



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, NC 27711

September 20, 2023

OFFICE OF  
AIR QUALITY PLANNING  
AND STANDARDS

**MEMORANDUM**

**SUBJECT:** Model Clearinghouse review of an alternative model application of AERCOARE in conjunction with AERMOD in support of Outer Continental Shelf PSD air permitting of the Ocean Wind 1 Offshore Wind Power Project

**FROM:** George Bridgers, Model Clearinghouse Director  
Air Quality Modeling Group, Air Quality Assessment Division  
Office of Air Quality Planning and Standards

**TO:** Brian Marmo, Regional Air Quality Modeler  
Permitting Section, Air Programs Branch, Air and Radiation Division  
EPA Region 2, New York, New York

**THROUGH:** Richard Ruvo, Director  
Air and Radiation Division  
EPA Region 2, New York, New York

**INTRODUCTION**

Ocean Wind 1, LLC, an affiliate of Orsted Wind Power North America, LLC, is developing an offshore wind energy project (“Ocean Wind Project”) in a federal lease area on the Outer Continental Shelf (OCS) approximately 24 km (15 miles) off the coast of New Jersey, near Atlantic City. The Ocean Wind Project will include up to 98 wind turbine generators and have an approximate production capacity of 1.1 gigawatts (GW). The Ocean Wind Project is subject to Prevention of Significant Deterioration (PSD) permitting and is required to submit an OCS air permit application that includes a dispersion modeling demonstration that air emissions from the Project will not cause or contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS) or PSD increments.

Ocean Wind 1, LLC has requested to use an alternative model, as provided in Section 3.2 of the *Guideline on Air Quality Models* (40 CFR Part 51, Appendix W), to conduct its PSD air quality modeling analysis of the Ocean Wind Project’s construction and operation and maintenance (O&M) activities. Specifically, Ocean Wind 1, LLC has requested to use the Coupled Ocean-Atmosphere Response Experiment (COARE) bulk flux algorithm, as implemented in the AERCOARE meteorological data preprocessor program, to prepare meteorological data for use in the American Meteorological Society/Environmental Protection Agency Regulatory Model

(AERMOD) dispersion program in lieu of the preferred Offshore and Coastal Dispersion (OCD) model to assess ambient impacts in a marine environment.<sup>1</sup>

## **REGIONAL OFFICE REVIEW**

EPA Region 2 seeks concurrence from the EPA's Model Clearinghouse (Model Clearinghouse or MCH) regarding the prospective EPA Region 2 approval of an alternative model for the compliance demonstration requirements of the Ocean Wind Project. As noted above, the AERCOARE meteorological data preprocessor program will be used in conjunction with AERMOD (AERCOARE-AERMOD) to conduct the air quality modeling analysis as part of this OCS air permit application. Ocean Wind 1, LLC is seeking approval to allow the use of the coupled AERCOARE-AERMOD alternative model methodology or approach for their required air quality modeling analysis, under the *Guideline*, Section 3.2.2(b), Condition (3).

EPA Region 2 has conducted a thorough review of Ocean Wind 1, LLC's request and has found the proposed application of the alternative model to be satisfactory and addresses the requirements of the *Guideline*, Section 3.2.2(b), Condition (3), including the subsequent five elements contained in Section 3.2.2(e). As such, pursuant to the *Guideline*, Sections 3.0(b) and 3.2.2(a), Region 2 currently intends to approve the use of proposed coupled AERCOARE-AERMOD alternative model approach for the Ocean Wind Project air permit application.

## **MODEL CLEARINGHOUSE REVIEW**

The specifics of the EPA Region 2 review and the basis for their intention to approve the proposed AERCOARE-AERMOD alternative modeling approach for the Ocean Wind Project are presented in detail in the EPA Region 2 alternative model concurrence request memorandum and associated Ocean Wind 1, LLC alternative model request package submitted to the Model Clearinghouse on August 29, 2023.<sup>2</sup> Similar to several other Model Clearinghouse actions over the past few years regarding the use of the coupled AERCOARE-AERMOD alternative model approach, we will not reiterate each aspect of the Regional Office review in this concurrence response memorandum given the similarities in scope and almost identical points of justification made by Ocean Wind 1, LLC.<sup>3</sup> The Model Clearinghouse affirms the Region 2 conclusion that circumstances surrounding and the alternative model request package submitted for the Ocean Wind Project follows a nearly identical pathway to these previously EPA approved alternative models.

The Model Clearinghouse continues to agree with the technical merits of this common themed alternative model justification for the coupled AERCOARE-AERMOD approach, as long as there is an appropriate level of consultation with the Regional Office on the manner in which the alternative model will be applied in the air quality modeling analysis for the project's PSD air

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<sup>1</sup> The OCD dispersion model is listed in Section 4.2.2.3 of the *Guideline* as the Environmental Protection Agency's preferred model for over-water modeling.

<sup>2</sup> [https://gaftp.epa.gov/Air/akmg/SCRAM/mchisrs/23-II-01\\_Region2\\_MCHRequest\\_OceanWind.pdf](https://gaftp.epa.gov/Air/akmg/SCRAM/mchisrs/23-II-01_Region2_MCHRequest_OceanWind.pdf).

<sup>3</sup> Please reference the EPA Model Clearinghouse Information Storage and Retrieval System (MCHISRS) database for more information regarding recent AERCOARE-AERMOD alternative model reviews and approvals (<http://cfpub.epa.gov/oarweb/MCHISRS/>, text Search term "AERCOARE").

permit application, including an assessment of potential concerns with platform downwash and shoreline fumigation. The Model Clearinghouse encourages reviewers of this alternative model concurrence to reference the EPA Region 2 alternative model concurrence request memorandum and alternative model request package for specific details of EPA Region 2's review of Ocean Wind 1, LLC's alternative model request and justification.

## **CONCURRENCE SUMMARY**

The Model Clearinghouse concurs with EPA Region 2's proposed approval of a coupled AERCOARE-AERMOD alternative modeling approach for the air quality modeling analysis required in the Ocean Wind Project based on the alternative model request package provided by Ocean Wind 1, LLC and the review documentation in the alternative model concurrence request memorandum provided by EPA Region 2. The Model Clearinghouse encourages EPA Region 2 to respond to Ocean Wind 1, LLC and to the docket for federal permitting actions related to the Ocean Wind Project with a letter of alternative model approval, as appropriate. The information associated with the EPA Region 2 alternative model approval and the Model Clearinghouse concurrence should be available for comment during the appropriate public comment period(s).

Given the possible importance of platform downwash and shoreline fumigation, the Model Clearinghouse continues to recommend caution and careful review before additional alternative model considerations of the coupled AERCOARE-AERMOD model methodology in other projects. This case-specific Model Clearinghouse concurrence does not constitute a generic approval of a coupled AERCOARE-AERMOD approach for other applications elsewhere. However, the scope of the technical assessment submitted here and with similar AERCOARE-AERMOD alternative model requests continue to provide a good basis for such considerations.

For any future projects considering the use of a coupled AERCOARE-AERMOD approach, including differing phases of a project to which those phases were not considered as part of a previous EPA alternative model approval, EPA Regional Office approval with Model Clearinghouse concurrence is required per the *Guideline*, Section 3.2. Early consultation with the appropriate reviewing authority and EPA Regional Office is always strongly recommended for any alternative model application other than the preferred OCD model approach for overwater or OCS sources.

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