shall comply with the following fuel requirements for the Maryland Offshore Wind Project:

(a) The Permittee shall use ultra-low-sulfur diesel (ULSD) fuel in all Category 1 and 2 engines, Non-Marine Engines, Portable Diesel Generator Engines used during C&C and O&M, and Permanent Diesel Generator Engines on OSS during O&M that meets the per-gallon standards below.

(i) a maximum sulfur content of 15 parts per million (ppm); and
(ii) a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

(b) The Permittee shall use fuel with a maximum sulfur content of 1000 ppm in all Category 3 engines.

Compliance with these fuel requirements demonstrates compliance with the NSPS fuel requirements of 40 CFR §60.4207(b) and (d).

(7) For the Maryland Offshore Wind Project, the Permittee shall:

(a) Operate and maintain all engines according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer.

(b) Change only those settings that are permitted by the engine manufacturer.

(c) Meet the requirements of 40 CFR Parts 89, 94 and/or 1042, 1043, as they apply to all engines.

[Ref: 40 CFR §60.4211(a)]

(8) The Permittee shall operate only marine and non-marine engines certified to the emission standards specified in Part F(4) of this permit. Each engine must be installed and configured according to the manufacturer's emission-related specifications. [Ref: 40 CFR §60.4211(c)]

(9) For the Maryland Offshore Wind Project, the Permittee shall develop and implement a plan that will ensure good combustion practices and combustion efficiency, per manufacturer recommendations. The Good Combustion Practices and Combustion Efficiency Plan shall include practices to minimize engine idling, a summary of the good combustion practices for each engine, a preventative maintenance schedule, and any additional information as deemed necessary by the Department.

(10) The Good Combustion Practices and Combustion Efficiency Plan shall be submitted to the Department for review and approval. C&C shall not commence until the Permittee receives approval of the Good Combustion Practices and Combustion Efficiency Plan from the Department in writing.

Part G – Compliance Demonstration

(1) The Permittee shall calculate actual total NOx, CO, PM-10, PM-2.5, VOC, SO_2, lead (Pb) and GHG (as CO2e) emissions from the Maryland Offshore Wind Project for each calendar month and for each consecutive 12-month rolling period. For marine engines, the Permittee shall use the most recent version of the EPA Ports Emissions Inventory Guidance. For non-marine engines the Permittee shall use the most relevant data available, which may include actual test data, tier standards, EPA's annual engine certification data, and any emissions information obtained from equipment vendors. The Permittee must obtain approval from the Department to use an alternate emissions estimation method.

(2) The Permittee shall use actual vessel and engine data to calculate emissions as required by Part G(1). The Permittee shall include all data to support the calculations.

(3) The Permittee shall demonstrate compliance with applicable emissions limits for the Maryland Offshore Wind Project by ensuring that each engine has an EPA Certificate of Conformity to the applicable Tier emission standard, or a MARPOL Annex VI, IAPP Certificate for the vessel and an EIAPP certificate for the engine, as required in Part F(4) of this permit.

Part H – Notifications, Record Keeping, and Reporting

(1) The Permittee shall notify the Department and EPA within 5 days after the C&C Start Date.

(2) The Permittee shall notify the Department and EPA within 5 days after the O&M Start Date.

(3) The Permittee shall submit all required notifications as specified in 40 CFR §60.4214(a)(1), as applicable.

(4) The Permittee shall keep the following records for the Maryland Offshore Wind Project:

(a) All notifications submitted to comply with 40 CFR 60, Subpart IIII and all documentation supporting any notification.

(b) Maintenance conducted on each engine.

(c) Documentation from the manufacturer that each engine is certified to meet the emission standards.

[Ref: 40 CFR §60.4214(a)(2)]

(5) If an engine is equipped with a diesel particulate filter, the Permittee must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached. [Ref: 40 CFR §60.4214(c)]

(6) If required, the Permittee shall submit notifications and reports to EPA electronically using the procedures specified in 40 CFR §60.4214(g), (h), (i), and (j).

(7) The following records with supporting documentation shall be maintained on site for at least five (5) years and made available to the Department upon request:

(a) For each vessel associated with the Maryland Offshore Wind Project: the vessel's owner, vessel name, year that the vessel was built, nation of origin of the vessel, exact vessel function, whether the vessel is an OCS Source, and documentation specifically supporting whether (1) the vessel requires attachment to the seabed (either via anchors, spuds (type of jack-up vessel), or other type of attachment) during the C&C or O&M activities; (2) the vessel could be maintained in a fixed position using only the vessel engines and without any attachment to the seabed during the C&C and O&M activities; or (3) the vessel would require attachment to other vessels, while those other vessels are OCS sources, or to the WTGs or OSSs structures during the C&C or O&M activities;

(b) For each marine engine of each vessel associated with the Maryland Offshore Wind Project, regardless of whether the vessel is considered an OCS source or not: the engine's category (1 through 3), marine engine function (i.e., main (or propulsion) or auxiliary marine engine), engine type (e.g., slow-speed diesel, gas turbine…), rated engine size and total installed propulsion power (maximum continuous rated engine power in kW), vessel speed and maximum vessel speed, maximum draft, make and model year or remanufacture year, keel-laid year, engine stroke type (e.g. 2- or 4-stroke), displacement in liters/cylinder, install date, maximum in-use engine speed in rotations per minute, type of fuel used (e.g. marine gas oil, marine diesel oil…), brake specific fuel consumption, average loads, and the EPA Certificate of Conformity to a Tier engine rating, or EIAPP certificate and IAPP certificate, as applicable;

(c) For each vessel deployed during C&C and/or O&M, the Permittee shall maintain a record of the alternate vessels that, during the time of contract deployment, were available for hire for the required work needed at the time needed, as well as the Tier levels for each vessel's engines. The alternate vessels available for hire shall be listed in ranking order from the one with the highest-tiered engines to the one with the lowest tiered-engines. The record should indicate if the vessel with the highest tiered-engines from the list was the actual vessel hired and deployed. If the vessel with the highest tiered-engines from the list was not the actual vessel hired and deployed, the record should document the reason(s) for the Permittee selection of a vessel with lower-tiered engines.

(d) For each non-marine engine of each vessel that will be associated with the Maryland Offshore Wind Project: maximum engine power (kW), model year, type of fuel used, and the EPA certificate of conformity to the Tier 4 emission standards in 40 CFR §1039.101(b);

(e) The daily operating hours for each engine associated with the Maryland Offshore Wind Project. The hours of operation shall be recorded from a non-resettable hour meter or, if a non-resettable hour meter is not available, by monitoring and maintaining records of the actual daily operating hours;

(f) The daily fuel use, in units of gallons per day, for each engine associated with the Maryland Offshore Wind Project and records of fuel supplier certifications for all fuelings to demonstrate compliance with all applicable fuel sulfur content limitations;

(g) Daily records of marine engine load factors calculated per vessel associated with the Maryland Offshore Wind Project; load factor shall be calculated per the most recent version of the EPA Ports Emissions Inventory Guidance, unless the Permittee obtains approval from the Department to use an alternate emissions estimation method.

(h) The monthly and consecutive 12-month rolling actual NOx, NO_2 (if different from NOx), CO, PM-10, PM-2.5, VOC, SO_2, lead (Pb) and GHG (as CO_2e), in units of tons, including calculations and data to support the calculations.

(i) The Good Combustion Practices and Combustion Efficiency Plan that will ensure good combustion practices and combustion efficiency, per manufacturer recommendations and all associated records.

(8) The Permittee shall provide a copy of the Permittee's request for establishment of temporary safety zones and the temporary final rule for the 500-meter temporary

safety zones established by the U.S. Coast Guard. In the event the U.S. Coast Guard does not establish a 500-meter safety zone, the Permittee shall establish an enforceable 500-meter exclusion zone to prevent incursion by unauthorized entities. The Permittee and/or the U.S. Coast Guard will monitor temporary exclusion/safety zones to prevent incursion into the exclusion/safety zones by unauthorized entities and report any incursion to the Department that results in an emissions exceedance as specified in Part H(9) of the permit to construct. [Ref: 40 C.F.R. § 55.8, 40 C.F.R. § 55.13, and 33 C.F.R. § 147].

(9) The Permittee shall contact the Department and EPA, via an electronic communication, within 15 calendar days of any emissions exceedance from the limits established in this permit-to-construct, in the PSD Approval (PSD-2024-001) and the NSR Approval (NSR-2024-001).

(10) The Permittee shall submit to the Department, not later than 30 days following each calendar quarter, a quarterly summary report. The report shall be in a format approved by the Department and shall include the following:

(a) An update to the information required in Part E(1) including each vessel contracted, each anticipated representative vessel, and each marine and non-marine engine to be used during C&C and O&M phases of the Maryland Offshore Wind Project;

(b) The monthly and consecutive 12-month rolling actual NOx, NO_2 (if different from NOx), CO, PM-10, PM-2.5, VOC, SO_2, lead (Pb) and GHG (as CO_2e), in units of tons;

(c) The daily NO_2, CO, PM-10, and PM-2.5 in units of tons;

(d) The daily, monthly, and consecutive 12-month rolling hours of operation;

(e) A description of any deviation from this permit, including the date that the deviation occurred, the date corrective actions were implemented, and a description of the corrective actions that were implemented;

(f) The cause and time periods and magnitude of all emissions which exceed the applicable emissions standards;

(g) Quarterly totals of excess emissions during the calendar quarter; and

(h) Any other information deemed necessary by the Department to evaluate data, to ensure that compliance is achieved, or to determine the applicability of this requirement.

All information stated above shall be retained for a minimum of 5 years from the time the report is submitted. The reporting frequency may be reduced in subsequent years upon approval by the Department as specified in the Maryland Offshore Wind Project operating permit.

(11) The Permittee of an Outer Continental Shelf (OCS) source to whom the permit to construct is issued shall notify all other owners and operators, contractors, and the subsequent owners and operators associated with emissions from the source of the conditions of the permit.

(12) All air quality notifications, records, reports, plans, and documents required by this permit shall be submitted electronically to the Air Quality Compliance Program to:

mdeair.othercompliance@maryland.gov

ATTACHMENT 3

MARYLAND DEPARTMENT OF THE ENVIRONMENT
AIR AND RADIATION ADMINISTRATION
1800 WASHINGTON BOULEVARD
BALTIMORE MARYLAND 21230

PREVENTION OF SIGNIFICANT DETERIORATION APPROVAL
FINAL DETERMINATION AND FACT SHEET

US WIND, INC.
MARYLAND OFFSHORE WIND PROJECT
PSD APPROVAL - PSD-2024-01

I. DEFINITIONS

All terms defined in the Permit-to-Construct for the Maryland Offshore Wind Project (ARA Premises No. 047-0248) and Permit-to-Construct Tentative Determination and Fact Sheet apply to the PSD Approval (PSD-2024-01) and the PSD Tentative Determination and Fact Sheet.

II. INTRODUCTION

The construction of new or modified major sources of air pollution to be located in areas of attainment are subject to Prevention of Significant Deterioration (PSD) regulations promulgated in 40 C.F.R. § 52.21.

The Maryland Department of the Environment (Department), Air and Radiation Administration (ARA) received an air quality permit application from US Wind, Inc. on August 17, 2023 and revised on November 30, 2023 for the construction and operation of the Maryland Offshore Wind Project consisting of up to 121 wind turbine generators (WTG), up to four (4) offshore substations (OSS), and one (1) meteorological tower (Met Tower). The proposed project will be located approximately 10 nautical miles (NM) at its closet point off the coast of Worcester County, Maryland on the outer continental shelf (OCS). The application includes an air quality permit-to-construct application, an application for a New Source Review (NSR) Approval, and an application for a Prevention of Significant Deterioration (PSD) Approval.

The Department reviewed the PSD Approval application and made a tentative determination that the proposed project is expected to comply with all applicable air quality control regulations. In accordance with the Environment Article, Section 1-604, Annotated Code of Maryland, the Department scheduled and held a public hearing and accepted public comment on the application, the Department's tentative determination, the draft approval conditions, and other supporting documents.

The Department received comments adverse to the tentative determination, which it has reviewed and considered. The Department is now prepared to issue its final determination as to whether to issue or deny the permit. A notice of final determination will be placed in a newspaper of general circulation in the area.

III. PROJECT DESCRIPTION

US Wind, Inc. proposes to install up to 121 WTGs on the OCS across approximately 80,000 acres located on the Renewable Energy Lease Area OCS-A 0490 awarded by the Bureau of Ocean Energy Management (BOEM). US Wind, Inc. will develop the Maryland Offshore Wind Project where the pollutant-emitting activities within the Wind Development Area (WDA) are part of a single plan to construct and operate the project. It is anticipated that the Maryland Offshore Wind project will generate approximately two (2) gigawatts of electrical power. The WTGs use the energy of the wind, a source of renewable energy, and convert it to electricity. The project will be located about 10 NM at its closet point off

the coast of Worcester County, Maryland on the OCS.

The proposed project's offshore components include the WTGs, and up to four (4) offshore substations (OSSs) that will receive the electricity generated by the WTGs via cables. The interarray cables will link the individual WTGs together to the OSSs, and the project will use 230-275 kV of export cables into onshore substations in Delaware. US Wind, Inc. will mount the WTGs on monopile foundations. A transition piece would then be fitted over the monopile and secured via bolts or grout. Finally, the nacelle and the blades are placed on the transition piece.

The OSSs are anticipated to be installed on piled jacket foundations. Where required, scour protection would be placed around foundations to stabilize the seabed near the foundations. The OSSs would serve as the interconnection points between offshore and onshore components. Each OSS will include electric generators, transformers, switchgears, and reactors to increase the voltage of the power captured from the interarray cables and control the flow through the export cables, so that the electricity can be efficiently transmitted onshore through submarine export cables. These offshore components are on the OCS.

The proposed project's onshore components are not subject to the OCS air regulations and thus will not be covered by the OCS air permit. Those onshore components include components such as the following: up to four (4) export cable landfall areas in Delaware; up to three (3) onshore export and interconnection cable routes; new onshore substations in Delaware where electricity will be transmitted to the electric grid; an onshore staging port where project components and equipment will be staged; and one (1) operation and maintenance facility with offices, control rooms, warehouses, workshop space, and pier space. Onshore components are being addressed in separate federal, state, and/or local permitting or government review processes that may have their own public comment processes and are not a subject of the public review for this OCS air permit.

The Maryland Offshore Wind Project will consist of three phases: construction and commissioning (C&C), operations and maintenance (O&M) and decommissioning. Offshore construction is anticipated to begin in 2025 and be completed within four (4) years. The anticipated commercial lifespan of the project (which is O&M) is over 30 years.

US Wind, Inc. proposes to use various marine vessels, which have onboard marine engines and construction equipment, for the following purposes: (1) for the C&C to construct the above-described offshore project components; and (2) for the O&M to maintain and repair the offshore project components.

The PSD Approval covers the offshore portion of C&C and O&M of the project located on the OCS. Decommissioning, which would be the reverse of C&C and will involve the use of various marine vessels and construction equipment, is not addressed in this Approval. The OCS air permitting requirements for decommissioning will be determined at that time because it is expected that marine vessel technology will substantially change over the next 30 years.

IV. PREVENTION OF SIGNIFICANT DETERIORATION APPLICABILITY

The U.S. Environmental Protection Agency (EPA) has defined concentration-based National Ambient Air Quality Standards (NAAQS) for several pollutants, which are set at levels considered to be protective of the public health and welfare. Specifically, the NAAQS are defined for six "criteria" pollutants, including particulate matter (PM), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone, and lead (Pb). There are three forms of regulated particulate matter: total suspended solids (known as PM or TSP), particulate matter having a diameter less than 10 microns (PM-10), and particulate matter with diameter less than 2.5 microns (PM-2.5).

The basic goal of the PSD program is to ensure that economic growth in areas currently attaining a NAAQS will occur in harmony with the preservation of existing clean air quality. The primary provisions of the PSD program require major new stationary sources or major modifications to an existing major stationary source located in air quality attainment areas to comply with the NAAQS, the applicable PSD air quality increments, and Best Available Control Technology (BACT) requirements.

The proposed project was evaluated to determine whether potential emissions of regulated pollutants will be above the PSD major source thresholds for this type of source. Table 1 summarizes the estimated potential air emissions of all PSD regulated pollutants from the project.

TABLE 1
POTENTIAL EMISSIONS – CRITERIA POLLUTANTS
INCLUSIVE OF NORMAL OPERATIONS, STARTUP, AND SHUTDOWN

Pollutant	Maximum Annual C&C and O&M, Combined During C&C (tons/12-months rolling)	Total for the Entire C&C Phase, which includes both C&C and O&M Emissions (tons)	Maximum O&M (tons/12-months rolling)
NOx	616	1380	25
CO	149	344	24
PM-10	20	45	0.66
PM-2.5	19	44	0.65
VOC	11	26	2
SO_2	2	4	0.07
Pb	0.003	0.007	0
GHG (as CO_2e)	41,673	95,898	6763

The Maryland Offshore Wind Project is not one of the listed source categories that trigger PSD at the 100 tons per year (tpy) threshold. However, this project does have the potential to emit 250 tpy of a regulated pollutant and is considered a new major source with respect to PSD requirements. If a new source is major for at least one PSD regulated attainment pollutant, then all other criteria pollutants for which the area is not classified as non-attainment and which are emitted in amounts greater than the PSD Significant Emission Rates (SER), are also subject to PSD review.

Table 2 provides a summary of the PSD applicability analysis for the proposed project, including the PSD SER.

TABLE 2
SUMMARY OF PSD APPLICABILITY ANALYSIS FOR PROPOSED PROJECT

Pollutant	Potential Emissions (tpy)	PSD Significant Emission Rates (tpy)	PSD Review?
NO_2	616	40	**Yes**
VOC	11	40	No
CO	149	100	**Yes**
PM-10	20	15	**Yes**
PM-2.5	19	10	**Yes**
SO_2	3	40	No
Pb	0.003	0.6	No
Sulfuric Mist (H_2SO_4)	---	7	No
Total Reduced sulfur (including H_2S)	---	10	No
Reduced Sulfur Compounds (including H_2S)	---	10	No
GHG Emissions (CO_{2e})	41,673	75,000	No

As indicated in Table 2, potential emissions of NO_2, CO, PM-10 and PM-2.5 exceed the applicable significance thresholds, and are, therefore, subject to PSD review.

V. PREVENTION OF SIGNIFICANT DETERIORATION REQUIREMENTS

For regulated pollutants with potential emissions that exceed the PSD significance thresholds, US Wind must:

(1) Demonstrate use of BACT for pollutants with significant emissions;
(2) Assess the ambient impact of emissions through the use of dispersion modeling;
(3) If the impact is significant, evaluate (through the use of dispersion modeling) compliance with the NAAQS and consumption of air quality increments; and
(4) Conduct additional impact assessments which analyze impairments to visibility, solids, and vegetation as a result of the modification, as well as impacts on Class I areas.

