

UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY AND CARBON MANAGEMENT

MAGNOLIA LNG LLC)
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DOCKET NO. 13-132-LNG

ORDER AMENDING LONG-TERM AUTHORIZATION
TO EXPORT LIQUEFIED NATURAL GAS TO
NON-FREE TRADE AGREEMENT NATIONS

DOE/FECM ORDER NO. 3909-C

APRIL 27, 2022

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FREQUENTLY USED ACRONYMS

AEO	Annual Energy Outlook
Bcf/d	Billion Cubic Feet per Day
Bcf/yr	Billion Cubic Feet per Year
CMI	Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC
CPP	Clean Power Plan
DOE	U.S. Department of Energy
EA	Environmental Assessment
EIA	U.S. Energy Information Administration
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FE	Office of Fossil Energy (prior to July 4, 2021)
FECM	Office of Fossil Energy and Carbon Management
FERC	Federal Energy Regulatory Commission
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GHG	Greenhouse Gas
IECA	Industrial Energy Consumers of America
LCA	Life Cycle Analysis
LNG	Liquefied Natural Gas
Mcf	Thousand Cubic Feet
MMBtu	Million British Thermal Units
mtpa	Million Metric Tons per Annum
NEPA	National Environmental Policy Act
NERA	NERA Economic Consulting
NETL	National Energy Technology Laboratory
NGA	Natural Gas Act
SEIS	Supplemental Environmental Impact Statement

I. INTRODUCTION

On December 31, 2018, Magnolia LNG LLC (Magnolia LNG) filed an application (Application)¹ with the Department of Energy’s (DOE) Office of Fossil Energy and Carbon Management (formerly the Office of Fossil Energy)² under section 3 of the Natural Gas Act (NGA).³

Magnolia LNG seeks to amend its existing long-term authorizations⁴ to export an increased volume of domestically produced liquefied natural gas (LNG) by vessel from the proposed Magnolia LNG Terminal (Terminal),⁵ to be located near Lake Charles, Calcasieu Parish, Louisiana.⁶ Specifically, in light of increased liquefaction production capacity made possible by the optimization of its facility design, Magnolia LNG asks DOE to amend its orders to increase its total approved export volume to 449 billion cubic feet per year (Bcf/yr) of natural gas, equivalent to 8.8 million metric tons per annum (mtpa) of LNG, on a non-additive basis.⁷ This amendment, if granted, would align Magnolia LNG’s approved export volume with the total LNG production capacity of the proposed Terminal, as authorized by the Federal Energy Regulatory Commission (FERC) in an order issued on June 18, 2020 (FERC Order).⁸

¹ Magnolia LNG LLC, Application for Amendment to Long-Term Authorizations to Export Liquefied Natural Gas to Non-Free Trade Agreement and Free Trade Agreement Nations, Docket Nos. 13-132-LNG, *et al.* (Dec. 31, 2018) [hereinafter App.].

² The Office of Fossil Energy changed its name to the Office of Fossil Energy and Carbon Management on July 4, 2021.

³ 15 U.S.C. § 717b. The authority to regulate the imports and exports of natural gas, including liquefied natural gas, under section 3 of the NGA has been delegated to the Assistant Secretary for FECM in Redelegation Order No. S4-DEL-FE1-2021, issued on March 25, 2021.

⁴ For purposes of this Order, DOE uses the terms “authorization” and “order” interchangeably.

⁵ The proposed Magnolia LNG Terminal is sometimes referred to as the Magnolia LNG Project.

⁶ App. at 1.

⁷ *See id.* at 1-2, 12.

⁸ *See Magnolia LNG LLC*, Order Amending Authorization Under Section 3 of the Natural Gas Act, 171 FERC ¶ 61,231 (June 18, 2020) [hereinafter FERC Order]; *see also* App. at 1-2 (stating that Magnolia LNG “seeks to align the authorized export volumes of LNG from the Magnolia LNG Terminal with the optimized production capacity design of the facilities”).

Magnolia LNG is currently authorized to export LNG from the Terminal under the following orders:

- (i) DOE/FE Order No. 3245, as amended (Docket No. 12-183-LNG),⁹ authorizing exports to any country with which the United States currently has, or in the future will have, a free trade agreement (FTA) requiring national treatment for trade in natural gas (FTA countries) under NGA section 3(c),¹⁰
- (ii) DOE/FE Order No. 3406, as amended (Docket No. 13-131-LNG),¹¹ authorizing exports to FTA countries under NGA section 3(c); and
- (iii) DOE/FE Order No. 3909, as amended (Docket No. 13-132-LNG),¹² authorizing exports to any other country with which trade is not prohibited by U.S. law or policy (non-FTA countries) under NGA section 3(a).¹³

These orders originally authorized exports of LNG in a volume equivalent to 394.2 Bcf/yr of natural gas to FTA countries (197.1 Bcf/yr under each FTA order) and 394.2 Bcf/yr of natural gas to non-FTA countries, respectively, on a non-additive basis.¹⁴

On March 21, 2019, DOE issued an order granting the FTA portion of the Application, as

⁹ *Magnolia LNG LLC*, DOE/FE Order No. 3245, Docket No. 12-183-LNG, Order Granting Long-Term Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Magnolia LNG Terminal in Lake Charles, Louisiana, to Free Trade Agreement Nations (Feb. 26, 2013), *amended by* Order No. 3245-A (Mar. 21, 2019) (increasing export volume), *further amended by* Order No. 3245-B (Dec. 10, 2020) (extending export term).

