



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, NC 27711

March 29, 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 PSD air permitting of the New Fortress Energy Louisiana FLNG Project

**FROM:** George Bridgers, Model Clearinghouse Director  
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**INTRODUCTION**

New Fortress Energy Louisiana FLNG LLC is proposing to construct, own, and operate the New Fortress Energy (NFE) Louisiana FLNG Project, a deepwater port export terminal, approximately 16 nautical miles off the southeast coast of Grand Isle, Louisiana. The NFE Louisiana FLNG Project will involve the installation of two nominal 1.4 million metric tonnes per annum liquefaction systems installed in the West Delta Lease Block 38 in approximately 30 meters (98 feet) of water. Each system will contain three platforms consisting of natural gas processing, natural gas liquefaction, and utilities and accommodations. The proposed facility will provide natural gas supplies to global markets in the form of liquified natural gas.

The NFE Louisiana FLNG Project emissions are anticipated to be greater than the Prevention of Signification Deterioration (PSD) major source thresholds for NO<sub>x</sub>, CO, and SO<sub>2</sub>. The project will therefore be considered a PSD major source, with significant emissions of NO<sub>x</sub>, CO, VOC, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub>, and GHGs. As a result, air quality modeling will be conducted for NO<sub>2</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub> to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) and appropriate PSD Increments.

New Fortress Energy Louisiana FLNG 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.<sup>1</sup> Specifically, New Fortress Energy Louisiana FLNG 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>2</sup>

## REGIONAL OFFICE REVIEW

The U.S. Environmental Protection Agency (EPA) Region 6 seeks concurrence from the EPA's Model Clearinghouse (Model Clearinghouse or MCH) regarding the prospective EPA Region 6 approval of an alternative model for the compliance demonstration requirements of the NFE Louisiana FLNG 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 deepwater port export terminal's air permit application. New Fortress Energy Louisiana FLNG 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 6 has conducted a thorough review of New Fortress Energy Louisiana FLNG 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 6 currently intends to approve the use of proposed coupled AERCOARE-AERMOD alternative model approach for the NFE Louisiana FLNG Project air permit application.

## MODEL CLEARINGHOUSE REVIEW

The specifics of the EPA Region 6 review and the basis for their intention to approve the proposed AERCOARE-AERMOD alternative modeling approach for the NFE Louisiana FLNG Project are presented in detail in the EPA Region 6 alternative model concurrence request memorandum and technical review document submitted to the Model Clearinghouse on March 1, 2023.<sup>3</sup> Given the similarities in scope and almost identical points of justification made by New Fortress Energy Louisiana FLNG LLC 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

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<sup>1</sup> [https://gaftp.epa.gov/Air/aqmg/SCRAM/mchisrs/23\\_VI\\_01\\_Attachment\\_MCH\\_Concurrence\\_Request\\_Memo\\_NF\\_E.pdf](https://gaftp.epa.gov/Air/aqmg/SCRAM/mchisrs/23_VI_01_Attachment_MCH_Concurrence_Request_Memo_NF_E.pdf) (Pages 10-22).

<sup>2</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>3</sup> [https://gaftp.epa.gov/Air/aqmg/SCRAM/mchisrs/23-VI-01\\_Region6\\_MCHRequest\\_NFE.pdf](https://gaftp.epa.gov/Air/aqmg/SCRAM/mchisrs/23-VI-01_Region6_MCHRequest_NFE.pdf) and [https://gaftp.epa.gov/Air/aqmg/SCRAM/mchisrs/23\\_VI\\_01\\_Attachment\\_MCH\\_Concurrence\\_Request\\_Memo\\_NFE.pdf](https://gaftp.epa.gov/Air/aqmg/SCRAM/mchisrs/23_VI_01_Attachment_MCH_Concurrence_Request_Memo_NFE.pdf) (Pages 1-9).

response memorandum.<sup>4</sup> The Model Clearinghouse affirms the Region 6 conclusion that circumstances surrounding and the alternative model request package submitted for the NFE Louisiana FLNG 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 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 6 alternative model concurrence memorandum and technical support document for specific details of EPA Region 6's review of the New Fortress Energy Louisiana FLNG LLC alternative model request and justification.

## **CONCURRENCE SUMMARY**

The Model Clearinghouse concurs with EPA Region 6's proposed approval of a coupled AERCOARE-AERMOD alternative modeling approach for the air quality modeling analysis required in the NFE Louisiana FLNG Project based on the alternative model request package provided by New Fortress Energy Louisiana FLNG LLC and the review documentation in the alternative model concurrence request memorandum and technical support document provided by EPA Region 6. The Model Clearinghouse encourages EPA Region 6 to respond to New Fortress Energy Louisiana FLNG LLC and to the docket for federal permitting actions related to the NFE Louisiana FLNG Project with a letter of alternative model approval, as appropriate. The information associated with the EPA Region 6 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

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<sup>4</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 (Text Search term "AERCOARE").

any alternative model application other than the preferred OCD model approach for overwater or OCS sources.

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