VI. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

(1) BACT Requirements and Analysis

BACT for any source is defined in COMAR 26.11.17.01(B)(5) as:

(a) "Best available control technology" means an emissions limitation, including a visible emissions standard, based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the Department, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for that source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combination techniques for control of the pollutant.

(b) Application of best available control technology may not result in emissions of any pollutant which would exceed the emissions allowed by an applicable standard under 40 C.F.R. Parts 60 and 61.

(c) If the Department determines that technological or economic limitations on an application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination of these, may be prescribed instead to satisfy the requirement for the application of best available control technology. These standards shall, to the degree possible, set forth the emissions reduction achievable by implementation of the design, equipment, work practice, or operation, and shall provide for compliance by means which achieve equivalent results.

BACT analyses are conducted using EPA's "top-down" BACT approach as described in EPA's *Draft New Source Review Workshop Manual* (EPA 1990). The five basic steps of a top-down BACT analysis are listed below:

Step 1: Identify potential control technologies
Step 2: Eliminate technically infeasible options
Step 3: Rank remaining control technologies by control effectiveness
Step 4: Evaluate the most effective controls and document results
Step 5: Select BACT

The first step is to identify potentially "available" control options for each emission unit triggering PSD, for each pollutant under review. Available options consist of a comprehensive list of those technologies with a potentially practical application to the emission unit in question. The list includes technologies used to satisfy BACT requirements, innovative technologies, and controls applied to similar source categories.

For the Maryland Offshore Wind Project, the following sources were investigated to identify potentially available control technologies:

(1) EPA's RACT/BACT/LAER Clearinghouse (RBLC) database;
(2) In-house experts;
(3) EPA's New Source Review website;

(4) Other State air regulatory agency contacts;
(5) Technical articles and publications; and
(6) Recently issued offshore wind permits.

After identifying potential technologies, the second step is to eliminate technically infeasible options from further consideration. To be considered feasible for BACT, a technology must be both available and applicable.

The third step is to rank the technologies not eliminated in Step 2 in order of descending control effectiveness for each pollutant of concern. If the highest ranked technology is proposed as BACT, it is not necessary to perform any further technical or economic evaluation. Potential adverse impacts, however, must still be identified and evaluated.

The fourth step entails an evaluation of energy, environmental, and economic impacts for determining a final level of control. The evaluation begins with the most stringent control option and continues until a technology under consideration cannot be eliminated based on adverse energy, environmental, or economic impacts. The economic or "cost-effectiveness" analysis is conducted in a manner consistent with EPA's OAQPS Control Cost Manual, Fifth Edition (EPA 1996) and subsequent revisions.

The fifth and final step is to select as BACT the emission limit from application of the most effective of the remaining technologies under consideration for each pollutant of concern.

(2) **BACT Determination for the Maryland Offshore Wind Project**

Although potential annual emissions from the entire offshore portion of C&C and O&M located on the OCS must be considered for the PSD applicability analysis, only OCS sources associated with the project are subject to BACT requirements per 40 C.F.R. Part 55.

US Wind, Inc. evaluated the use of engine design (including turbocharging and aftercooling), selective catalytic reduction, selective non-catalytic reduction, use of certified engines, and good design and operating practices. It has been established that replacing, retrofitting, or waiting for vessels that utilize add-on controls like selective catalytic reduction would impose detrimental costs to the project.

US Wind, Inc. is required to apply for and obtain a major NSR Approval for NOx (an ozone precursor), because the project's COA, Worcester County, is located in the Ozone Transport Region and the project is expected to result in NOx emissions above the NSR threshold limit. LAER under NSR by definition must be at least as stringent as BACT under PSD. US Wind, Inc. has not yet contracted for the vessels it will use for the Maryland Offshore Wind Project. The ability for US Wind, Inc. to contract for specific vessels will depend on the pool of vessels that are available on the timeline needed for deployment.

Due to this uncertainty, the NSR Approval requires that all vessels contracted by US Wind, Inc. be equipped with marine engines (main and auxiliary) that meet the

most stringent, applicable EPA Tier or MARPOL Annex VI emissions standard available at the time the marine vessel is hired for the specific work required in the timeframe required, and at a minimum shall be engines certified to EPA Tier 2 emissions standards or MARPOL Annex VI emissions standards for foreign flagged vessels. LAER for NOx emissions from OCS sources has been specified as the proposed combination of the use of the vessels with the highest certified EPA Tier engine or EIAPP engine available at the time of deployment.

For the non-marine portable diesel generator engines used during C&C and O&M and for the permanent diesel generator engines on the four (4) OSSs used during O&M, to meet LAER requirements, the Permittee shall ensure that each of the engines is certified to meet the EPA Tier 4 emission standard from 40 C.F.R. § 1039, that applies to each engine.

Finally, US Wind, Inc. must also use good combustion practices to meet LAER requirements for OCS sources.

Since LAER must be at least as stringent as BACT, the LAER strategy for NOx emissions from OCS sources also satisfies the BACT requirement for NO_2 emissions from OCS sources. For emissions of CO, PM-10, and PM-2.5 from OCS sources, BACT would be the same EPA Tier and MARPOL Annex VI emissions standard requirements for those pollutants and the use of good combustion practices.

Additional BACT Considerations for PM-10 and PM-2.5

The Permittee shall comply with the following additional BACT fuel requirements for PM-10 and PM-2.5 from the Maryland Offshore Wind Project, while any vessels or diesel generator engines are considered an OCS source:

(a) The Permittee shall use ultra-low-sulfur diesel (ULSD) fuel in all Category 1 and 2 engines, Non-Marine Engines, Portable Diesel Generator Engines used during C&C and O&M, and Permanent Diesel Generator Engines on OSS during O&M that meets the per-gallon standards below.
    (i) A maximum sulfur content of 15 parts per million (ppm); and
    (ii) A minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

(b) The Permittee shall use fuel with a maximum sulfur content of 1000 ppm in all Category 3 engines.

The use of add-on technologies and process modifications are most likely infeasible as they are generally not already incorporated into the existing vessel fleet. Implementation of these technologies would likely require replacement, retrofit, or upgrade of vessel engines. US Wind, Inc. will lease the vessels, thereby having no ability to replace or upgrade engines or retrofit vessels and little likelihood that the vessels would already include these technologies. US Wind, Inc. cannot require the owners to perform these modifications due to the long lead time necessary for retrofitting controls or replacing engines. Requiring retrofit

controls or engine replacements would preclude US Wind, Inc.'s ability to substitute vessels on short notice. Additionally, the layout or structure of the vessels would likely prevent the installation of add-on technologies or the use of process modifications. Battery powered motors are not reliable enough to employ in this project. The combination of using engines certified to EPA Tier and MARPOL Annex VI emissions standards and using good combustion practices and low sulfur fuels are the best available controls for emissions of NO_2, CO, PM-10, and PM-2.5 from OCS sources.

VII. AIR QUALITY ANALYSIS

The main purpose of the air quality analysis in a PSD application is to demonstrate that the proposed facility's emissions will not cause or contribute to a violation of any NAAQS or PSD increment. The NAAQS are concentrations in the ambient air that are established by EPA at levels intended to protect human health and welfare, with an adequate margin of safety. The air quality analysis required for sources subject to PSD includes an evaluation of the impact of a source's emissions on the NAAQS, and also includes an evaluation of the impact on applicable PSD increments. PSD increments established by EPA as allowable incremental increases in ambient air concentration due to new or modified sources in attainment areas, have been set at levels that are substantially less than the NAAQS. PSD increments cannot be exceeded even if the NAAQS evaluation would allow for impacts from sources that are greater than the PSD increments.

An air quality analysis is required for each criteria pollutant subject to a NAAQS with a significant emissions increase. An air quality analysis is not required for non-criteria pollutants (i.e. those pollutants not subject to a NAAQS). With respect to GHGs, there are currently no NAAQS or PSD increments established for GHG, and therefore these PSD requirements would not apply to GHG, even when PSD is triggered for GHG. For this project, an air quality analysis is required for the following criteria pollutants with a significant emissions increase: CO, NO_2, PM-2.5, and PM-10.

Dispersion models are the primary tools used to project the ambient concentration that will result from the proposed PSD source emissions. The dispersion modeling analysis usually consists of two distinct phases: (1) a preliminary analysis; and (2) a full impact analysis.

Modeling Overview

The modeling analysis is based on information provided by US Wind, Inc. and its consultant TRC in the following documents:

- Revised Air Quality Modeling Protocol received March 10, 2023;
- Responses to the Department's request for additional information received November 30, 2023;
- Revised Maryland Offshore Wind Project Outer Continental Shelf Air Permit Application submitted to the Department on November 30, 2023;
- Response to the Department's Supplemental Request for Additional Information received December 7, 2023;

- Addendum to OCS Air Permit Application received January 5, 2024;
- Response to the Department's Supplemental Request for Additional Information for OCS Air Permit received January 5, 2024;
- Class I AQRV Assessment Modeling Protocol, received on May 23, 2024;
- Class I AQRV Assessment Modeling Report, received on July 31, 2024;
- Response to the Department's Comments received October 25, 2024
- Comments on the draft PSD, NSR and Permit-to-Construct Permits, received on January 24, 2025; and
- Responses to the Department's Comments on Maryland Offshore Wind Project Comments on the draft PSD, NNSR, and Permit-to-Construct Permits, received on March 28, 2025.

(1) Modeling Methodology

The dispersion modeling analysis completed for the Maryland Offshore Wind Project was conducted in accordance with the EPA's Guideline on Air Quality Models or the Guideline. The EPA published the Guideline as Appendix W to 40 C.F.R. Part 51.

Dispersion Model Selection

US Wind Inc.'s air dispersion modeling analyses were conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) version 23132, combined with the AERCOARE meteorological data preprocessor program.

The following paragraphs summarize the major elements of the project's dispersion modeling analysis.

Meteorological Data

US Wind, Inc. used AERCOARE to generate the meteorological parameters used in AERMOD. AERCOARE applies the Coupled Ocean Atmosphere Response Experiment (COARE) air-sea flux algorithm to over water meteorological measurements to estimate surface energy fluxes and assembles these estimates and other measurements for subsequent dispersion model simulations with AERMOD.

The use of AERCOARE-AERMOD is considered an alternative model as per the Guideline. In accordance with the requirements of section 3.2.2(e) of the Guideline, US Wind, Inc. has satisfactorily demonstrated that it meets the requirements of this section and has received approval from EPA Region 3 with concurrence from EPA's Model Clearinghouse ("MCH") to proceed with this approach[1]. All information associated with the alternative model approval are included with the permit record.

The minimum set of over-water observations for the COARE algorithm must include wind speed, air temperature, sea temperature, and relative humidity. US Wind, Inc. assessed a recent five-year period (2017-2021) of meteorological data collected at the Ocean City Inlet Buoy and the Delaware Bay 26 NM Buoy, offshore of Ocean City and determined

[1] The concurrence memos for the alternative model request are available at: https://cfpub.epa.gov/oarweb/MCHISRS/index.cfm?fuseaction=main.resultdetails&recnum=23-III-01

that neither of these buoys collect sufficient data that are necessary inputs to AERCOARE.

As an alternative to measured data, US Wind requested and received prognostic data from EPA's Office of Air Quality Planning and Standards (OAQPS). EPA processed the Weather Research and Forecasting (WRF) data using the MMIF (Version 4.0) to convert the WRF prognostic meteorological data (2019-2021) into a format suitable for dispersion modeling applications. US Wind, Inc. then ran AERCOARE using the prognostic data and used the output as the meteorological database for the modeling analysis.

Source Characterization and Emissions

The air quality analysis for this project was conducted to account for emissions from both construction and commissioning (C&C) and operation and maintenance (O&M) activities. US Wind, Inc. assessed emissions from all emission units that are considered OCS sources, including but not limited to the emergency generators. In addition, vessel transit emissions when they are within 25 NM of the project centroid and vessel maneuvering emissions were included in the modeling analysis.

i. OCS Sources and Modeled Locations

A number of vessels would be required to support activities carried out during the C&C and O&M. The following activities may be taking place in various areas of the WDA simultaneously:

- Monopile (MP) Foundation Installation;
- Scour protection installation;
- WTG Installation;
- WTG Commissioning;
- OSS Installation;
- OSS Commissioning;
- Inter-Array Cable Installation;
- Offshore Export Cable Installation; and
- Overlapping O&M activities.

O&M emissions would consist of the following activities:

- Vessel transit within the OCS area;
- Onsite maneuvering at the WTGs and OSSs; and
- Onsite diesel generators.

Activities would occur throughout the 25 NM OCS area and will be transient. In its original modeling, US Wind, Inc. determined that, for simplification of the modeling given this spatial and temporal uncertainty regarding vessel locations, it was conservative to assume that these activities occur at the same location for the entire modeled period. Thus, all of the emission sources, except for transit emissions, were modeled at one single location with the same coordinates. As part of the comments to the draft PSD approval (received on January 24, 2025), US Wind, Inc. submitted supplemental modeling. The supplemental modeling focused on the following pollutants that are subject to short-term averaging period standards:

- CO: 1-hour and 8-hour;
- NO_2: 1-hour;
- PM-10: 24-hour; and
- PM-2.5: 24-hour.

The supplemental modeling expanded the modeling analysis to include simultaneous (i.e., cumulative) operation of vessels from separate activities. All emission sources were not modeled at one single location. Detailed discussion of this modeling analysis can be found in section iv. below.

The transit emissions were modeled as a set of individual point sources along the length of the transit route. The total aggregate emissions of the individual point sources are the same as the total line source emissions calculated for the vessel activity. The point sources representing the line source are spaced approximately 0.6 mile (1 km) apart. The line source geometry was developed by conservatively assuming that all transiting vessels would follow the exact same route from the Sparrows Point route starting at a point 25 NM from the Project Centroid until the vessel reaches the Project Centroid.

ii. Scaled Emission Rates

For averaging periods longer than 1-hour, the maximum source operation time for any given mode of operation and construction or O&M activity was modeled using the maximum hourly emissions rate that is scaled by the number of hours that source could be in operation by the number of hours in the averaging period. US Wind, Inc. noted that a propulsion or auxiliary engine can only be in one mode of operation at a time, and it would be reasonable to scale emissions to take into consideration the actual amount of time that an engine can be operated in either a transit or maneuvering mode over the course of the averaging period.

iii. Refined Modeling for 1-hour NO_2 and 24-hour PM to Account for the Temporal Variability

In its refined modeling (shared with the Department on Feb. 5, 2024 upon request), US Wind, Inc. adjusted the modeling for 1-hour NO_2 and 24-hour PM to only include those vessels and engines that would be expected to operate together over an hourly or daily basis. This matrix was based on US Wind, Inc.'s determination of the feasibility that a vessel may be in operation simultaneously with another vessel, while taking into consideration need, availability, logistics, and security.

For example, multiple towing tugs during WTG installation would not be needed simultaneously as determined by US Wind, Inc.'s construction management team.

iv. Supplemental Modeling for Pollutants Subject to Short-term Averaging Period Standards

US Wind, Inc. performed supplemental NAAQS and PSD increment modeling analyses as part of their comments to the draft PSD, NSR and Permit-to-Construct Permits (received on January 24, 2025). The modeling files were made available to the Department shortly after, upon request. The supplemental modeling expanded the

original modeling analysis to include simultaneous (i.e., cumulative) operation of vessels from separate activities.

Based on the adjustments discussed above in section iii, US Wind, Inc. further assessed its vessels and prepared a matrix of emission sources (vessels) and operating scenarios that may be operated simultaneously. A detailed list of emission sources and operating scenarios for the 1-hour NO_2 and 24-hour PM-2.5/PM-10 averaging periods can be found in the Comments on the draft PSD, NSR and Permit-to-Construct Permits, received on January 24, 2025. This matrix was based on US Wind's construction management team's determination of the feasibility that a vessel may be in operation simultaneously with another vessel, while taking into consideration need, availability, logistics, and security. For example, foundation installation activities would not occur simultaneously with OSS installation activities. Oftentimes, US Wind determined that a duplicate vessel type could be excluded from the modeling analysis for short-term averaging periods during simultaneous construction and commissioning and O&M activities.

Based on US Wind, Inc.'s assessment of simultaneous activities, there are two distinct periods of construction that are delineated by either OSS Installation or OSS Commissioning Periods. The potential simultaneous activities during these two periods are provided below. These two periods were modeled as separate sets of simultaneous operations of vessels.

OSS Installation Period – Simultaneous Activities
- Scour protection installation;
- WTG Installation;
- WTG Commissioning;
- OSS Installation;
- Inter-Array Cable Installation;
- Offshore Export Cable Installation; and
- Overlapping O&M activities.

OSS Commissioning Period – Simultaneous Activities
- Foundation Installation;
- Scour protection installation;
- WTG Installation;
- WTG Commissioning;
- OSS Commissioning;
- Inter-Array Cable Installation;
- Offshore Export Cable Installation; and
- Overlapping O&M activities.

Under each individual operating scenario, US Wind, Inc. also restricted the simultaneous operation of multiple activities to occur at locations separated by a minimum distance of 1.25 NM. In practice, these permit conditions will restrict simultaneous operation of adjacent activities since the WTGs and OSS locations are separated by 1.4 km (East-West) and 1.9 km (North-South) in a grid pattern. Thus, for modeling of each individual operating scenario of simultaneous activities, emission sources included a group of vessels within that operating scenario that could be operating together at one single WTG or OSS location.

An exception to the 1.25 NM separation distance for operating conditions is the expectation for simultaneous operation of vessels associated with OSS Commissioning and Export Cable Installation or Inter-array Cable Installation. The modeling analysis for the OSS Commissioning Period included collated simultaneous operation of the cable installation vessels. US Wind, Inc. determined that Export Cable Installation activities and Inter-array Cable Installation activities would not occur simultaneously with OSS Commissioning at the same OSS location.

Stack Configurations

US Wind, Inc. provided estimates of source parameters (exit velocity, stack diameter, stack exit temperature) in Appendix A, Tables A-42 through A-44 of its November 30, 2023 application. Many of the offshore wind vessels have stack configurations other than vertical stack. AERMOD is configured to treat vertical or horizontal venting stacks, but not angled stacks. As such, US Wind, Inc. calculated the vertical component of the exhaust velocity using trigonometry based on the stack angle from vertical. This vertical component of the exhaust velocity was used as input into AERMOD.

Downwash

Aerodynamic downwash caused by buildings and structures in the vicinity of exhaust stacks can lead to an increase in ground level concentrations. Downwash effects are modeled within AERMOD by using algorithms derived from the ISCPRIME model. AERMOD requires information about buildings and structures to be input in a prescribed format. US Wind, Inc. used EPA's Building Profile Input Program for PRIME (BPIPPRM, version 04274 [September 30, 2004]) for this purpose. The BPIP program generates information on the location and size of buildings and structures relative to each stack, and AERMOD uses this information to calculate downwash effects.