¹⁰ 15 U.S.C. § 717b(c). The United States currently has FTAs requiring national treatment for trade in natural gas with Australia, Bahrain, Canada, Chile, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, Republic of Korea, and Singapore. FTAs with Israel and Costa Rica do not require national treatment for trade in natural gas.

¹¹ *Magnolia LNG LLC*, DOE/FE Order No. 3406, Docket No. 13-131-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Magnolia LNG Terminal to be Constructed in Lake Charles, Louisiana, to Free Trade Agreement Nations (Mar. 5, 2014), *amended by* Order No. 3406-A (Mar. 21, 2019) (increasing export volume), *further amended by* Order No. 3406-B (Dec. 10, 2020) (extending export term).

¹² *Magnolia LNG, LLC*, DOE/FE Order No. 3909, Docket No. 13-132-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Magnolia LNG Terminal to be Constructed in Lake Charles, Louisiana, to Non-Free Trade Agreement Nations (Nov. 30, 2016), *reh'g denied* Order No. 3909-A (Apr. 2, 2018), *amended by* Order No. 3909-B (Dec. 10, 2020) (extending export term).

¹³ 15 U.S.C. § 717b(a).

¹⁴ *See, e.g.*, App. 2, 4-5.

required by NGA section 3(c).¹⁵ Accordingly, under Order Nos. 3245 and 3406 (both as amended), Magnolia LNG is authorized to export LNG to FTA countries in a total volume equivalent to 449 Bcf/yr of natural gas (224.5 Bcf/yr under each FTA order).¹⁶ This amendment represented an increase in total FTA exports of 54.8 Bcf/yr of natural gas.¹⁷ Both the FTA and non-FTA orders, as amended, authorize exports for a term extending through December 31, 2050.¹⁸

Previously, on November 19, 2018, Magnolia LNG filed an application with FERC.¹⁹ Magnolia LNG asked FERC to amend its existing NGA section 3 authorization issued on April 15, 2016,²⁰ to increase the total LNG production capacity of the proposed Magnolia LNG Terminal from 8.0 mtpa to 8.8 mtpa, equivalent to an increase from 394.2 Bcf/yr to 449 Bcf/yr of natural gas (Amendment).²¹ To satisfy the requirements of the National Environmental Policy

¹⁵ See *Magnolia LNG LLC*, DOE/FE Order Nos. 3245-A and 3406-A, Docket Nos. 12-183-LNG, *et al.*, Order Amending Long-Term, Multi-Contract Authorizations to Export Liquefied Natural Gas by Vessel from the Proposed Magnolia LNG Terminal to Free Trade Agreement Nations (Mar. 21, 2019).

¹⁶ *Id.* at 6-7.

¹⁷ See *id.* at 5. In the Application, Magnolia LNG states that its requested increase of 0.8 mtpa amounts to 40.7 Bcf/yr of natural gas in additional exports, based on its suggestion that DOE should use a different “starting point” than the volumes originally authorized. App. at 4 n.10. In amending the FTA orders, DOE evaluated this argument but did not agree with Magnolia LNG’s calculation using a new starting point. Consistent with DOE’s practice, DOE determined that Magnolia LNG’s proposed increase in its total FTA export volume amounted to 54.8 Bcf/yr. Likewise, here, DOE is evaluating Magnolia LNG’s requested non-FTA amendment as an increase in exports of 54.8 Bcf/yr over its current approved non-FTA volume, 394.2 Bcf/yr—for a total of 449 Bcf/yr in non-FTA exports. For additional discussion on this issue, see *Magnolia LNG LLC*, DOE/FE Order Nos. 3245-A and 3406-A, at 3-5.

¹⁸ See *supra* notes 9 and 11; see also U.S. Dep’t of Energy, Extending Natural Gas Export Authorizations to Non-Free Trade Agreement Countries Through the Year 2050; Notice of Final Policy Statement and Response to Comments, 85 Fed. Reg. 52,237 (Aug. 25, 2020) [hereinafter 2050 Policy Statement]. Additionally, DOE notes that, effective January 12, 2021, long-term export authorizations contain authority to export the same approved volume of LNG pursuant to transactions with terms of less than two years, including commissioning volumes, on a non-additive basis. See U.S. Dep’t of Energy, Including Short-Term Export Authority in Long-Term Authorizations for the Export of Natural Gas on a Non-Additive Basis; Policy Statement, 86 Fed. Reg. 2243 (Jan. 12, 2021).

