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

NON-ATTAINMENT NEW SOURCE REVIEW (NSR) APPROVAL
TENTATIVE 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

Major new or modified 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 has reviewed the NSR Approval application and has made a tentative determination that the proposed project is expected to comply with all applicable air quality control regulations. In accordance with the Envient Article, Section 1-604, Annotated Code of Maryland, the Department will schedule a public hearing and ask the public to comment on the application, the Department's tentative determination, the draft approval conditions, and other supporting documents. A notice will be published at least once in the legal section of a daily or weekly newspaper of general circulation in Worcester County.

If the Department has not received any comments adverse to the tentative determination, the Department will issue the Approval after the comment period expires. If the Department receives adverse comments, it will review them and will make a final determination as to whether to issue or deny the permit. A notice of final determination, if required, 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 MD state; up to three (3) onshore export and interconnection cable routes; new onshore substations in Delaware state 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 to use 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 (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).

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). 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. But, because Worcester County is located in the Ozone Transport Region, the Clean Air Act requires major sources 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. The major source thresholds in Worcester County for ozone precursors NOx and VOC are 100 tons per year (tpy) and 50 tpy, respectively. If the potential emissions of a project will exceed the major source threshold for either pollutant, an NSR Approval is required.

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/rolling 12-months)	Total C&C and O&M, Combined During C&C (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	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 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.

Since both C&C and O&M occur on the OCS, add-on technologies and process modifications are not available and/or applicable. Since these technologies are infeasible, 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, are 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.

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. 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. TENTATIVE 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 tentative determination to issue the NSR Approval.