US Wind, Inc. asserted that "The main structure for scenarios that could influence dispersion is the OSS platform." As such, US Wind assessed building downwash effects only for those vessels involved in OSS construction that may be attached to or near the OSS platform. In its response to the Department's comments dated October 25, 2024, US Wind, Inc. stated that "modeling vessel downwash from the vessel themselves is not technically feasible or practicable for several reasons including:

i. Specific vessels have not been selected for the OCS air permit application.
ii. Vessels are in motion during transit and maneuvering.
iii. The vessel cavity region will not extend to the safety exclusion zone."

Receptor Grid Development

i. NAAQS and PSD Class II Modeling Receptor Grid

For NAAQS and PSD Class II increment modeling, a polar grid of receptors was utilized in which receptors are placed in 10-degree increments around the ring. Receptor ring spacing were 25 m out to 1000 m, 250 m out to 2,500 m, 500 m out to 5,000 m, 2.5 km out to 10 km, and 5 km out to 50 km. Based on the results of the modeling with maximum impacts located within 1000 m, the receptor field did not need to be refined to ensure that the maximum impacts from the different C&C and O&M activities are being captured.

The EPA's AERMAP (version 18081) processor was used to determine the terrain and hill height scale elevations at each land-based receptor. All over water receptors were assigned an elevation of 0.0 m above mean sea level and a hill-height scale of 0.0 m.

For construction activities, it was assumed that a 500-meter exclusion zone would be established to keep the public away from the immediate area of the activity. The 500-meter exclusion zone was not applied in the O&M modeling.

The supplemental modeling analysis expanded the modeled receptor grid for Class II modeling to include additional receptors placed at the 500-meter exclusion zone from each construction and O&M activity. In addition, as per the request of the Department, US Wind, Inc. also expanded the receptor grid with 500 meter spacing from 5,000 meters to 7,500 meters for the 1-hour NO_2 averaging period for scenario – OSS Installation with maneuvering. Consistent with the original modeling for the O&M activities, supplemental receptors were placed within 500 meters from O&M activities as the exclusion zone will not be enforced for O&M activities.

ii. PSD Class I Modeling Receptor Grid

For PSD Class I modeling, receptors were placed at a distance of 50 km in those directions to Class I areas downwind of the project to conservatively model the impacts at the Brigantine NWR. Per the Department's request, receptors were also placed in an arc of receptors in those directions to the locations of Shenandoah National Park Class I area that are located within 300 km of the project. A ring of polar receptors was placed 50 km from the centroid of the WDA and receptors were placed at each degree. This methodology resulted in 26 receptor locations at 50 km downwind of the project in the direction of the Brigantine NWR and 22 receptor locations at 50 km downwind of the project in the direction of locations within Shenandoah National Park that are within 300 km of the project. The receptors were placed with base elevations that are representative of the minimum and maximum heights within the Class I areas. Brigantine NWR was modeled at sea level as this Park is located on the New Jersey Coastline and is flat.

In its refined modeling (shared with the Department on February 5, 2024 upon request), US Wind, Inc. adjusted its Class I modeling for the Brigantine NWR with a revised approach: "For Class I increment modeling for the 50 km receptors representative of the downwind locations to the Brigantine NWR, the vessel sources were modeled as an arc of sources at 50 km from the center of the 26 Brigantine NWR receptors. The sources were evenly spaced with 1 kilometer separation. …, the initial assumption that all of the annual emissions are located at a single point is overly conservative, and the assumption that annual emissions are spread throughout the WDA at a 50 km distance from the Class I receptors is a refined methodology."

NO_2 Modeling

Section 5.2.4 of the USEPA's Guideline on Air Quality Models, Appendix W to 40 CFR Part 51, recommends a three-tiered screening approach to estimate ambient concentrations of NO_2:

- Tier 1 – assume complete conversion of all emitted NO to NO_2;

- Tier 2 – multiply Tier 1 results by a representative equilibrium NO_2/NOx ratio; and
- Tier 3 – perform a detailed analysis on a case-by-case basis.

The 1-hour NO_2 modeling analysis utilized the USEPA Tier 3 modeling approach for 1-hour NO_2 modeling assessment results using the AERMOD Plume Volume Molar Ratio Method (PVMRM) that adjusts NOx emissions to estimate more realistic ambient NO_2 concentrations by modeling the conversion of NOx to NO_2.

PVMRM incorporates three sets of data into the calculation of 1-hour NO_2 concentrations: source-specific in-stack NO_2/NOx emission rate ratios, an ambient NO_2/NOx concentration ratio, and hourly average background ozone concentrations.

A default NO_2/NOx ambient equilibrium concentration ratio of 0.90 was used.

i. In Stack NO_2/NOx Concentration Ratio

US Wind, Inc. reviewed the USEPA NO_2/NOx In-Stack Ratio (ISR) Database[2] to determine representative NO_2/NOx ratios for diesel engines. The USEPA ISR database includes NO_2/NOx ratios that range from 0.02 to 0.09 for diesel engines that are representative of the envelope of vessels for project C&C/O&M that were modeled for the project. Based on data reviewed in the ISR Database, an in-stack NO_2/NOx ratio of 0.10 for the diesel engines was selected.

ii. Hourly Average Background Ozone Concentrations

US Wind, Inc. reviewed the locations of ambient air monitoring sites and selected the closest “regional” monitoring site to represent the current background ozone air quality in the site area. A monitor in Lewes, Delaware (USEPA AIRData # 10-005-1003) was identified to represent the ozone background values during the three (3) year period 2019–2021, concurrent with the three (3) years of surface meteorological data. When ozone data is missing from the Lewes monitor, missing hours were substituted using data from the 2nd nearest monitoring station, located in Seaford, Delaware (USEPA AIRData # 10-005-1002).

Hourly average background ozone concentrations were input to AERMOD.

iii. 1-hour NO_2 Background Concentrations

Background concentrations are added to model-predicted concentrations to calculate the total concentrations for comparison to the NAAQS. Based on review of the locations of Maryland, Delaware, and New Jersey ambient air quality monitoring sites, the closest “regional” monitoring site was selected to be a monitoring station in Millville, New Jersey (EPA AIRData # 34-011-0007).

Short-term ambient NO_2 concentrations are known to have diurnal patterns as well as seasonal variability. While using a “first tier” assumption by applying a uniform monitored

[2] https://www.epa.gov/scram/nitrogen-dioxidenitrogen-oxide-stack-ratio-isr-database

background concentration based on a representative monitor's 1-hr NO_2 design value concentration would be acceptable without further justification in most cases. The EPA recognizes that this approach could be overly conservative in many cases. In the EPA's March 1, 2011, clarification memorandum entitled Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard, an alternative methodology for developing background concentrations based on season and hour of day was presented. Page 19 of this clarification memo outlines how a 1-hr NO_2 season, by hour of day background concentration can be developed.

An appropriate methodology for incorporating background concentrations for the 1-hour NO_2 standard would be to use a multi-year average of the 98th-percentile of the available background concentrations by season and hour-of-day. The EPA recommends that background values by season and hour-of-day used in this context should be based on the (average of the) 3rd-highest value for each season and hour-of-day.

US Wind, Inc. used this seasonal and hour of day methodology. The background values were first divided by season for each year. Those seasonal groups were further binned into 24-hour groups for a total of 96 bins of values (product of 4 seasons and 24 hours) for each year (2019, 2020, and 2021). The 3rd highest value from each bin was found per year. Finally, to obtain the values to be summed with the modeled concentrations, the average of those 3rd highest values was taken over three (3) years. This results in 96 values that were used in the modeling analysis. The AERMOD model option (keyword BACKGROUND) was used to sum each modeled concentration with the background concentration that was calculated for that season and hour-of-day.

Ozone and PM-2.5 – Secondary Formation

US Wind, Inc. assessed secondarily formed PM-2.5 and ozone impacts using EPA's guidance "Photochemical Model Estimated Relationships Between Offshore Wind Energy Project Precursor Emissions and Downwind Air Quality (O_3 and PM-2.5) Impacts" (2022)[3]. Because the activities of this wind energy application are close to shore, it is not expected that high concentrations of chemically produced ozone or particles will occur at the near shore. The detailed summary of the maximum secondary formation for PM-2.5 and ozone can be found in US Wind, Inc.'s January 5, 2024 Addendum to air permit application.

(2) Preliminary Analysis

The preliminary analysis models criteria pollutants with a significant emissions increase from the project (CO, NO_2, PM-2.5, and PM-10) to determine:

(i) whether pre-construction ambient air monitoring is required;
(ii) whether further air quality analyses are required;
(iii) where the impact area is located; and
(iv) whether a full impact analysis including all the major emission sources in the impact area is required.

[3] The EPA's guidance for estimating secondarily formed PM2.5 and ozone impacts offshore is available at: https://www.epa.gov/system/files/documents/2023-01/EPA454-R-22-007%2029DEC2022.pdf

Pre-construction Ambient Air Monitoring Determination

PSD regulations require an ambient air quality evaluation that involves the analysis of monitored concentrations in the vicinity of the PSD source if model predicted source impacts are greater than the monitoring de minimis value for each criteria pollutant. If representative monitoring data is not available, a PSD source may be required to collect pre-construction ambient data for up to a year.

US Wind, Inc. has asserted that the existing ambient monitoring program operated by MDE, DNREC, and NJDEP is sufficient to meet the needs of any pre-construction monitoring requirements and thus may be used in lieu of source specific preconstruction monitoring requirements. The Department agrees with this approach.

As provided in EPA guidance[4], "If the proposed source or modification is remote and not affected by other readily identified man-made sources, two options for determining existing air quality concentrations from existing data are available. The first option is to use air quality data collected in the vicinity of the proposed source or modification; the second option is to use average measured concentrations from a 'regional' site to establish a background concentration."

The proposed source's location is offshore and in a remote location. Since there is no monitoring station offshore, US Wind, Inc. used monitoring data from the closest land monitors for each pollutant (CO, NO_2, PM-2.5, and PM-10). Details are discussed in the next paragraphs.

Ambient Background Concentrations

US Wind, Inc. selected ambient background concentrations from the U.S. EPA Air Data website[5] for data over the 2019 – 2021 time period. Background concentrations were selected from the ambient air monitors located nearest to the project lease area. These monitors are located in Virginia, Delaware, and New Jersey. US Wind, Inc. provided the description and locations of these monitors in its March 10, 2023 Air Quality Modeling Protocol. US Wind, Inc. also summarized its background concentrations in Table 5-1 of its January 5, 2024, Addendum to OCS Air Permit Application. Based on the data submitted by US Wind, Inc., the Department compiled additional data, and its findings are summarized in Table 3.

TABLE 3
MEASURED AMBIENT AIR QUALITY CONCENTRATIONS AND SELECTED BACKGROUND LEVELS

Pollutant	Averaging Period	Location	EPA Design Value	Pollutant Concentration			Units	2019-2021 Background Level ($\mu g/m^3$)
				2019	2020	2021		
CO	1-Hour	Wilmington, DE	1.8	1.23	1.8	1.4	ppm	2,061

[4] U.S. Environmental Protection Agency, 1987. Ambient Air Monitoring Guidelines for Prevention of Significant Deterioration (PSD), Appendix A, Procedures to Determine if Monitoring Data will be Required for a PSD Application. Publication No. EPA–450/4–87–007

[5] https://www.epa.gov/outdoor-air-quality-data

Pollutant	Averaging Period	Location	EPA Design Value	Pollutant Concentration			Units	2019-2021 Background Level ($\mu g/m^3$)
				2019	2020	2021		
CO	8-Hour	Wilmington, DE	1.3	1	1.3	0.9	ppm	1,489
NO_2	Annual	Millville, NJ	6	6.31	6.33	6.3	ppb	11.9
NO_2	1-hour	Millville, NJ	34	34.8	32.4	34	ppb	63.4
PM10	24-Hour	Hampton, VA	-	16	16	44	µg/m3	44
PM2.5	24-Hour	Millville, NJ	-	18.7	16.1	19.3	µg/m3	18.03
PM2.5	Annual	Millville, NJ	-	7.80	8.32	7.03	µg/m3	7.72

The EPA design value for the selected monitors for 2019 – 2021 was used when available. If a design value is not available, then data from the U.S. EPA Air Data website was used. For 24-hour PM-10, the Department selected the daily high-2nd high (H2H) value for each year for 2019 – 2021, then used the maximum over the 3 years as model background. For the 24-hour PM-2.5, the Department calculated the 98th percentile of the measured 24-hour values for each year, then took the average of the three (3) years. For annual PM-2.5, the average over the three (3) years was used as model background.

Note that for 1-hour NO_2, seasonal hourly background concentrations were used, instead of the value above. This approach is discussed in detail earlier in this factsheet.

Full Impact Analysis Determination

All areas of Maryland are designated as PSD Class II areas. Significant Impact Levels (SIL) for Class II areas have been established by EPA to serve as an initial evaluation of air quality impacts. If the dispersion model predicts that the impact of a criteria pollutant's emissions from the proposed project are less than the applicable Class II SIL for that pollutant, then the pollutant is considered insignificant and poses no threat to the applicable NAAQS or PSD increment. Additional analyses relative to attainment of the NAAQS and PSD increments are not required or necessary for criteria pollutants with predicted impacts less than the SIL.

For criteria pollutants with impacts greater than the SIL, further evaluation is required to determine whether additional modeling or analysis is necessary to demonstrate NAAQS and increment attainment. Table 4 compares the impacts from the criteria pollutants with a significant emissions increase from the project to the Class II SIL for each pollutant.

TABLE 4
FULL IMPACT ANALYSIS DETERMINATION
SIGNIFICANT IMPACT LEVELS (SIL)

Pollutant	Averaging Period	Recommended Significant Impact Levels for NAAQS Analyses	Scenario	Maximum Modeled SIL Concentration	Exceed SIL?
CO	1-Hour	2,000	Foundation Installation	490.3	NO
			WTG Installation	206.8	NO
			WTG Commissioning	142.7	NO
			OSS Installation	345	NO
			Interarray Cable Installation	158.2	NO
			Export Cable Installation	124.5	NO
			O&M	668	NO
	8-Hour	500	Foundation Installation	275.1	NO
			WTG Installation	115.6	NO
			WTG Commissioning	72.1	NO
			OSS Installation	165.6	NO
			Interarray Cable Installation	75.2	NO
			Export Cable Installation	52.8	NO
			O&M	289.2	NO
NO_2	1-Hour	7.5	Foundation Installation	179	YES
			WTG Installation	85.8	YES
			WTG Commissioning	97.1	YES
			OSS Installation	169.9	YES
			Interarray Cable Installation	107.3	YES
			Export Cable Installation	87.8	YES
			O&M	205.9	YES
	Annual	1	Annual Construction and O&M	6	YES
PM2.5	24-Hour	1.2	Foundation Installation	6.4	YES
			WTG Installation	7.2	YES
			WTG Commissioning	3.5	YES
			OSS Installation	7.1	YES
			Interarray Cable Installation	4.7	YES
			Export Cable Installation	3.7	YES
			O&M	5	YES
	Annual	0.13	Annual Construction and O&M	0.5	YES
PM10	24-Hour	5	Foundation Installation	8.7	YES
			WTG Installation	9.6	YES
			WTG Commissioning	4.9	NO

Pollutant	Averaging Period	Recommended Significant Impact Levels for NAAQS Analyses	Scenario	Maximum Modeled SIL Concentration	Exceed SIL?
			OSS Installation	9.2	YES
			Interarray Cable Installation	6.5	YES
			Export Cable Installation	4.6	NO
			O&M	7.1	YES
	Annual	1	Annual Construction and O&M	0.5	NO

As shown in Table 4, the maximum concentrations for selected C&C and O&M scenarios exceed the applicable SILs for 1-hour and annual NO_2, 24-hour PM-10, and 24-hour and annual PM-2.5. A full impact analysis is required for the 1-hour and annual NO_2, 24-hour PM-10, and 24-hour and annual PM-2.5 impacts from the project.

(3) Full Impact Analysis

A full impact analysis is required for any criteria pollutant for which the proposed source's estimated ambient pollutant concentrations exceed the prescribed SIL. The full impact analysis expands the preliminary analysis in that it considers emissions from (1) the proposed source; (2) existing sources; and (3) residential, commercial, and industrial growth that accompany the new activity at the new source (i.e., secondary emissions). The full impact analysis consists of a separate analysis for the NAAQS and PSD increments.

The Department evaluated the modeling methodology including the model used, the development and application of the meteorological database, the use and application of BPIPPRM to determine downwash effects, the design of the receptor grid, and the actual model application. The conclusion, based on this evaluation, is that the methodology is adequate to determine the impact of significant emissions from the US Wind, Inc.'s offshore wind project.

Significant Impact Area Determination

The significant impact area (SIA) is the geographical area for which the full impact air quality analyses for the NAAQS and PSD increments are carried out. The SIA includes all locations where a significant increase in the potential emissions of a criteria pollutant from a proposed project will cause a significant ambient impact. The SIA is a circular area with a radius extending from the source to (1) the most distant point where approved dispersion modeling predicts a significant ambient impact will occur, or (2) a modeling receptor distance of 50 km, whichever is less.

The areas of impact for 24-hour PM-10, 24-hour and annual PM-2.5, and 1-hour and annual NO_2, under normal operations are as follows:

- 24-hour PM-10 AOI = 1,250 meters;

- Annual PM-2.5 AOI = 1,500 meters.
- 24-hour PM-2.5 AOI = 5,000 meters;
- Annual NO_2 AOI = 7,500 meters; and
- 1-hour NO_2 AOI = 50,000 meters.

Required Emissions Inventory for Full Impact Analysis

Per 40 CFR Part 51, Appendix W Section 8.3.3, specific modeling should be performed for sources in the vicinity of the proposed project for emissions sources that are not adequately represented by ambient monitoring data. US Wind, Inc. reviewed MDE and DNREC major source air permits within 50 km of the project centroid, and determined there are no major air emissions sources in the vicinity of the project with emissions of NOx or PM-10/PM-2.5. Impacts of existing emission sources should be adequately captured by the conservative background monitors used for this analysis. As such, it was not necessary to add in any offsite (i.e., nearby) emissions sources into the analysis. The maximum modeled concentrations were added to the representative background concentrations for comparison to the NAAQS.

(4) Compliance with the NAAQS

Compliance with the NAAQS is determined by comparing the predicted ground level concentrations (with background air quality data) at each receptor to the applicable NAAQS. If the predicted total ground level concentration is below the applicable NAAQS for each pollutant, then the project is in compliance with the NAAQS.

The results of the supplemental NAAQS modeling analysis for each operating scenario are presented in Table 5. As shown in Table 5, the project impacts, plus background, do not exceed or threaten to exceed the NAAQS.

TABLE 5
MAXIMUM MODELED CONCENTRATIONS FOR PROJECT CONSTRUCTION AND O&M SCENARIOS FOR COMPARISON TO NAAQS

Pollutant	Averaging Period	Scenario	NAAQS	Background	Maximum Modeled NAAQS Concentration	Total NAAQS Concentration with Background
NO_2	1-Hour	Simultaneous Operation – OSS Installation Periods	188	Variable by Season and Hour of Day	145.7	179.9
		Simultaneous Operation – OSS Commissioning Periods			144.2	181.3
	Annual	Annual Construction and O&M	100	9	6	17.9

Pollutant	Averaging Period	Scenario	NAAQS	Background	Maximum Modeled NAAQS Concentration	Total NAAQS Concentration with Background
PM-2.5	24-Hour	Simultaneous Operation – OSS Installation Periods	35	18	4.5	22.5
		Simultaneous Operation – OSS Commissioning Periods			4.4	22.4
	Annual	Annual Construction and O&M	12	8	0.5	8.5
PM-10	24-Hour	Simultaneous Operation – OSS Installation Periods	150	44	8.2	52.2
		Simultaneous Operation – OSS Commissioning Periods			10.0	54.0
	Annual	Annual Construction and O&M	NA	NA	0.5	NA

Note: All concentration in units of $\mu g/m^3$.
PM-2.5 impacts include secondary formation.

(5) Compliance with PSD Increments

There is no PSD increment standard for 1-hour NO_2 impact. US Wind, Inc. compared modeled impacts with PSD Class II Increments for 24-hour PM-10, 24-hour and annual PM-2.5, and annual NO_2. The results are summarized in Table 6 below.

TABLE 6
MAXIMUM MODELED CONCENTRATIONS FOR PROJECT CONSTRUCTION AND O&M SCENARIOS FOR COMPARISON TO PSD CLASS II INCREMENTS

Pollutant	Averaging Period	Scenario	Class II Increment	Maximum Modeled Increment Concentration	Exceed Increment?
NO_2	Annual	Annual Construction and O&M	25	6	NO

Pollutant	Averaging Period	Scenario	Class II Increment	Maximum Modeled Increment Concentration	Exceed Increment?
PM-2.5	24-Hour	Simultaneous Operation – OSS Installation Periods	9	7.1	NO
		Simultaneous Operation – OSS Commissioning Periods		7.8	NO
	Annual	Annual Construction and O&M	4	0.5	NO
PM-10	24-Hour	Simultaneous Operation – OSS Installation Periods	30	7.3	NO
		Simultaneous Operation – OSS Commissioning Periods		8.0	NO
	Annual	Annual Construction and O&M	17	0.5	NO

Note: All concentration in units of $\mu g/m^3$.
PM-2.5 impacts include secondary formation.

(6) Modeled Emission Rates as Permit Limits

The supplemental modeling showed the project will comply with the NAAQS and PSD increment. In order to conduct this modeling, certain assumptions were made in determining the allowable emissions that were used to calculate the air quality impacts. As determined by US Wind, Inc., the allowable emissions of the modeled emission sources of the Maryland Offshore Wind Project do not represent the maximum rated capacity in any given day. As a result, to ensure that the Maryland Offshore Wind Project is conducted in a manner that aligns with its modeling and, consequently, will not violate the NAAQS or PSD increment, the OCS air permit establishes the following emission limits (see Table 7 below) for the Maryland Offshore Wind Project at the level of the allowable emissions that were modeled.

TABLE 7
DAILY EMISSIONS LIMITS (TPD)

Pollutant	Maximum C&C during OSS Installation Periods[1] combined with O&M	Maximum C&C during OSS Commissioning Periods[2] combined with O&M	O&M
NO_2	30.06	29.54	4.52
CO	3.37	3.89	0.59
PM-10	0.32	0.28	0.06
PM-2.5	0.31	0.27	0.05

1. OSS Installation Period consists of the following: Scour protection installation, WTG Installation, WTG Commissioning, OSS Installation (the Vessels listed as OSS Installation Vessels in PSD Approval Table 1A, excluding the Refueling Offshore Service Vessel and Hotel Jack-up Vessel), Inter-Array Cable Installation, Offshore Export Cable Installation; and O&M activities.
2. OSS Commissioning Period consists of the following: Foundation Installation, Scour protection installation, WTG Installation, WTG Commissioning, OSS Commissioning (the Vessels listed as OSS Installation Vessels in PSD Approval Table 1A, excluding the Heavy Lift Vessel, Tug, Topside Tug, Noise Mitigation Offshore Service Vessel, and Acoustic Monitoring Offshore Service Vessel), Inter-Array Cable Installation, Offshore Export Cable Installation; and O&M activities.

(7) Impacts on Class I Areas

PSD Class I areas are those that are designated as requiring special protection from the effects of pollutants emitted by PSD sources due to the pristine quality of their natural resources. There is one Class I area within 300 km of the project centroid: Brigantine Wilderness area located in the Edwin B. Forsythe National Wildlife Refuge in New Jersey, approximately 126 kilometers north of the project. In addition, the northeast corner of the Shenandoah National Park, which is approximately 290 km away, was also included in the Class I area impact analysis upon the Department's request.

Clean Air Act regulations provide that the Federal Land Manager (FLM) has the affirmative responsibility to protect the Air Quality Related Values ("AQRVs") in Class I areas, including visibility. The Federal Land Manager for Class I areas managed by the U.S. Fish and Wildlife Service ("USFWS") is the Department of the Interior's Assistant Secretary for Fish and Wildlife and Parks.

US Wind, Inc. conducted modeling to assess the impacts on visibility and nitrogen and sulfur deposition in both Class I areas, as well as the Assateague Island National Seashore Class II area, as per the request of the National Park Services (NPS). A procedure, as described in the FLM's Air Quality Related Work Group ("FLAG") guidance (2010)[6], was used to determine the potential AQRV impacts in the Class I area. Following the FLAG guidance, CALPUFF was used for the AQRV analysis.

US Wind, Inc. submitted a Class I AQRV modeling report to the FLM on July 31, 2024. The FLM's determination was received via e-mail by the Department on November 7, 2024. The FLM has determined that the project is not anticipated to cause significant visibility impairment to Class I areas. However, the FLM has requested that the Department include daily emissions limits to minimize the potential of visibility impairments as more wind turbine projects are built in the area. The daily emissions limits, based on the values used in the modeling analyses, are included in Part D of the PSD Approval.

VIII. ADDITIONAL IMPACT ANALYSIS

A PSD application must address additional impacts for each pollutant subject to the PSD application. These analyses assess the potential impacts of air, ground, and water pollution on soils, vegetation, and visibility caused by emissions increases of any regulated pollutant emitted from the proposed project and from associated growth.

[6] The FLAG guidance can be found at: https://irma.nps.gov/DataStore/DownloadFile/420352 .

The additional impacts analysis generally contains the following parts:
(a) growth;
(b) soils, vegetation, and wildlife impacts; and
(c) visibility impairment.

For the Maryland Offshore Wind Project, the Department also requested an analysis of shoreline fumigation as part of the additional impact analysis.

Growth Impact Analysis
The purpose of the growth analysis is to quantify associated growth; that is, to predict how much new growth is likely to occur to support the source under review and then to estimate the emissions which will result from that associated growth.

US Wind, Inc. discussed project-related activities and infrastructure that could potentially result in direct or indirect impacts to population, economy, and employment resources in Section Volume II of the project's Construction and Operations Plan (COP). The analysis found that the project will support an estimated 18,717 job-years during the C&C and an estimated additional 3,702 job-years in the O&M.

US Wind, Inc. expects the temporary addition of the non-local workforce for the duration of construction would not result in a sizeable population change. Additionally, given the population in the study area, the number of workers needed for operation of the US Wind, Inc. onshore and offshore facilities would not result in a sizeable population change. Due to the number of new individuals expected to move into the area to support the project and the significant level of existing commercial activity in the area, new commercial construction is not foreseen to be needed to support the project's work force.

For reasons described above, no significant increase in emissions from secondary growth are anticipated to occur during either the C&C or the O&M. Therefore, the air quality impacts of the modest residential, commercial, or industrial growth associated with the project will be insignificant.

Soils, Vegetation, and Wildlife Impacts Analysis
The analysis of soils, vegetation, and wildlife air pollution impacts should be based on an inventory of soils, vegetation, and wildlife types found in the impact area. This inventory should include all vegetation with any commercial or recreational value.

US Wind, Inc. evaluated potential impacts on vegetation in accordance with "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals" (USEPA, 1980). The screening procedure provides vegetation screening thresholds which are minimum pollutant concentration levels at which damage to the natural vegetation and predominant crops could occur.

US Wind, Inc. conducted the analysis by comparing the maximum modeled concentrations, plus background, with the screening thresholds for CO and NO_2. Upon review, the Department added secondary NAAQS thresholds to the analysis as the secondary (welfare-based) standards are set to protect against environmental damage

caused by certain air pollutants. Secondary NAAQS for PM-2.5 and PM-10 were added to the comparison.

Table 8 below summarizes the screening results for CO, NO_2, and PM-10 and PM-2.5. Modeled concentrations are expected to be below screening thresholds for impacts on vegetation. As such, no impacts to soils, vegetation, or wildlife in the facility site vicinity are anticipated.

TABLE 8
TOTAL FACILITY COMPARISON OF MAXIMUM MODELED CONCENTRATIONS OF POLLUTANTS TO VEGETATION SCREENING CONCENTRATIONS

Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	Vegetation Screening Threshold – Sensitive ($\mu g/m^3$)	Secondary NAAQS ($\mu g/m^3$)
NO_2	4-Hour	205.9	63.3	269.2	3,760	-
	8-Hour	205.9	63.3	269.2	3,760	-
	Annual	6	11.9	17.9	-	100
CO	1-Week	289.2	1,495	1,784.20	1,800,000	-
PM10	24-hour	9.6	44	53.6	-	150
PM2.5	24-hour	7.2	18	25.2	-	35
	Annual	0.5	8	8.5	-	15

Visibility Impairment Analysis
The visibility impairment analysis pertains particularly to Class I area impacts and other areas where good visibility is of special concern. A quantitative estimate of visibility impairment is conducted, if warranted by the scope of the project.

US Wind, Inc. conducted a Class II visibility screening analysis for important nearby vistas (i.e., Ocean City, MD) using the visual impact screening model or VISCREEN model (U.S. EPA, 1992). In order to assess the potential impact on regional visibility, the conservative Level–1 screening analysis using the VISCREEN model was conducted. The screening procedure involves calculation of three plume contrast coefficients using emissions of NO_2, PM/PM-10, and sulfates (H2SO4). These coefficients consider plume/sky contrast, plume/terrain contrast, and sky/terrain contrast. The Level-1 VISCREEN results indicate that the visibility impairment related to the project's plume is below the plume contrast (Cp) and plume perceptibility (ΔE) threshold criteria for all three contrast coefficients. Additional details of US Wind Inc.'s Class II visibility analysis can be found in its January 5, 2024, addendum to revised air permit application.

In summary, the results of the visibility screening analysis indicated that the visibility impact caused by the project is expected to be minimal.

Shoreline Fumigation Analysis
US Wind, Inc. conducted an analysis to assess the potential impact of shoreline fumigation to onshore receptors. US Wind, Inc. prepared the modeling analyses at

distances to the shoreline of 26.5 km and 500 meters for comparison purposes. The results indicate that the potential impacts from shoreline fumigation are nearly two (2) orders of magnitude lower at the actual project distance to shoreline when compared to a theoretical distance of 500 meters, where shoreline fumigation would lead to higher impacts than would otherwise occur. US Wind, Inc. also compared the maximum normalized shoreline fumigation results to the maximum normalized results using the full receptor grid and assuming no shoreline fumigation. For all representative vessels, the maximum modeled concentrations are higher in the local area around the sources when compared to the maximum shoreline fumigation results.

Thus, with the project's location well offshore and outside of the distance where shoreline fumigation is a concern, US Wind, Inc. has determined that shoreline fumigation is not a concern for this project and that the maximum modeled concentrations are well offshore and nearby to the WTGs, export cables, and OSSs.

Additional details of US Wind Inc.'s analysis can be found in its January 5, 2024, addendum to revised air permit application.

IX. FINAL DETERMINATION

Based on the above analyses, the Department has made a determination that the proposed Maryland Offshore Wind Project will comply with all applicable Federal, State, and local air quality requirements and has made a final determination to issue the PSD Approval.

KEEP PERMIT AT SITE

CONTROL NO. B - 07919

Wes Moore
Governor

Serena McIlwain
Secretary

State of Maryland

DEPARTMENT OF THE ENVIRONMENT

Air and Radiation Administration
1800 Washington Boulevard, Suite 720
Baltimore, MD 21230

[X] PSD Approval [ ] Operating Permit

PERMIT NO. PSD-2024-01

DATE ISSUED June 6, 2025

PERMIT FEE $57,000.00 (Paid)

EXPIRATION DATE In accordance with COMAR 26.11.02.04B

LEGAL OWNER & ADDRESS

US Wind, Inc.
401 East Pratt Street
Baltimore, MD 21201
Attn: Mr. Jeffrey Grybowski, CEO
US Wind, Inc.

SITE

Maryland Wind Energy Area (WEA)
Atlantic Ocean
Offshore, Ocean City, Maryland
Lat 38.352747° N; Long 74.753546° W
Premises # 047-0248
AI # 153737

SOURCE DESCRIPTION

Installation of a wind energy project (Maryland Offshore Wind Project), in a lease area approximately 18.5 km (11.5 miles, 10.0 nautical miles [NM]) off the coast of Maryland on the outer continental shelf (OCS) consisting of up to 121 wind turbine generators (WTG), up to four (4) offshore substations (OSS), and one (1) meteorological tower (Met Tower).

This source is subject to the conditions described on the attached pages.

Program Manager

Director, Air and Radiation Administration

This Prevention of Significant Deterioration (PSD) Approval covers the following equipment for US Wind, Inc.'s Maryland Offshore Wind Project:

Table 1A – Types of marine vessels, and associated main and auxiliary marine engines, to be used during Construction and Commissioning (C&C)

Vessel Types to be used for Scour Protection Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kilowatts (kW)/engine)**
Fallpipe Vessel (HC)	1	Main engines (3): 4,500 Auxiliary engines (1): 492 Auxiliary engines (1): 1,200
Vessel Types to be used for Foundation Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Heavy Lift Vessel (HC)	1	Main engines (5): 4,500 Auxiliary engine (1): 4,500
Foundation Installation Tugs (HC)	4	Main engines (2): 2,540 Auxiliary engine (1): 199
Crew Transfer Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20
Noise Mitigation Offshore Service Vessel (HC)	1	Main engines (2): 3,310 Auxiliary engines (3): 499
Acoustic Monitoring Offshore Service Vessel (HC)	1	Main engines (2): 2,540 Auxiliary engine (1): 199
Environmental Crew Transfer Vessel (HC)	2	Main engines (2): 749 Auxiliary engine (2): 20
Vessel Types to be used for WTG Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Jack-up Vessel (HC) **[OCS Source]**	1	Main engines (3): 3,800 Auxiliary engines (1): 2,880
Tugs (HC)	3	Main engines (2): 2,540 Auxiliary engines (1): 199

Table 1A – Types of marine vessels, and associated main and auxiliary marine engines, to be used during C&C (continued)

Vessel Types to be used for WTG Commissioning	Number of Vessels of this Type	Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)
Commissioning Crew Transfer Vessels (HC)	3	Main engines (2): 749 Main engines (2): 20
Vessel Types to be used for OSS Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Heavy Lift Vessel (HC)	1	Main engines (5): 4,500 Auxiliary engines (1): 4,500
Tug (HC)	2	Main engines (2): 2,540 Auxiliary engines (1): 199
Noise Mitigation Offshore Service Vessel (HC)	1	Main engines (2): 3,310 Auxiliary engines (3): 499
Acoustic Monitoring Offshore Service Vessel (HC)	1	Main engines (1): 2,500 Auxiliary engines (1): 199
Topside Tug (HC)	1	Main engines (2): 2,540 Auxiliary marine engines (1): 199
Refueling Offshore Service Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20
Hotel Jack-up Vessel (HC) **[OCS Source]**	1	Main engines (2): 2,350 Auxiliary engine (2): 1,000
Vessel Types to be used for Array Cable Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Cable Lay Vessel (HC)	1	Main engines (3): 1,750 Auxiliary engine (1): 1,750
Offshore Support Vessel (HC)	1	Main engines (1): 1,611 Auxiliary engine (2): 123
Crew Transfer Vessel (HC)	2	Main engines (2): 749 Auxiliary engine (2): 20
Trenching Vessel (HC)	1	Main engines (5): 3,000 Auxiliary engine (1): 3,000
Guard Crew Transfer Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20

Table 1A – Types of marine vessels, and associated main and auxiliary marine engines, to be used during C&C (continued)

Vessel Types to be used for Export Cable Installation	Number of Vessels of this Type	Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)
Cable Lay Vessel (HC)	1	Main engines (3): 1,750 Auxiliary engine (1): 1,750
Multipurpose Offshore Support Vessel (HC)	1	Main engines (1): 1,611 Auxiliary engine (2): 123
Trenching Vessel (HC)	1	Main engines (5): 3,000 Auxiliary engine (1): 3,000
Horizontal Directional Drilling Lift Vessel (HC)	1	Main engines (2): 2,350 Auxiliary engine (2): 1,000
Horizontal Directional Drilling Pull-In Vessel (HC)	1	Main engines (1): 1,611 Auxiliary engine (2): 123
Pull-In Support Vessel (HC)	1	Main engines (2): 392 Auxiliary engine (2): 135
Vessel Types to be used for Met Tower Installation	**Number of Vessels of this Type**	**Marine Engines: Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Heavy Lift Vessel (HC)	1	Main engines (5): 4,500 Auxiliary engine (1): 4,500
Tugs (HC)	3	Main engines (2): 2,540 Auxiliary engines (1): 199
Noise Mitigation Offshore Service Vessel (HC)	1	Main engines (2): 3,310 Auxiliary engines (3): 499
Acoustic Monitoring Offshore Service Vessel (HC)	1	Main engines (2): 2,540 Auxiliary engines (1): 199
Refueling Offshore Service Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20
Hotel Jack-up Vessel (HC) **[OCS Source]**	1	Main engines (2): 2,350 Auxiliary engine (2): 1,000

Table 1B. Types of marine vessels, and associated main and auxiliary marine engines, to be used during Operations and Maintenance (O&M)

Vessel Types to be used for Offshore Marine Operations	Number of Vessels of this Type	Marine Vessel Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)
Fallpipe Vessel (Scour Protection Repairs) (HC)	1	Main engines (3): 4,500 Auxiliary engines (1): 492 Auxiliary engines (1): 1,200
Crew Transfer Vessel (OSS O&M Refueling Operations) (HC)	1	Main engines (2): 749 Auxiliary engines (2): 20
Jack-Up Vessel (WTG Inspection/Maintenance/Repairs Main Repair Vessel) (HC) **[OCS Source]**	1	Main engines (2): 2,350 Auxiliary engines (2): 1,000
Survey Vessel (WTG Inspection/Maintenance/Repairs Multi-role Survey Vessel) (HC)	1	Main engines (2): 392 Auxiliary engines (2): 135
Vessel Types to be used for Offshore Maintenance	**Number of Vessels of this Type**	**Marine Vessel Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Survey Vessel (Cable Inspection/Repairs Multi-role Survey Vessel) (HC)	1	Main engines (2): 392 Auxiliary engines (2): 135
Crew Transfer Vessel (Daily O&M and Miscellaneous) (HC)	4	Main engines (2): 749 Auxiliary engines (2): 20
Sportfisher (Daily O&M and Miscellaneous) (HC)	1	Main engines (2): 749 Auxiliary engines (2): 20

Table 2A – Non-Marine Engines – Portable Diesel Generator Engines used during C&C

Activity	Engine Description	Number of Engines	Maximum Engine Power (kW)
OSS Installation	OSS Installation Generator Engine **[OCS Source]**	4	150

Table 2B - Non-Marine Engines – Portable Diesel Generator Engines used during O&M

Activity	Engine Description	Number of Engines	Maximum Engine Power (kW)
Daily O&M and Miscellaneous (Electrical Service)	Generator Engine **[OCS Source]**	4	150

Table 2C. Non-Marine Engines – Permanent Diesel Generator Engines used during O&M

Activity	Engine Description	Number of Engines	Maximum Engine Power (kW)
OSS	OSS Generator Engine **[OCS Source]**	4	150

PART A – GENERAL PROVISIONS

(1) The following Air and Radiation Administration (ARA) applications and supplemental information are incorporated into this permit by reference:

(a) Application for Prevention of Significant Deterioration (PSD) Approval received on August 17, 2023 (hardcopies received on September 3, 2023), with revised application received November 30, 2023 (hardcopies received on December 7, 2023) for the construction of the Maryland Offshore Wind Project.

(b) Application for Non-Attainment New Source Review (NA-NSR) Approval received on August 17, 2023 (hardcopies received on September 3, 2023), with revised application received November 30, 2023 (hardcopies received on December 7, 2023) for the construction of the Maryland Offshore Wind Project.

(c) Application for Fuel Burning Equipment (Form 11) for the following vessels supporting the construction and/or operation of the Maryland Offshore Wind Project: Foundation Installation Fallpipe Vessel; Foundation Installation Heavy Lift Vessel; Foundation Installation Tugs; Foundation Installation Crew Transfer Vessel;

Foundation Installation Offshore Support Vessel Noise Vessels; Foundation Installation Environmental Crew Transfer Vessels; Wind Turbine Generator Installation Jack-up vessel; Wind Turbine Generator Installation Tugs; Wind Turbine Generator Commissioning Crew Transfer Vessels; Offshore Substation Installation Heavy Lift vessel; Offshore Substation Installation Tug; Offshore Substation Installation Offshore Support Vessel; Offshore Substation Installation Topside Tug; Offshore Substation Installation Refueling Offshore Support Vessel; Offshore Substation Installation Hotel Jack-up vessel; Array Cable Lay vessel; Array offshore support vessel; Array Crew Transfer Vessel; Array trenching vessel; Array guard vessel; Export Cable lay vessel; Export Cable Multipurpose Offshore Support Vessel; Export Cable Trenching Vessel; Export Cable Horizontal Directional Drilling Lift Vessel; Export Cable Horizontal Directional Drilling pull in Vessel; Export Cable pull in support vessel; Operation Scour Protection Repair Vessel; Operation Refueling Vessel; Operation Main Repair Vessel; Operation survey vessel; Operation Crew Transfer Vessel; and the Operation Environmental Monitoring Vessel, received on August 17, 2023 with revised forms received November 30, 2023.

(d) Application for Internal Combustion Engines (Form 44) received on August 17, 2023 (hardcopies received on September 3, 2023) with revised form received November 30, 2023 (hardcopies received on December 7, 2023) for the construction/installation of four (4) 150 kW electric generators, each to be located on the four (4) Offshore Substations.

(e) Supplemental Information:

(i) Air Quality Impact Analysis for 24-hour PM-10, annual PM-2.5, 1-hour and annual NO_2 Impacts received on August 17, 2023, and revised copies on November 30, 2023;

(ii) Response to the Department's Supplemental Request for Additional Information for OCS Air Permit (i.e., revised Section 5, and revised Appendix A) received January 5, 2024;

(iii) Class I AQRV Assessment Modeling Protocol, received on May 23, 2024;

(iv) Class I AQRV Assessment Modeling Report, received on July 31, 2024;

(v) Revised potential to emit emission calculations, received September 20, 2024, for air pollutants originating from various marine vessels, each powered by their own diesel engine and other construction equipment all servicing the construction and operation of the Maryland Offshore Wind Project using the EPA's "Ports Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions", EPA-420-B-22-011, April 2022; and

(vi) Narrative on vessel selection criteria and information on the assumptions taken to support the facility wide potential to emit, received November 6, 2024.

If there are any conflicts between representations in this Approval and representations in the applications, the representations in this Approval shall govern. Estimates of dimensions, volumes, emissions rates, operating rates, feed rates and hours of operation included in the applications do not constitute enforceable numeric limits beyond the extent necessary for compliance with applicable requirements.

(2) Upon presentation of credentials, representatives of the Maryland Department of the Environment ("MDE" or the "Department"), the EPA, and the Worcester County Health Department shall at any reasonable time be granted, without delay and without prior notification, access to the Permittee's property and permitted to:

(a) inspect any construction authorized by this Approval;

(b) sample, as necessary to determine compliance with requirements of this Approval, any materials stored or processed on-site, any waste materials, and any discharge into the environment;

(c) inspect any monitoring equipment required by this Approval;

(d) review and copy any records, including all documents required to be maintained by this Approval, relevant to a determination of compliance with requirements of this Approval;

(e) obtain any photographic documentation or evidence necessary to determine compliance with the requirements of this Approval; and

(f) the Department may exercise its right of entry through use of an unmanned aircraft system to conduct inspections, collect samples, or make visual observations through photographic or video

recordings.

(3) Nothing in this Approval authorizes the violation of any rule or regulation or the creation of a nuisance or air pollution.

(4) If any provision of this Approval is declared by proper authority to be invalid, the remaining provisions of the Approval shall remain in effect.

(5) All terms defined in the Permit-to-Construct for the Maryland Offshore Wind Project (ARA Registration No. 047-0248) apply to this PSD Approval.

(6) Any notifications, records, reports, plans, and documents referenced in this Approval shall be made available to the EPA as specified in this Approval or upon request by the EPA.

PART B – APPLICABLE REGULATIONS

(1) The Permittee may not construct or operate a PSD source, as defined in COMAR 26.11.01.01B(37), which will result in violation of 40 CFR §52.21, as amended.

(2) COMAR 26.11.06.14, which states that the Permittee shall not construct, modify, or operate a PSD source as defined in COMAR 26.11.01.01B(37) without first obtaining a PSD Approval in accordance with the provisions of 40 CFR §52.21.

PART C – BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

(1) To meet Best Available Control Technology (BACT) requirements, emissions of nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5) from each OCS source shall be limited to the following:

(a) All vessels contracted by the Permittee shall be equipped with marine engines (main and auxiliary) that meet the most stringent, applicable EPA Tier or MARPOL Annex VI emissions standard available at the time the marine vessel is hired for the specific work required in the timeframe required. Marine vessels with the next highest-tier engines may be hired and deployed, if the Permittee documents the basis for its conclusion that the highest-tier vessel, and any other higher-tiered vessels, are not available. The engines may also meet the next most stringent emission standards if the total emissions associated with the use of a vessel with an engine(s) that meet the most stringent emission standards would be greater than the total emissions associated with the use of the vessel with an engine(s) that meet the next most stringent emission standards.

For purposes of this subparagraph, when determining the total emissions associated with the use of a vessel with a particular engine, the Permittee shall include the emissions of the vessel that would occur when the vessel would be in transit to the OCS source from the vessel's starting location.

(b) Each Category 1 main and auxiliary marine engine of a vessel shall be certified to the applicable engine EPA Tier emission standard specified in 40 CFR §1042.101, meeting Tier 2 requirements at the minimum.

(c) Each Category 2 main and auxiliary marine engine shall be certified to the applicable engine EPA Tier emission standard specified in 40 CFR §1042.101, meeting Tier 2 requirements at the minimum.

(d) Each Category 3 main and auxiliary marine engine shall be certified to the applicable engine EPA Tier emission standard specified in 40 CFR §1042.104, meeting Tier 2 requirements at the minimum.

(e) For marine engines (main and auxiliary) onboard foreign-flagged marine vessels, each engine shall be certified to the applicable engine emission standard specified in 40 CFR §1043, meeting MARPOL Annex VI requirements at the minimum.

(f) For Non-Marine Engines, Portable Diesel Generator Engines used during C&C and O&M, the Permittee shall ensure that each of the portable diesel generator engines is certified to meet the EPA Tier 4 emission standard from 40 CFR §1039, that applies to each engine.

(g) For Permanent Diesel Generator Engines on OSS during O&M, the Permittee shall ensure that each of the portable diesel generator engines is certified to meet the EPA Tier 4 emission standard from 40 CFR §1039, that applies to each engine.

(h) The Permittee shall use good combustion practices based on the manufacturer's specifications for all marine and non-marine engines associated with the Maryland Offshore Wind Project.

(2) The Permittee shall comply with the following additional BACT fuel requirements for PM-10 and PM-2.5 from the Maryland Offshore Wind Project, while the vessel is an OCS source:

(a) The Permittee shall use ultra-low-sulfur diesel (ULSD) fuel in all Category 1 and 2 engines, Non-Marine Engines, Portable Diesel Generator Engines used during C&C and O&M, and Permanent Diesel

Generator Engines on OSS during O&M that meets the per-gallon standards below.

(i) a maximum sulfur content of 15 parts per million (ppm); and
(ii) a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

(b) The Permittee shall use fuel with a maximum sulfur content of 1000 ppm in all Category 3 engines.

(3) Prior to the C&C Start Date, the Permittee shall provide the Department an initial report, for review and approval, that defines each vessel contracted, each anticipated representative vessel, and each marine and non-marine engine to be used during the initial C&C and O&M of the Maryland Offshore Wind Project. The report shall include, at a minimum, the following information:

(a) All the information required by Part G(1)(a), (b), (c), (d) of this Approval;
(b) The proposed BACT for each OCS source engine for NO_2, CO, PM-10, PM-2.5 in units of grams per kilowatt-hour (g/kW-hr);
(c) The regulatory citation for each BACT proposal for NO_2, CO, PM-10, PM-2.5;
(d) The proposed BACT compliance demonstration for NO_2, CO, PM-10, PM-2.5; and
(e) Updated Potential to Emit estimates and calculations for NO_2, CO, PM-10, PM-2.5 as per the emission estimation methods as required in Part F of this Approval.

(4) C&C shall not commence until the Department has approved the proposed BACT for NO_2, CO, PM-10, PM-2.5 and the proposed BACT compliance demonstrations for NO_2, CO, PM-10, PM-2.5 in writing.

(5) For any vessel or non-marine engine substitutions during the life of the Maryland Offshore Wind Project, the Permittee shall provide the information required by Part C(3) for review and approval, prior to use of that vessel or engine.

PART D – EMISSIONS RESTRICTIONS

(1) Total emissions of NO_2, CO, PM-10, and PM-2.5 from the Maryland Offshore Wind Project shall be less than the following limits including periods of startup, shutdown, and malfunction:

Table 3 – Emissions Limits

Pollutant	Maximum Annual C&C and O&M, Combined During C&C (tons/12-months rolling)	Total for the Entire C&C Phase, which includes both C&C and O&M Emissions (tons)	Maximum O&M (tons/12-months rolling)
NO_2	616	1380	25
CO	149	344	24
PM-10	20	45	0.66
PM-2.5	19	44	0.65

(2) Total daily emissions from the Maryland Offshore Wind Project shall be less than the following limits, expressed as tons per day (tpd). These limits are derived from the emissions modeled in the application and ensure compliance with the NAAQS and PSD increments.

Table 4 – Daily Emissions Limits Pollutant Maximum C&C and O&M (tpd)

Pollutant	Maximum C&C during OSS Installation Periods[1] combined with O&M (tpd)	Maximum C&C during OSS Commissioning Periods[2] combined with O&M (tpd)	O&M (tpd)
NO_2	30.06	29.54	4.52
CO	3.37	3.89	0.59
PM-10	0.32	0.28	0.06
PM-2.5	0.31	0.27	0.05

1. OSS Installation Period consists of the following: Scour protection installation, WTG Installation, WTG Commissioning, OSS Installation (the Vessels listed as OSS Installation Vessels in Table 1A, excluding the Refueling Offshore Service Vessel and Hotel Jack-up Vessel), Inter-Array Cable Installation, Offshore Export Cable Installation; and O&M activities.

2. OSS Commissioning Period consists of the following: Foundation Installation, Scour protection installation, WTG Installation, WTG Commissioning, OSS Commissioning (the Vessels listed as OSS Installation Vessels in Table 1A, excluding the Heavy Lift Vessel, Tug, Topside Tug, Noise Mitigation Offshore Service Vessel, and Acoustic Monitoring Offshore Service Vessel), Inter-Array Cable Installation, Offshore Export Cable Installation; and O&M activities."

PART E – OPERATING AND MONITORING REQUIREMENTS

(1) For the Maryland Offshore Wind Project, the Permittee shall develop and implement a plan that will ensure good combustion practices and combustion efficiency, per manufacturer recommendations. The Good Combustion Practices and Combustion Efficiency Plan shall include practices to minimize engine idling, a summary of the good combustion practices for each engine, a preventative maintenance schedule, and any additional information as deemed necessary by the Department.

(2) The Good Combustion Practices and Combustion Efficiency Plan shall be submitted to the Department for review and approval. C&C shall not commence until the Permittee receives approval of the Good Combustion Practices and Combustion Efficiency Plan from the Department in writing.

(3) To ensure compliance with the NAAQS and PSD increments and total daily emissions limits in Part D(2), Table 4 (Maximum C&C during OSS Installation Periods combined with O&M) of this Approval, vessels associated with the following activities may be operated simultaneously when each of the individual activities are located greater than 1.25 NM away from each other: WTG Installation, Scour Protection Installation, WTG Commissioning, OSS Installation (the Vessels listed as OSS Installation Vessels in Table 1A, excluding the Refueling Offshore Service Vessel and Hotel Jack-up Vessel), Inter-array Cable Installation, Export Cable Installation, and O&M. The separation distance shall be calculated based on the GPS coordinates of the center point of each activity (e.g., the monopile foundation attached to OCS).

(4) To ensure compliance with the NAAQS and PSD increments and total daily emissions limits in Part D(2), Table 4 (Maximum C&C during OSS Commissioning Periods combined with O&M) of this Approval, vessels from the following activities may be operated simultaneously when each of the individual activities are located greater than 1.25 NM away from each other: Foundation Installation, WTG Installation, Scour Protection Installation, WTG Commissioning, OSS Commissioning (the Vessels listed as OSS Installation Vessels in Table 1A, excluding the Heavy Lift Vessel, Tug, Topside Tug, Noise Mitigation Offshore Service Vessel, and Acoustic Monitoring Offshore Service Vessel), Inter-array Cable Installation, Export Cable Installation, and O&M. Vessels associated with OSS Commissioning specified above and Export Cable Installation or Inter-array Cable Installation may be operated simultaneously at distances less than 1.25 NM away from each other. The separation distance shall be calculated based on the GPS coordinates of the center point of each activity (e.g., the monopile foundation attached to OCS).

(5) With submittal of the Report in condition C(3), which defines each vessel contracted, each anticipated representative vessel, and each marine and non-marine engine to be used during the initial C&C and O&M of the Maryland Offshore Wind Project, permittee may provide additional modeling for NAAQS and PSD increment compliance, upon approval from the Department, for simultaneous activities at distances less than 1.25 NM."

PART F – COMPLIANCE DEMONSTRATION

(1) The Permittee shall calculate actual total NO_2, CO, PM-10, and PM-2.5 emissions from the Maryland Offshore Wind Project for each calendar month and for each

consecutive 12-month rolling period. For marine engines, the Permittee shall use the most recent version of the EPA Ports Emissions Inventory Guidance. For non-marine engines the Permittee shall use the most relevant data available, which may include actual test data, tier standards, EPA's annual engine certification data, and any emissions information obtained from equipment vendors. The Permittee must obtain approval from the Department to use an alternate emissions estimation method.

(2) The Permittee shall use actual vessel and engine data to calculate emissions as required by Part F(1). The Permittee shall include all data to support the calculations.

(3) The Permittee shall demonstrate compliance with applicable BACT emission limits (g/kW-hr) for each OCS source engine by ensuring that each engine has an EPA Certificate of Conformity to the applicable Tier emission standard, or a MARPOL Annex VI, IAPP Certificate for the vessel and an EIAPP certificate for the engine, as required in Part C(1).

PART G – REPORTING AND RECORDKEEPING REQUIREMENTS

(1) The following records with supporting documentation shall be maintained on site for at least five (5) years and made available to the Department and EPA upon request:

(a) For each vessel associated with the Maryland Offshore Wind Project: the vessel's owner, vessel name, year that the vessel was built, nation of origin of the vessel, exact vessel function, whether the vessel is an OCS Source, and documentation specifically supporting whether (1) the vessel requires attachment to the seabed (either via anchors, spuds (type of jack-up vessel), or other type of attachment) during the C&C or O&M activities; (2) the vessel could be maintained in a fixed position using only the vessel engines and without any attachment to the seabed during the C&C and O&M activities; or (3) the vessel would require attachment to other vessels, while those other vessels are OCS sources, or to the WTGs or OSSs structures during the C&C or O&M activities;

(b) For each marine engine of each vessel associated with the Maryland Offshore Wind Project, regardless of whether the vessel is considered an OCS source or not: the engine's category (1 through 3), marine engine function (i.e., main (or propulsion) or auxiliary marine engine), engine type (e.g., slow-speed diesel, gas turbine…), rated engine size and total installed propulsion power (maximum continuous rated engine power in kW), vessel speed and maximum vessel speed,

maximum draft, make and model year or remanufacture year, keel-laid year, engine stroke type (e.g. 2- or 4-stroke), displacement in liters/cylinder, install date, maximum in-use engine speed in rotations per minute, type of fuel used (e.g. marine gas oil, marine diesel oil…), brake specific fuel consumption, average loads, and the EPA Certificate of Conformity to a Tier engine rating, or EIAPP certificate and IAPP certificate, as applicable;

(c) For each vessel deployed during C&C and/or O&M, the Permittee shall maintain a record of the alternate vessels that, during the time of contract deployment, were available for hire for the required work needed at the time needed, as well as the Tier levels for each vessel's engines. The alternate vessels available for hire shall be listed in ranking order from the one with the highest-tiered engines to the one with the lowest tiered-engines. The record should indicate if the vessel with the highest tiered-engines from the list was the actual vessel hired and deployed. If the vessel with the highest tiered-engines from the list was not the actual vessel hired and deployed, the record should document the reason(s) for the Permittee selection of a vessel with lower-tiered engines;

(d) For each non-marine engine of each vessel that will be associated with the Maryland Offshore Wind Project: maximum engine power (kW), model year, type of fuel used, and the EPA Certificate of Conformity to the Tier 4 emission standards in 40 CFR §1039.101(b);

(e) The daily operating hours for each engine associated with the Maryland Offshore Wind Project. The hours of operation shall be recorded from a non-resettable hour meter or, if a non-resettable hour meter is not available, by monitoring and maintaining records of the actual daily operating hours;

(f) The daily fuel use, in units of gallons per day, for each engine associated with the Maryland Offshore Wind Project and records of fuel supplier certifications for all fuelings to demonstrate compliance with all applicable fuel sulfur content limitations;

(g) Daily records of marine engine load factors calculated per vessel associated with the Maryland Offshore Wind Project; load factor shall be calculated per the most recent version of the EPA Ports Emissions Inventory Guidance, unless the Permittee obtains approval from the Department to use an alternate emissions estimation method.

(h) The daily, monthly, and consecutive 12-month rolling actual NO_2, CO, PM-10, and PM-2.5 emissions with the Maryland Offshore Wind

Project, including calculations and data to support the calculations; and

(i) The Good Combustion Practices and Combustion Efficiency Plan that will ensure good combustion practices and combustion efficiency, per manufacturer recommendations and all associated records.

(j) For each vessel deployed during C&C and/or O&M, US Wind, Inc. shall record on a daily basis, the GPS coordinates of the center point of the operation (e.g., the monopile foundation attached to OCS) from the list of the following activities: Foundation Installation, Scour Protection Installation, WTG Installation, WTG Commissioning, OSS Installation, OSS Commissioning, Inter-array Cable Installation, Export Cable Installation, and O&M."

(2) The Permittee shall provide a copy of the Permittee's request for establishment of temporary safety zones and the temporary final rule for the 500-meter temporary safety zones established by the U.S. Coast Guard. In the event the U.S. Coast Guard does not establish a 500-meter safety zone, the Permittee shall establish an enforceable 500-meter exclusion zone to prevent incursion by unauthorized entities. The Permittee and/or the U.S. Coast Guard will monitor temporary exclusion/safety zones to prevent incursion into the exclusion/safety zones by unauthorized entities and report any incursion to the Department that results in an emissions exceedance as specified in Part H(9) of the air quality permit to construct. [Reference: 40 C.F.R. § 55.8, 40 C.F.R. § 55.13, and 33 C.F.R. § 147].

(3) All air quality notifications, records, reports, plans, and documents required by this Approval shall be submitted electronically to the Air Quality Compliance Program to:

mdeair.othercompliance@maryland.gov

ATTACHMENT 4

MARYLAND DEPARTMENT OF THE ENVIRONMENT

AIR & RADIATION MANAGEMENT ADMINISTRATION

PUBLIC HEARING FOR US WIND'S OFFSHORE WIND FARM PROJECT

PERMIT APPLICATION

The hearing in the above matter commenced on Thursday, January 9, 2025, at 6:09 p.m., at the Ocean City Convention Center, 4001 Coastal Highway, Ocean City, Maryland.

BEFORE: SHANNON HEAFEY, Hearing Officer

Reported by: George L. Quade, CERT

forms of technology to harvest clean energy to fuel our grid in ways that are economically and environmentally sound. For these reasons, I remain strongly opposed to any offshore development in the Atlantic Ocean. Thank you.

(Applause.)

MS. HEAFEY: Thank you.

Commissioner Bertino?

MR. MITRECIC: No. Commissioner Mitrecic.

MS. HEAFEY: I'm sorry?

MR. MITRECIC: Commissioner Mitrecic is speaking.

MS. HEAFEY: Oh, okay. Wonderful. Thank you.

MR. MITRECIC: I'm on the list farther down, so you can scratch me off.

MS. HEAFEY: Okay.

MR. MITRECIC: Good evening. And, again, thank you all for being here. It's nice that you had this public hearing in the town and in the county that's most affected by these windmills moving forward.

My name is Joe Mitrecic. I'm speaking on

behalf of the Worcester County Commissioners. We are opposed to the air quality permit and approvals sought by US Wind. This project is doing nothing to improve local quality of life. While wind might be called clean energy, this project will bring pollutants to our air and water. The dozens of boats that will be required for construction, and later maintenance and operations, will produce hundreds of tons of nitrous oxide, contributing to smog, acid rain, and potentially leading to algae blooms in the ocean.

Construction won't last forever, but operations and maintenance will be required through the life of these turbines. Even when the turbines are not operational, US Wind's boats will be. What does that mean for our residents? This project is already eliminating Worcester County's only remaining fish houses, crippling our commercial harbor, and is poised to drastically reduce tourism in our town.

If these latest approvals are granted, it will also be emitting nitrous oxide, carbon monoxide, and greenhouse gases, into Worcester County. If MDE moves

forward with foolishly granting this permit and these approvals for US Wind, given the adverse local impacts, no waivers should be granted. The controls proposed are not enough to protect the local population from the impacts from the project. Worcester County will need increased air quality monitoring to ensure area residents aren't being unfairly burdened with the dirty side effects of clean energy.

The bottom line is these monstrosities will never offset the carbon footprint created by manufacturing, construction, and maintaining. Thank you.

(Applause.)

MS. HEAFEY: Thank you.

Commissioner Weston Young? Are you here?

UNIDENTIFIED MALE: You got demoted.

MS. HEAFEY: I'm so sorry, what --

MR. YOUNG: I'm chief administrative officer.

MS. HEAFEY: Oh, I'll fix that.

MR. YOUNG: Thank you. Good evening. Once again, I'm the chief administrative officer for Worcester County, and I thank you for your time tonight.

I am a professional engineer, and I also have a seat on MDE's air quality control advisory council. What we have proposed here are permits that, if authorized, will allow the degradation of the air quality of Ocean City and Worcester County. We currently have no significant stationary emission sources in this area. The construction process and daily operations will add NOx and fine particulate to our air, that is the air our citizens and the eight million unique visitors that come to the county and Ocean City, breathe.

Further, in November in a presentation in Salisbury, representatives from US Wind said the O&M facility proposed will house 100 jobs. If you've been to West Ocean City, or the harbor area, you're aware that there's already parking and congestion concerns. Now add up to 100 more cars to the mix. This is not an insignificant increase in pollution, and it will further expand the air quality impacts in-shore.

Lastly, the wind doesn't always blow. And what's powering all these homes that this project is supposed to power when nothing's being generated? The

electrons have to come from another power source, likely coal, or natural gas generated power. So now to power the homes that this project is supposed to power, at least two power generation systems have to be maintained, one supposedly green, the other likely not.

This is inefficient and ineffective. This is neither clean nor green. And ultimately it does not provide a single positive impact to our county, our citizens, or our visitors. And I ask that you deny these permits.

I think a significantly more elaborate study needs to be performed that includes all the air quality impacts this project will bring. However, if you decide to go forward, I think any monitoring waivers should be denied. And given the project's timeline for completion, Tier V emission standards should be imposed because they'll likely be wrapped up by the time these O&M boats are operating. And that's on the boats, the generators, and any other equipment they have.

And, further, any offsets that are needed for this project should be located in Worcester County, the

only county being impacted by this. So I thank you for your time and consideration.

MS. HEAFEY: Thank you.

(Applause.)

MS. HEAFEY: Mayor Meehan?

MR. MEEHAN: Thank you. Thank you for the invite this evening and allowing us the opportunity to speak. If you would have asked, I would have gotten you another podium that would have made it a little easier.

MS. HEAFEY: Sorry. Appreciate that.

MR. MEEHAN: So thank you. My name is Rick Meehan, and I'm the mayor of Ocean City, Maryland. And I'm here tonight representing the Mayor and City Council and the citizens of Ocean City, and we're united in our opposition to all three air quality permits that are before us this evening.

The first time I addressed this issue regarding the US Wind project was over seven and a half years ago at a public hearing held by the Maryland Public Service Commission in Berlin, Maryland. I stated my concerns about the project at that time. They were ignored.

We stated our concerns, I can't even tell you, at how many public hearings over the last seven and a half years, and all of them have been ignored, every single one. Not one concession has been made, not one change has been made, to the project to address any of our concerns. It seems unbelievable, doesn't it? Not one.

Tonight, unfortunately I expect the result to be the same. And despite the comments made by my colleagues that spoke before me about greenhouse gases and those that will be emitted by this project, I think they'll be ignored and these permits will be approved as this project continues to be fast-tracked through the system. And, believe me, it has been fast-tracked at every single stage.

I would like to know if MDE, or those that are involved in this project, have any experience at all previously with evaluating wind turbine projects, in particular one this size. Is there any experience at the staff level with regard to this?

So we're talking about quality. Well, I want

to talk a little bit about quality. What about the quality of life here in Ocean City and the Eastern Shore? I think my colleagues have spoken about that. What about the quality of the view off our coast when we're looking at what I thought were 914, 938-feet tall turbines, that will totally industrialize our viewshed.

What about the quality of the vacation experience, which studies have shown will decline dramatically if the turbines are visible from our beach? What about the quality of our ecosystem that will be dramatically altered during the construction and operation of these monstrous turbines? What about the reduced quality of the Atlantic flyway and its impact on migratory birds, and ultimately the quality of our coastal bays? What about that quality?

What about the quality of our commercial fishing industry that US Wind is basically looking to eliminate entirely by taking over our West Ocean City harbor? What about the quality of the recreational fishing experience that will forever be altered with the construction of these turbines?

What about the quality of our real estate market and property values that will plummet if our viewshed and our economy are destroyed. US Wind has never even been required to do an economic study on the impact of this project; fast-tracked. What about the quality and the loss of jobs that currently exist today? What about that?

What about the quality of life for rate payers across the State of Maryland that will now be faced with a wind tax to provide electricity that may or may not ever be delivered to them?

The Governor of Delaware today stated that the US Wind project would save Delawarians over $200 million. Well, thank you Maryland rate payers for taking care of our good neighbors in Delaware.

These permits have already been approved. This is a formality this evening. And, respectfully, I think everybody knows that. And if seven and a half years have proven anything to me, that’s the case tonight.

But if you look around the opposition is growing. Ocean City stands together with Worcester

County, Fenwick Island, Delaware, and over 20 co-plaintiffs in our lawsuit against BOEM and the questionable approval of this project. Questions are now finally being raised state-wide about the viability and the true cost benefit of this project. Are wind farms really the answer to solving our energy problems and to addressing clean energy? I think in final analysis the answer will be no, and we'll all be left behind. Why would we do that?

You can approve an air quality permit, but you will not stop our opposition or the right of our local government to represent our citizens. This has been a bad project from the beginning, and you, the State, has been bullied by US Wind, and we have been ignored by the State. But this is about our quality of life and our future, and we will not stand down. Again, we stand in opposition and ask you to deny these permits. Thank you.

(Applause.)

MS. HEAFEY: Thank you. I'd like to call up town administrator Terry McGean.

MR. MCGEAN: Good evening. My name is Terry

McGean, and I am the city manager for Ocean City, Maryland. I'd also like to thank MDE for being here tonight, and specifically for being here in Ocean City, in Worcester County, and not someplace on the other side of the bridge talking to people who aren't affected by this project. So we all, I think, appreciate that.

I am speaking in opposition to the approval of all three US Wind air quality permits under discussion tonight. The town of Ocean City has strongly expressed our opposition to the US Wind project since it was first presented to the public in 2017.

Our concerns have consistently fallen on deaf ears, and instead US Wind and the State of Maryland have made matters worse, doubling the size of the turbines, doubling the number of turbines, and moving the turbines closer to our shore.

The threats to our economy, our viewshed, our property values, our fishing industry, and our ocean environment, from this project are now well-documented. Studies predict a minimum 12 percent loss in tourism trips, and a 50 percent loss of vacation rentals. BOEM's

own environment impact statement says the viewshed impact in Ocean City will be major and change the character of the area. To make way for their industrial turbine maintenance facility, US Wind plans to displace the only land port for Maryland's commercial fishing fleet. And, finally, the federal government has approved US Wind's COP without any thought, any mention, of how a catastrophic blade failure, such as what just occurred in New England, would be prevented, much less how it would be cleaned up.

Now US Wind comes asking for an air quality permit for their so-called green energy project. And once again our state ignores the concerns of the citizens most impacted by the project and rubber stamps three more permits.

These permits will allow US Wind to belch out 41,673 tons of greenhouse gases each year off our coast. That's the equivalent to the emissions from 9,000 passenger cars. So imagine 9,000 cars sitting in our ocean idling, driving around all year long. That's what they're going to be doing.

The permit also allows US Wind to produce 616 tons -- not 100, 616 tons of nitrous oxide per year. As mentioned, that's the equivalent of 56,000 cars driving per year. As mentioned, nitrous oxide contributes to smog and acid rain, and, most importantly, given this project's location, is a known water pollutant causing algae blooms.

Enough is enough. This project is bad for Ocean City; it's bad for Worcester County, and it's bad for the State of Maryland. Thank you.

(Applause.)

MS. HEAFEY: Thank you. Mayor Magdeburger?

MS. MAGDEBURGER: Rick, I'm your neighbor over there in Delaware. I don't want that. I don't want that -- the money.

I thank you for taking the comments tonight. I've echoed comments of all the others that have spoken before me, particularly my comments, and they're very good and very direct.

I am the mayor of Fenwick Island, Delaware. I'm your neighbor across the border. Fenwick Island is

US Wind Air Quality Permit Public Hearing

Statement from Worcester County Chief Administrative Officer Weston Young

Jan. 9, 2025

Good evening, my name is Weston Young and I am the Chief Administrative Officer for Worcester County. I am a professional engineer and a member of MDE's Air Quality Control Advisory Council. What we have proposed here are permits that, if authorized, will allow the degradation of the air quality of Ocean City and Worcester County. We currently have no significant stationary emission sources in this area. The construction process and daily operations will add NOX and fine particulate to our air — the air our citizens and the 8 million visitors each year will breathe.

Further, in a November presentation in Salisbury, representatives from US Wind said the O&M facility proposed in the harbor will house 100 jobs. If you've been to the West Ocean City area and around the harbor, you're aware there are already parking and congestion concerns. Now add up to 100 more cars to the mix. This is not an insignificant increase in pollution either and will further expand the air quality impacts inshore.

Lastly, the wind does not always blow. What is powering all the homes that this project is allegedly supposed to power when nothing is being generated? The electrons will have to come from another power source, likely coal or natural gas generated power. So now, to power the homes that this project is supposed to power, at least two power generation systems have to be maintained, one supposedly green, one very likely not. This is inefficient and ineffective. This project is neither clean nor green. And, ultimately, it does not provide a single positive impact to our county, our citizens, or our visitors.

I ask that you deny these permits. I think a significantly more elaborate study needs to be performed that includes ALL the air quality impacts this project will bring. If you decide to move forward, I think any monitoring waivers should be denied and, given the project's timeline for completion, tier 5 emission reductions should be required on all boats, generators, and any other equipment, as those standards should be developed by then. Further, any and all offsets to be located in Worcester County. I thank you for your time and consideration.

US Wind Air Quality Permit Public Hearing

Statement from Worcester County Commissioner Joe Mitrecic

Jan. 9, 2025

My name is Joe Mitrecic and I'm speaking on behalf of the Worcester County Commissioners. We are opposed to the air quality permit and approvals sought by US Wind.

This project is doing nothing to improve local quality of life. While wind might be called clean energy, this project will bring pollutants to our air and water. The dozens of boats that will be required for construction and later maintenance and operations will produce hundreds of tons of nitrous oxide, contributing to smog and acid rain and potentially leading to algae blooms.

Construction won't last forever, but operations and maintenance will be required through the life of the turbines. Even when the turbines aren't operational, US Wind's boats will be. What does that mean for our residents? This project is already eliminating Worcester County's only remaining fish houses, crippling our commercial harbor, and is poised to drastically reduce tourism. If these latest approvals are granted, it will also be emitting nitrous oxide, carbon monoxide and greenhouse gasses in Worcester County. Where are our offsets?

If MDE moves forward with foolishly granting this permit and these approvals for US Wind, given the adverse local impacts no waivers should be granted. At a minimum, the state needs to mandate better controls and monitoring. The controls proposed are not enough to protect the local population from the impacts from this project. Worcester County will need increased air quality monitoring to ensure area residents aren't being unfairly burdened with the dirty side effects of clean energy.

ATTACHMENT 5

MARYLAND DEPARTMENT OF THE ENVIRONMENT
AIR AND RADIATION ADMINISTRATION
1800 WASHINGTON BOULEVARD
BALTIMORE MARYLAND 21230

NON-ATTAINMENT NEW SOURCE REVIEW (NSR) APPROVAL
FINAL DETERMINATION AND FACT SHEET

US WIND, INC.
MARYLAND WIND OFFSHORE PROJECT
ARA PREMISES NO. 047-0248
NSR APPROVAL - NSR-2024-01

I. DEFINITIONS

All terms defined in the Permit to Construct for the Maryland Offshore Wind Project (ARA Premises No. 047-0248) and Permit to Construct Tentative Determination and Fact Sheet apply to the NSR Approval (NSR-2024-01) and the NSR Tentative Determination and Fact Sheet.

II. INTRODUCTION

The construction of new or modified major sources of air pollution to be located in areas of non-attainment are subject to Non-Attainment New Source Review (NSR) regulations promulgated in the Code of Maryland Regulations (COMAR) 26.11.17.

The Maryland Department of the Environment (Department), Air and Radiation Administration (ARA) received an air quality permit application from US Wind, Inc. on August 17, 2023 and revised on November 30, 2023 for the construction and operation of the Maryland Offshore Wind Project consisting of up to 121 wind turbine generators (WTG), up to four (4) offshore substations (OSS), and one (1) meteorological tower (Met Tower). The proposed project will be located approximately 10 nautical miles (NM) off the coast of Worcester County, Maryland at the closest point on the outer continental shelf (OCS). The application includes an air quality permit-to-construct application, an application for a New Source Review (NSR) Approval, and an application for a Prevention of Significant Deterioration (PSD) Approval.

The Department reviewed the NSR Approval application and made a tentative determination that the proposed project is expected to comply with all applicable air quality control regulations. In accordance with the Environment Article, Section 1-604, Annotated Code of Maryland, the Department scheduled and held a public hearing and accepted public comment on the application, the Department's tentative determination, the draft approval conditions, and other supporting documents.

The Department received comments adverse to the tentative determination, which it has reviewed and considered. The Department is now prepared to issue its final determination as to whether to issue or deny the permit. A notice of final determination will be placed in a newspaper of general circulation in the area.

III. PROJECT DESCRIPTION

US Wind, Inc. proposes to install up to 121 WTGs on the OCS across approximately 80,000 acres located on the Renewable Energy Lease Area OCS-A 0490 awarded by the Bureau of Ocean Energy Management (BOEM). US Wind, Inc. will develop the Maryland Offshore Wind Project where the pollutant-emitting activities within the Wind Development Area (WDA) are part of a single plan to construct and operate the project.

It is anticipated that the Maryland Offshore Wind project will generate approximately two (2) gigawatts of electrical power. The WTGs use the energy of the wind, a source of renewable energy, and convert it to electricity. The project will be located about 10 NM off the coast of Worcester County, Maryland at the closest point on the OCS.

The proposed project's offshore components include the WTGs, and up to four (4) offshore substations (OSSs) that will receive the electricity generated by the WTGs via cables. The interarray cables will link the individual WTGs together to the OSSs, and the project will use 230-275 kV of export cables into onshore substations in Delaware. US Wind, Inc. will mount the WTGs on monopile foundations. A transition piece would then be fitted over the monopile and secured via bolts or grout. Finally, the nacelle and the blades are placed on the transition piece.

The OSSs would be installed on piled jacket foundations. Where required, scour protection would be placed around all foundations to stabilize the seabed near the foundations. The OSSs would serve as the interconnection points between offshore and onshore components. Each OSS will include transformers, switchgears, and reactors to increase the voltage of the power captured from the interarray cables and control the flow through the export cables, so that the electricity can be efficiently transmitted onshore through submarine export cables. These offshore components are on the OCS.

The proposed project's onshore components are not subject to the OCS air regulations and thus will not be covered by the OCS air permit. Those onshore components include components such as the following: up to four (4) export cable landfall areas in Maryland; up to three (3) onshore export and interconnection cable routes; new onshore substations in Delaware where electricity will be transmitted to the electric grid; an onshore staging port where project components and equipment will be staged; and one (1) operation and maintenance facility with offices, control rooms, warehouses, workshop space, and pier space. Onshore components are being addressed in separate federal, state, and/or local permitting or government review processes that may have their own public comment processes and are not a subject of the public review for this OCS air permit.

The Maryland Offshore Wind Project will consist of three phases: construction and commissioning (C&C), operations and maintenance (O&M), and decommissioning. The phases may overlap. Offshore construction is anticipated to begin in 2025 and be completed within four (4) years. The anticipated commercial lifespan of the project (which is the O&M phase) is over 30 years.

US Wind, Inc. proposes using various marine vessels, which have onboard marine engines and construction equipment, for the following purposes: (1) for C&C to construct the above-described offshore project components; and (2) for O&M to maintain and repair the offshore project components.

The NSR Approval covers the offshore portion of C&C and O&M for the project located on the OCS. Decommissioning, which would be the reverse of C&C and will involve the use of various marine vessels and construction equipment, is not addressed in this Approval. The OCS air permitting requirements for decommissioning will be determined at that time because it is expected that marine vessel technology will substantially change over the next 30 years.

IV. NON-ATTAINMENT NEW SOURCE REVIEW (NSR)

The U.S. Environmental Protection Agency (EPA) has defined concentration-based National Ambient Air Quality Standards (NAAQS) for several pollutants, which are set at levels considered to be protective of the public health and welfare. Specifically, the NAAQS are defined for six "criteria" pollutants, including particulate matter (PM), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO2), ozone, and lead (Pb). There are three forms of regulated particulate matter: total suspended solids (known as PM or TSP), particulate matter having a diameter less than 10 microns (PM-10), and particulate matter with diameter less than 2.5 microns (PM-2.5).

Air emission limitations and pollution control requirements are generally more stringent for sources located in areas that do not currently attain a NAAQS for a particular pollutant (known as "non-attainment" areas). Air emission limitations and pollution control are also more stringent for sources located in the Ozone Transport Region (OTR), an area of the northeastern United States stretching from the District of Columbia to Maine. The Maryland Offshore Wind Project is required to comply with the air quality requirements applicable in Worcester County, the Corresponding Onshore Area (COA). Worcester County is in an attainment/unclassifiable area for all NAAQS, including the 2008 and 2015 ozone NAAQS. However, Worcester County is located in the OTR. The Clean Air Act requires major sources located in the OTR to be subject to the same major stationary sources requirements for areas classified as a moderate non-attainment area for ozone. The major source thresholds in Worcester County for ozone precursors NOx and VOC are 100 tons per year (tpy) and 50 tpy, respectively. Therefore, if the potential emissions of a project in Worcester County exceed the major source threshold for either pollutant, an NSR Approval is required for the project.

Total emissions of NOx, CO, PM-10, PM-2.5, VOC, SO_2, lead (Pb) and GHG (as CO_2e) from the Maryland Offshore Wind Project shall be less than the following limits including periods of startup, shutdown, and malfunction:

Table 1: Emission Limits

Pollutant	Maximum Annual C&C and O&M, Combined During C&C (tons/12-months rolling)	Total for the Entire C&C Phase, which includes both C&C and O&M Emissions (tons)	Maximum O&M (tons/12-months rolling)
NOx	616	1380	25
CO	149	344	24
PM-10	20	45	0.66
PM-2.5	19	44	0.65

Pollutant	Maximum Annual C&C and O&M, Combined During C&C (tons/12-months rolling)	Total for the Entire C&C Phase, which includes both C&C and O&M Emissions (tons)	Maximum O&M (tons/12-months rolling)
VOC	11	26	2
SO_2	2	4	0.07
Pb	0.003	0.007	0
GHG (as CO_2e)	41,673	95,898	6763

The worst case potential annual NOx emissions from the Maryland Offshore Wind Project will exceed 100 tons per year, the applicable major source threshold for NOx in Worcester County. Therefore, the Maryland Offshore Wind Project is subject to NSR requirements for NOx emissions:

Table 2: NSR Applicability

Pollutant	Potential Emissions (tpy)	NSR Threshold (tpy)	NSR Review?
NO_x	616	100	Yes
VOC	11	50	No

V. MAJOR NSR REQUIREMENTS

The Maryland Offshore Wind Project must comply with NSR requirements specified in COMAR 26.11.17, including the following:

(1) Implement a LAER level of air pollution control for NO_x;

(2) Obtain emissions reductions (offsets) for regulated pollutants at a ratio of 1.15:1;

(3) Certify that all other sources in Maryland owned by US Wind, Inc. are in compliance with all applicable requirements of the Clean Air Act; and

(4) In accordance with COMAR 26.11.17.03B(6), conduct "An analysis of alternative sites, sizes, production processes, and environmental control techniques that demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction or modification."

VI. LOWEST ACHIEVABLE EMISSIONS RATE (LAER) REQUIREMENTS

A. Criteria of LAER

LAER is defined in COMAR 26.11.17.01B(15) as, for any emissions unit,

the more stringent rate of emissions based on the following:

(1) The most stringent emissions limitation which is contained in the implementation plan of any state for the class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that these limitations are not achievable; or

(2) The most stringent emissions limitation which is achieved in practice by the class or category of stationary sources, with this limitation, when applied to a modification, meaning the lowest achievable emissions rate for the new or modified emissions units within the stationary source.

The application of this definition does not permit a proposed new or modified stationary source to emit any pollutant in excess of the amount allowable under 40 CFR Part 60.

B. LAER for the Maryland Offshore Wind Project

Although potential annual emissions from the entire offshore portion for C&C and O&M must be considered for the NSR applicability analysis, only OCS sources associated with the project are subject to LAER requirements per 40 CFR Part 55.

The LAER analysis performed by US Wind, Inc. identified the following categories of available control technologies that are generally available for compression ignition, internal combustion engines (such as the project's marine and non-marine engines), which have the potential to reduce or minimize NOx from the engines:

- add-on technologies such as Selective Catalytic Reduction (SCR);

- use of higher-EPA Tier or EIAPP certified engines;

- use of process modifications such as use of battery powered electric motors, Turbocharger with Aftercooler; Fuel Injection Timing Controls, Water Injection, High Pressure Injection, Multiple Fuel Injection; Flue Gas Recirculation (FGR); and Intake Air Humidification/Cooling; and

- use of good combustion practices.

The use of add-on technologies and process modifications are most likely infeasible as they are generally not already incorporated into the existing vessel fleet. Implementation of these technologies would likely require replacement, retrofit, or upgrade of vessel engines. US Wind, Inc. will lease the vessels, thereby having no ability to replace or upgrade engines

or retrofit vessels and little likelihood that the leased vessels would already include these technologies.

US Wind, Inc. cannot require the owners to perform these modifications due to the long lead time necessary for retrofitting controls or replacing engines. Requiring retrofit controls or engine replacements would preclude US Wind, Inc.'s ability to substitute vessels on short notice. Additionally, the layout or structure of the vessels would likely prevent the installation of add-on technologies or the use of process modifications. Battery powered motors are not reliable enough to employ in this project. Since these technologies are most likely impracticable for the vessel fleet available for this project, use of EPA Tier and MARPOL Annex VI EIAPP certified engines, and good combustion practices, were selected as LAER for all OCS source vessel engines.

US Wind, Inc. has not yet contracted for the vessels it will require for the Maryland Offshore Wind Project. For the NSR Approval application, US Wind, Inc. used representative vessels and marine engines to calculate the project's potential emissions. The ability for US Wind, Inc. to contract for specific vessels will depend on the pool of vessels that are available on the timeline needed for deployment. Due to this uncertainty, the NSR Approval requires that all vessels contracted by US Wind, Inc. be equipped with marine engines (main and auxiliary) that meet the most stringent, applicable EPA Tier or MARPOL Annex VI emissions standard available at the time the marine vessel is hired for the specific work required in the timeframe required and at a minimum, shall be engines certified to EPA Tier 2 emissions standards or MARPOL Annex VI emissions standards for foreign flagged vessels.

For the non-marine portable diesel generator engines used during C&C and O&M and for the permanent diesel generator engines on the four (4) OSSs used during O&M, to meet LAER requirements, the Permittee shall ensure that each of the engines is certified to meet the EPA Tier 4 emission standard from 40 C.F.R. § 1039, that applies to each engine.

Finally, US Wind, Inc. must also use good combustion practices to meet LAER requirements for OCS sources.

Prior to commencement of construction, US Wind, Inc. shall provide the Department a report, for review and approval, that defines each vessel contracted, and each marine and non-marine engine to be used during C&C and O&M for the project to confirm that the engines meet minimum LAER requirements.

VII. EMISSION REDUCTION CREDITS (ERCs)

Emission reduction credits, or ERCs, obtained to offset new emissions in a non-attainment area must meet two important objectives:

(1) to ensure reasonable progress toward attainment of the National Ambient Air Quality Standards (NAAQS), the offset ratio must be greater than 1.0; and

(2) to provide a positive air quality benefit, emissions credits must come from the same non-attainment area or an area with an equal or higher non-attainment classification that contributes to non-attainment in the area where the project will be constructed.

In accordance with COMAR 26.11.17.03B(3)(b), the minimum NOx emissions offset ratio for Worcester County is 1.15 to 1.0.

Citing Clean Air Act Section 173 (a)(1)(A) and Section 173 (c)(1), as well as 40 C.F.R. Part 51, Appendix S, EPA has determined that offsets apply only to emissions during operation and maintenance of an OCS source. In keeping with these practices, for the Maryland Offshore Wind Project, offsets are required based on operation and maintenance emissions.

As shown above, the Maryland Offshore Wind Project's potential O&M annual NOx emissions is 25 tons per year; therefore, NOx ERCs in the amount of 29 tons will be required from the same or more restrictive ozone non-attainment area. This requirement is federally enforceable and the ERCs shall be obtained before construction of the project is commenced. US Wind, Inc. must provide updated potential NOx emissions to the Department prior to commencement of construction to confirm that the appropriate amount of ERCs will be obtained.

VIII. STATE-WIDE COMPLIANCE CERTIFICATION

COMAR 26.11.17.03B(1) requires that "the applicant certifies that all existing major stationary sources owned or operated by the applicant, or any entity controlling, controlled by, or under common control with the applicant, in the State are in compliance with all applicable emission limitations or are in compliance with an approved federally enforceable plan for compliance." In the application for the Maryland Offshore Wind Project, US Wind, Inc. certified that they do not own or operate any existing major sources in Maryland. Therefore, State-wide compliance certification is not required for this NSR Approval.

IX. ALTERNATE SITE ANALYSIS

COMAR 26.11.17.03B(6) requires that "an analysis of alternate sites, sizes, production processes, and environmental control techniques for a proposed source demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification."

The Maryland Offshore Wind Project is an offshore wind energy facility of up to approximately two (2) gigawatts of nameplate capacity within OCS-A 0490 (the Lease), a Lease area of approximately 80,000 acres located approximately 18.5km (11.5 miles)

off the coast of Maryland on the Outer Continental Shelf. US Wind, Inc. obtained the offshore wind development rights in 2014 when the company won an auction for two leases from the BOEM, which in 2018 were combined into the Lease.

The offshore wind development rights grant US Wind, Inc. subject to BOEM's approval of the Construction and Operations Plan (COP), the exclusive rights and privileges to conduct authorized activity to develop renewable energy in the Lease area, as set forth in Addendum A of the Lease.

The location of an offshore wind lease area is the result of a multi-year effort by State and federal regulatory agencies to identify OCS areas suitable for offshore renewable energy development. An extensive review of site characterization and an assessment of potential impacts was conducted, including environmental, economic, cultural, and visual resources, and use conflicts. Additionally, project screening and siting evaluations and a review of potential impact producing factors on various resources, including physical, biological, socioeconomic and others were conducted. These evaluations are presented in the US Wind Inc.'s COP. It would be infeasible to locate the Maryland Offshore Wind Project at an alternate site.

X. FINAL DETERMINATION

Based on the above analyses, the Department has concluded that the proposed project would comply with all Federal and State Clean Air Act requirements and has made a final determination to issue the NSR Approval.

KEEP PERMIT AT SITE **CONTROL NO. B - 07920**

Wes Moore
Governor

Serena McIlwain
Secretary

State of Maryland

DEPARTMENT OF THE ENVIRONMENT

Air and Radiation Administration
1800 Washington Boulevard, Suite 720
Baltimore, MD 21230

[X] NSR Approval [ ] Operating Permit

PERMIT NO. NSR-2024-01

DATE ISSUED June 6, 2025

PERMIT FEE $57,000.00 (Paid)

EXPIRATION DATE In accordance with COMAR 26.11.02.04B

LEGAL OWNER & ADDRESS

US Wind, Inc.
401 East Pratt Street
Baltimore, MD 21201
Attn: Mr. Jeffrey Grybowski, CEO
US Wind, Inc.

SITE

Maryland Wind Energy Area (WEA)
Atlantic Ocean
Offshore, Ocean City, Maryland
Lat 38.352747° N; Long 74.753546° W
Premises # 047-0248
AI # 153737

SOURCE DESCRIPTION

Installation of a wind energy project (Maryland Offshore Wind Project), in a lease area approximately 18.5 km (11.5 miles, 10.0 nautical miles [NM]) off the coast of Maryland on the outer continental shelf (OCS) consisting of up to 121 wind turbine generators (WTG), up to four (4) offshore substations (OSS), and one (1) meteorological tower (Met Tower).

This source is subject to the conditions described on the attached pages.

Program Manager

Director, Air and Radiation Administration

This New Source Review (NSR) Approval covers the following equipment for US Wind, Inc.'s Maryland Offshore Wind Project:

Table 1A – Types of marine vessels, and associated main and auxiliary marine engines, to be used during Construction and Commissioning (C&C)

Vessel Types to be used for Scour Protection Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kilowatts (kW)/engine)**
Fallpipe Vessel (HC)	1	Main engines (3): 4,500 Auxiliary engines (1): 492 Auxiliary engines (1): 1,200
Vessel Types to be used for Foundation Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Heavy Lift Vessel (HC)	1	Main engines (5): 4,500 Auxiliary engine (1): 4,500
Foundation Installation Tugs (HC)	4	Main engines (2): 2,540 Auxiliary engine (1): 199
Crew Transfer Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20
Noise Mitigation Offshore Service Vessel (HC)	1	Main engines (2): 3,310 Auxiliary engines (3): 499
Acoustic Monitoring Offshore Service Vessel (HC)	1	Main engines (2): 2,540 Auxiliary engine (1): 199
Environmental Crew Transfer Vessel (HC)	2	Main engines (2): 749 Auxiliary engine (2): 20
Vessel Types to be used for WTG Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Jack-up Vessel (HC) **[OCS Source]**	1	Main engines (3): 3,800 Auxiliary engines (1): 2,880
Tugs (HC)	3	Main engines (2): 2,540 Auxiliary engines (1): 199

Table 1A – Types of marine vessels, and associated main and auxiliary marine engines, to be used during C&C (continued)

Vessel Types to be used for WTG Commissioning	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Commissioning Crew Transfer Vessels (HC)	3	Main engines (2): 749 Main engines (2): 20
Vessel Types to be used for OSS Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Heavy Lift Vessel (HC)	1	Main engines (5): 4,500 Auxiliary engines (1): 4,500
Tug (HC)	2	Main engines (2): 2,540 Auxiliary engines (1): 199
Noise Mitigation Offshore Service Vessel (HC)	1	Main engines (2): 3,310 Auxiliary engines (3): 499
Acoustic Monitoring Offshore Service Vessel (HC)	1	Main engines (1): 2,500 Auxiliary engines (1): 199
Topside Tug (HC)	1	Main engines (2): 2,540 Auxiliary marine engines (1): 199
Refueling Offshore Service Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20
Hotel Jack-up Vessel (HC) **[OCS Source]**	1	Main engines (2): 2,350 Auxiliary engine (2): 1,000
Vessel Types to be used for Array Cable Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Cable Lay Vessel (HC)	1	Main engines (3): 1,750 Auxiliary engine (1): 1,750
Offshore Support Vessel (HC)	1	Main engines (1): 1,611 Auxiliary engine (2): 123
Crew Transfer Vessel (HC)	2	Main engines (2): 749 Auxiliary engine (2): 20
Trenching Vessel (HC)	1	Main engines (5): 3,000 Auxiliary engine (1): 3,000
Guard Crew Transfer Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20

Table 1A – Types of marine vessels, and associated main and auxiliary marine engines, to be used during C&C (continued)

Vessel Types to be used for Export Cable Installation	**Number of Vessels of this Type**	**Marine Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Cable Lay Vessel (HC)	1	Main engines (3): 1,750 Auxiliary engine (1): 1,750
Multipurpose Offshore Support Vessel (HC)	1	Main engines (1): 1,611 Auxiliary engine (2): 123
Trenching Vessel (HC)	1	Main engines (5): 3,000 Auxiliary engine (1): 3,000
Horizontal Directional Drilling Lift Vessel (HC)	1	Main engines (2): 2,350 Auxiliary engine (2): 1,000
Horizontal Directional Drilling Pull-In Vessel (HC)	1	Main engines (1): 1,611 Auxiliary engine (2): 123
Pull-In Support Vessel (HC)	1	Main engines (2): 392 Auxiliary engine (2): 135
Vessel Types to be used for Met Tower Installation	**Number of Vessels of this Type**	**Marine Engines: Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Heavy Lift Vessel (HC)	1	Main engines (5): 4,500 Auxiliary engine (1): 4,500
Tugs (HC)	3	Main engines (2): 2,540 Auxiliary engines (1): 199
Noise Mitigation Offshore Service Vessel (HC)	1	Main engines (2): 3,310 Auxiliary engines (3): 499
Acoustic Monitoring Offshore Service Vessel (HC)	1	Main engines (2): 2,540 Auxiliary engines (1): 199
Refueling Offshore Service Vessel (HC)	1	Main engines (2): 749 Auxiliary engine (2): 20
Hotel Jack-up Vessel (HC) **[OCS Source]**	1	Main engines (2): 2,350 Auxiliary engine (2): 1,000

Table 1B. Types of marine vessels, and associated main and auxiliary marine engines, to be used during Operations and Maintenance (O&M)

Vessel Types to be used for Offshore Marine Operations	**Number of Vessels of this Type**	**Marine Vessel Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Fallpipe Vessel (Scour Protection Repairs) (HC)	1	Main engines (3): 4,500 Auxiliary engines (1): 492 Auxiliary engines (1): 1,200

Crew Transfer Vessel (OSS O&M Refueling Operations) (HC)	1	Main engines (2): 749 Auxiliary engines (2): 20
Jack-Up Vessel (WTG Inspection/Maintenance/Repairs Main Repair Vessel) (HC) **[OCS Source]**	1	Main engines (2): 2,350 Auxiliary engines (2): 1,000
Survey Vessel (WTG Inspection/Maintenance/Repairs Multi-role Survey Vessel) (HC)	1	Main engines (2): 392 Auxiliary engines (2): 135
Vessel Types to be used for Offshore Maintenance	**Number of Vessels of this Type**	**Marine Vessel Engines (per each vessel): Type (Main or Auxiliary), Number & Maximum Engine Power (kW/engine)**
Survey Vessel (Cable Inspection/Repairs Multi-role Survey Vessel) (HC)	1	Main engines (2): 392 Auxiliary engines (2): 135
Crew Transfer Vessel (Daily O&M and Miscellaneous) (HC)	4	Main engines (2): 749 Auxiliary engines (2): 20
Sportfisher (Daily O&M and Miscellaneous) (HC)	1	Main engines (2): 749 Auxiliary engines (2): 20

Table 2A – Non-Marine Engines – Portable Diesel Generator Engines used during C&C

Activity	Engine Description	Number of Engines	Maximum Engine Power (kW)
OSS Installation	OSS Installation Generator Engine **[OCS Source]**	4	150

Table 2B - Non-Marine Engines – Portable Diesel Generator Engines used during O&M

Activity	Engine Description	Number of Engines	Maximum Engine Power (kW)
Daily O&M and Miscellaneous (Electrical Service)	Generator Engine **[OCS Source]**	4	150

Table 2C. Non-Marine Engines – Permanent Diesel Generator Engines used during O&M

Activity	Engine Description	Number of Engines	Maximum Engine Power (kW)
OSS	OSS Generator Engine **[OCS Source]**	4	150

PART A – GENERAL PROVISIONS

(1) The following Air and Radiation Administration (ARA) applications and supplemental information are incorporated into this permit by reference:

(a) Application for Prevention of Significant Deterioration (PSD) Approval received on August 17, 2023 (hardcopies received on September 3, 2023), with revised application received November 30, 2023 (hardcopies received on December 7, 2023) for the construction of the Maryland Offshore Wind Project.

(b) Application for Non-Attainment New Source Review (NA-NSR) Approval received on August 17, 2023 (hardcopies received on September 3, 2023), with revised application received November 30, 2023 (hardcopies received on December 7, 2023) for the construction of the Maryland Offshore Wind Project.

(c) Application for Fuel Burning Equipment (Form 11) for the following vessels supporting the construction and/or operation of the Maryland Offshore Wind Project: Foundation Installation Fallpipe Vessel; Foundation Installation Heavy Lift Vessel; Foundation Installation Tugs; Foundation Installation Crew Transfer Vessel; Foundation Installation Offshore Support Vessel Noise Vessels; Foundation Installation Environmental Crew Transfer Vessels; Wind Turbine Generator Installation Jack-up vessel; Wind Turbine Generator Installation Tugs; Wind Turbine Generator Commissioning Crew Transfer Vessels; Offshore Substation Installation Heavy Lift vessel; Offshore Substation Installation Tug; Offshore Substation Installation Offshore Support Vessel; Offshore Substation Installation Topside Tug; Offshore Substation Installation Refueling Offshore Support Vessel; Offshore Substation Installation Hotel Jack-up vessel; Array Cable Lay vessel; Array offshore support vessel; Array Crew Transfer Vessel; Array trenching vessel; Array guard vessel; Export Cable lay vessel; Export Cable Multipurpose Offshore Support Vessel; Export Cable Trenching Vessel; Export Cable Horizontal Directional Drilling

Lift Vessel; Export Cable Horizontal Directional Drilling pull in vessel; Export Cable pull in support vessel; Operation Scour Protection Repair Vessel; Operation Refueling Vessel; Operation Main Repair Vessel; Operation survey vessel; Operation Crew Transfer Vessel; and the Operation Environmental Monitoring Vessel, received on August 17, 2023 with revised forms received November 30, 2023.

(d) Application for Internal Combustion Engines (Form 44) received on August 17, 2023 (hardcopies received on September 3, 2023) with revised form received November 30, 2023 (hardcopies received on December 7, 2023) for the construction/installation of four (4) 150 kW electric generators, each to be located on the four (4) Offshore Substations.

(e) Supplemental Information

(i) Air Quality Impact Analysis for 24-hour PM-10, annual PM-2.5, 1-hour and annual NO_2 Impacts received on August 17, 2023, and revised copies on November 30, 2023;
(ii) Response to the Department's Supplemental Request for Additional Information for OCS Air Permit (i.e., revised Section 5, and revised Appendix A) received January 5, 2024;
(iii) Class I AQRV Assessment Modeling Protocol, received on May 23, 2024;
(iv) Class I AQRV Assessment Modeling Report, received on July 31, 2024;
(v) Revised potential to emit emission calculations received on September 20, 2024 for air pollutants originating from various marine vessels, each powered by their own diesel engine and other construction equipment all servicing the construction and operation of the Maryland Offshore Wind Project using the EPA's "Ports Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions", EPA-420-B-22-011, April 2022; and
(vi) Narrative on vessel selection criteria and information on the assumptions taken to support the facility wide potential to emit, received November 6, 2024.

If there are any conflicts between representations in this Approval and representations in the applications, the representations in this Approval shall govern. Estimates of dimensions, volumes, emissions rates, operating rates, feed rates and hours of operation included in the applications do not constitute enforceable numeric limits beyond the extent necessary for compliance with applicable requirements.

(2) Upon presentation of credentials, representatives of the Maryland Department of the Environment ("MDE" or the "Department"), the EPA, and the Worcester County Health Department shall at any reasonable time be granted, without delay and without prior notification, access to the Permittee's property and permitted to:

(a) inspect any construction authorized by this Approval;

(b) sample, as necessary to determine compliance with requirements of this Approval, any materials stored or processed on-site, any waste materials, and any discharge into the environment;

(c) inspect any monitoring equipment required by this Approval;

(d) review and copy any records, including all documents required to be maintained by this Approval, relevant to a determination of compliance with requirements of this Approval;

(e) obtain any photographic documentation or evidence necessary to determine compliance with the requirements of this Approval; and

(f) the Department may exercise its right of entry through use of an unmanned aircraft system to conduct inspections, collect samples, or make visual observations through photographic or video recordings.

(3) Nothing in this Approval authorizes the violation of any rule or regulation or the creation of a nuisance or air pollution.

(4) If any provision of this Approval is declared by proper authority to be invalid, the remaining provisions of the Approval shall remain in effect.

(5) All terms defined in the Permit to Construct for the Maryland Offshore Wind Project (ARA Premises No. 047-0248) apply to this NSR Approval.

(6) Any notifications, records, reports, plans, and documents referenced in this Approval shall be made available to the EPA as specified in this Approval or upon request by the EPA.

PART B – APPLICABLE REGULATIONS

(1) COMAR 26.11.17.03B(1), which requires the Permittee to certify that all existing major stationary sources owned and operated by the Permittee in Maryland are in compliance with all applicable emissions limitations or are on an approved federally enforceable plan for compliance.

(2) COMAR 26.11.17.03B(2), which requires the Permittee to meet an emission limitation which specifies the lowest achievable emission rate (LAER).

(3) COMAR 26.11.17.03B(3)(b), which requires the Permittee to meet a nitrogen oxides (NOx) emission offset ratio of 1.15:1.

PART C – LOWEST ACHIEVABLE EMISSION RATE (LAER)

(1) To meet Lowest Achievable Emission Rate (LAER), emissions of nitrogen oxides (NOx) from each OCS source shall be limited to the following:

(a) Vessels contracted by the Permittee shall be equipped with marine engines (main and auxiliary) that meet the most stringent, applicable EPA Tier or MARPOL Annex VI emissions standard available at the time the marine vessel is hired for the specific work required in the timeframe required. Marine vessels with the next highest-tier engines may be hired and deployed, if the Permittee documents the basis for its conclusion that the highest-tier vessel, and any other higher-tiered vessels, is not available. The engines may also meet the next most stringent emission standards if the total emissions associated with the use of a vessel with an engine(s) that meet the most stringent emission standards would be greater than the total emissions associated with the use of the vessel with an engine(s) that meet the next most stringent emission standards.

For purposes of this subparagraph, when determining the total emissions associated with the use of a vessel with a particular engine, the Permittee shall include the emissions of the vessel that would occur when the vessel would be in transit to the OCS source facility from the vessel's starting location.

(b) Each Category 1 main and auxiliary marine engine of a vessel shall be certified to the applicable engine EPA Tier emission standard specified in 40 CFR §1042.101, meeting Tier 2 requirements at the minimum.

(c) Each Category 2 main and auxiliary marine engine shall be certified to the applicable engine EPA Tier emission standard specified in 40 CFR §1042.101, meeting Tier 2 requirements at the minimum.

(d) Each Category 3 main and auxiliary marine engine shall be certified to the applicable engine EPA Tier emission standard specified in 40 CFR §1042.104, meeting Tier 2 requirements at the minimum.

(e) For marine engines (main and auxiliary) onboard foreign-flagged marine vessels, each engine shall be certified to the applicable engine emission standard specified in 40 CFR §1043, meeting MARPOL Annex VI requirements at the minimum.

(f) For Non-Marine Engines, Portable Diesel Generator Engines used during C&C and O&M, the Permittee shall ensure that each of the portable diesel generator engines is certified to meet the EPA Tier 4 emission standard from 40 CFR §1039, that applies to each engine.

(g) For Permanent Diesel Generator Engines on OSS during O&M, the Permittee shall ensure that each of the portable diesel generator engines is certified to meet the EPA Tier 4 emission standard from 40 CFR §1039, that applies to each engine.

(h) The Permittee shall use good combustion practices based on the manufacturer's specifications for all marine and non-marine engines.

(2) Prior to the C&C Start Date, the Permittee shall provide the Department an initial report, for review and approval, that defines each vessel contracted, each anticipated representative vessel, and each marine and non-marine engine to be used during C&C and O&M for the Maryland Offshore Wind Project. The report shall include, at a minimum, the following information:

(a) All the information required by Part G(1)(a), (b), (c), and (d) of this Approval;
(b) The proposed LAER for each OCS source engine in units of grams per kilowatt-hour (g/kW-hr);
(c) The regulatory citation for each LAER proposal;
(d) The proposed LAER compliance demonstration; and
(e) Updated Potential to Emit estimates and calculations for NOx as per the emission estimation methods as required in Part F of this Approval.

(3) C&C shall not commence until the Department has approved the proposed LAER and the proposed LAER compliance demonstration in writing.

(4) For any vessel or non-marine engine substitutions during the life of the Maryland Offshore Wind Project, the Permittee shall provide the information required by Part C(2), for review and approval, prior to use of that vessel or engine.

PART D – EMISSIONS RESTRICTIONS AND EMISSIONS OFFSET REQUIREMENTS

(1) Total NOx emissions from the Maryland Offshore Wind Project shall be less than the following limits for any period including periods of startup, shutdown, and malfunction:

a) 616 tons maximum annual C&C and O&M, combined during C&C (tons/ consecutive 12-months rolling);

b) 1380 tons total C&C and O&M, combined during C&C (tons);

c) 25 tons maximum O&M (tons/consecutive 12-months rolling).

(2) In accordance with COMAR 26.11.17.03B(3), the Maryland Offshore Wind Project, whose COA is Worcester County located in the Ozone Transport Region non-attainment area, shall obtain offsets for 25 tons per year of NOx emissions at an offset ratio of 1.15:1; or a total of 29 tons per year from the same or more restrictive ozone non-attainment area.

(3) In accordance with COMAR 26.11.17.03B(5), the NOx offsets of 29 tons per year shall be federally enforceable and obtained before construction of the project is commenced.

(4) Prior to the C&C Start Date, the Permittee shall provide the Department updated Potential to Emit estimates and calculations for NOx as per the emission estimation methods as required in Parts C and F of this Approval.

PART E – OPERATING AND MONITORING REQUIREMENTS

(1) For the Maryland Offshore Wind Project, the Permittee shall develop and implement a plan that will ensure good combustion practices and combustion efficiency, per manufacturer recommendations. The Good Combustion Practices and Combustion Efficiency Plan shall include practices to minimize engine idling, a summary of the good combustion practices for each engine, a preventative maintenance schedule, and any additional information as deemed necessary by the Department.

(2) The Good Combustion Practices and Combustion Efficiency Plan shall be submitted to the Department for review and approval. Construction shall not commence until the Permittee receives approval of the Good Combustion Practices and Combustion Efficiency Plan from the Department in writing.

PART F – COMPLIANCE DEMONSTRATION

(1) The Permittee shall calculate actual total NOx emissions from the Maryland Offshore Wind Project for each calendar month and for each consecutive 12-

month rolling period. For marine engines, the Permittee shall use the most recent version of the EPA Ports Emissions Inventory Guidance. For non-marine engines the Permittee shall use the most relevant data available, which may include actual test data, tier standards, EPA's annual engine certification data, and any emissions information obtained from equipment vendors. The Permittee must obtain approval from the Department to use an alternate emissions estimation method. The total NOx emissions shall be less than the following limits:

a) 616 tons maximum annual C&C and O&M, combined during C&C (tons/ consecutive 12-months rolling);

b) 1380 tons total C&C and O&M combined during C&C (tons);

c) 25 tons maximum O&M (tons/consecutive 12-months rolling).

(2) The Permittee shall use actual vessel and engine data to calculate emissions as required by Part F(1). The Permittee shall include all data to support the calculations.

(3) The Permittee shall demonstrate compliance with applicable LAER emission limits (g/kW-hr) for each OCS source engine by ensuring that each engine has an EPA Certificate of Conformity to the applicable Tier emission standard, or a MARPOL Annex VI, IAPP Certificate for the vessel and an EIAPP certificate for the engine, as required in Part C(1).

PART G – REPORTING AND RECORDKEEPING REQUIREMENTS

(1) The following records with supporting documentation shall be maintained on site for at least five (5) years and made available to the Department upon request:

(a) For each vessel associated with the Maryland Offshore Wind Project: the vessel's owner, vessel name, year that the vessel was built, nation of origin of the vessel, exact vessel function, whether the vessel is an OCS Source, and documentation specifically supporting whether (1) the vessel requires attachment to the seabed (either via anchors, spuds (type of jack-up vessel), or other type of attachment) during the C&C or O&M activities; (2) the vessel could be maintained in a fixed position using only the vessel engines and without any attachment to the seabed during the C&C and O&M activities; or (3) the vessel would require attachment to other vessels, while those other vessels are OCS sources, or to the WTGs or OSS structures during the C&C or O&M activities;

(b) For each marine engine of each vessel associated with the Maryland Offshore Wind Project, regardless of whether the vessel is

considered an OCS source or not: the engine's category (1 through 3), marine engine function (i.e., main (or propulsion) or auxiliary marine engine), engine type (e.g., slow-speed diesel, gas turbine…), rated engine size and total installed propulsion power (maximum continuous rated engine power in kW), vessel speed and maximum vessel speed, maximum draft, make and model year or remanufacture year, keel-laid year, engine stroke type (e.g. 2- or 4-stroke), displacement in liters/cylinder, install date, maximum in-use engine speed in rotations per minute, type of fuel used (e.g. marine gas oil, marine diesel oil…) and sulfur content for each fuel type, brake specific fuel consumption, average loads, and the EPA Certificate of Conformity to a Tier engine rating, or EIAPP certificate and IAPP certificate, as applicable;

(c) For each vessel deployed during C&C and/or O&M, the Permittee shall maintain a record of the alternate vessels that, during the time of contract deployment, were available for hire for the required work needed at the time needed, as well as the Tier levels for each vessel's engines. The alternate vessels available for hire shall be listed in ranking order from the one with the highest-tiered engines to the one with the lowest tiered-engines. The record should indicate if the vessel with the highest tiered-engines from the list was the actual vessel hired and deployed. If the vessel with the highest tiered-engines from the list was not the actual vessel hired and deployed, the record should document the reason(s) for the Permittee selection of a vessel with lower-tiered engines;

(d) For each non-marine engine of each vessel that will be associated with the Maryland Offshore Wind Project: maximum engine power (kW), model year, type of fuel used, and the EPA Certificate of Conformity to the Tier 4 emission standards in 40 CFR §1039.101(b);

(e) The daily operating hours for each engine associated with the Maryland Offshore Wind Project. The hours of operation shall be recorded from a non-resettable hour meter or, if a non-resettable hour meter is not available, by monitoring and maintaining records of the actual daily operating hours;

(f) The daily fuel usage, in units of gallons/day, for each engine associated with the Maryland Offshore Wind Project;

(g) Daily records of marine engine load factors calculated per vessel associated with the Maryland Offshore Wind Project; load factor shall be calculated per the most recent version of the EPA Ports Emissions Inventory Guidance, unless the Permittee obtains

approval from the Department to use an alternate emissions estimation method.

(h) The monthly and consecutive 12-month rolling actual NOx emissions from the Maryland Offshore Wind Project, including calculations and data to support the calculations; and

(i) The Good Combustion Practices and Combustion Efficiency Plan that will ensure good combustion practices and combustion efficiency, per manufacturer recommendations and all associated records.

(2) All air quality notifications, records, reports, plans, and documents required by this Approval shall be submitted electronically to the Air Quality Compliance Program to:

mdeair.othercompliance@maryland.gov