¹⁹ Magnolia LNG LLC, Application of Magnolia LNG LLC for Limited Amendment to Authorization Granted Under Section 3 of the Natural Gas Act, FERC Docket No. CP19-19-000 (Nov. 19, 2018) [hereinafter Magnolia App. to FERC].

²⁰ *Magnolia LNG LLC and Kinder Morgan Louisiana Pipeline LLC*, Order Granting Authorization Under Section 3 of the Natural Gas Act and Issuing Certificates, Docket Nos. CP14-347-000 & CP14-511-000 (Apr. 15, 2016).

²¹ See Magnolia LNG App to FERC at 1; see also FERC Order at ¶ 1 (summarizing FERC’s authorization issued to Magnolia LNG for the construction and operation of the Project); see also *infra* § VII (FERC Proceeding).

Act of 1969 (NEPA),²² FERC staff prepared a supplemental environmental impact statement (SEIS) for Magnolia LNG’s requested Amendment in 2020.²³ DOE participated as a cooperating agency in FERC’s preparation of the SEIS.²⁴

On June 18, 2020, FERC issued an order granting Magnolia LNG’s Amendment to its existing NGA section 3 authorization.²⁵ FERC noted that Magnolia LNG’s requested increase in the production capacity of the proposed Terminal was based on Magnolia LNG’s “further refinement and design of the liquefaction process”—referred to as the “optimization process.”²⁶ FERC concluded that, with implementation of the recommended mitigation measures, impacts associated with the proposed modifications “would be avoided or reduced to less-than-significant levels.”²⁷ On this basis, FERC granted Magnolia LNG’s application and amended its NGA section 3 authorization to reflect a total LNG production capacity of 8.8 mtpa, subject to the environmental conditions imposed in the Order.²⁸ FERC further ordered that, in all other respects, Magnolia LNG’s existing authorization shall remain in effect.²⁹

In this proceeding, Magnolia LNG asks DOE to increase its approved non-FTA export volume in Order No. 3909, as amended, from the equivalent of 394.2 Bcf/yr to 449 Bcf/yr of natural gas—an increase of 54.8 Bcf/yr, or 0.15 Bcf per day (Bcf/d), achievable due to its design

²² 42 U.S.C. § 4321 *et seq.*

²³ See Fed. Energy Reg. Comm’n, *Final Supplemental Environmental Impact Statement for the Magnolia Liquefied Natural Gas Production Capacity Amendment* (Magnolia LNG LLC), Docket No. CP19-19-000 (Jan. 2020), <https://www.energy.gov/sites/default/files/2020/01/f70/feis-0498-s1-magnolia-lng-production-capacity-amend-2020-01.pdf> [hereinafter SEIS].

²⁴ See *id.* at 1; see also FERC Order at ¶ 12.

²⁵ See FERC Order at ¶¶ 1, 15, and Ordering Para. A.

²⁶ *Id.* at ¶¶ 4, 8. This refinement in the Terminal’s design includes “the final selection of the mixed refrigeration compressor and associated gas turbine; optimization of the mixed refrigeration circuit; reduction of boil off gas from the storage tanks; and sizing of equipment and piping.” *Id.* at ¶ 4; see also SEIS at ES-1 to ES-2.

²⁷ FERC Order at ¶ 14.

²⁸ *Id.* at Ordering Para. A; see also *id.* at ¶¶ 19-20.

²⁹ *Id.* at Ordering Para. B.

optimization. Magnolia LNG requests that the other terms and conditions of Order No. 3909, as amended, remain the same.³⁰

DOE published a notice of the non-FTA portion of the Application in the *Federal Register* (Notice of Application).³¹ The Notice of Application called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by April 2, 2019.³² DOE received a “Notice of Intervention, Protest, and Comment” opposing the Application filed by Industrial Energy Consumers of America (IECA).³³ DOE received no other filings in response to the Notice of Application. Magnolia LNG subsequently filed a response to IECA’s filing entitled “Request to Reject [IECA’s] Notice of Intervention and Answer to Motion to Intervene, Protest, and Comment.”³⁴

DOE has reviewed the non-FTA portion of the Application, DOE’s economic and environmental studies, the SEIS, the FERC Order, IECA’s Protest, Magnolia LNG’s Answer, and the most recent long-term projections from the U.S. Energy Information Administration (EIA), among other evidence discussed below. DOE notes that, while Magnolia LNG is already authorized to export LNG from the proposed Terminal at its maximum liquefaction capacity to FTA countries, this Order will provide Magnolia LNG with the flexibility to allow its planned LNG export capacity to additionally serve non-FTA countries. Based on this substantial

³⁰ See App. at 6.

³¹ U.S. Dep’t of Energy, Magnolia LNG LLC; Application for Amendment to Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, 84 Fed. Reg. 1111 (Feb. 1, 2019) [hereinafter Notice of Application].

³² DOE finds that the requirement for public notice of applications in 10 C.F.R. Part 590 is applicable only to non-FTA applications under NGA section 3(a).

³³ Industrial Energy Consumers of America, Notice of Intervention, Protest and Comment, Docket No. 13-132-LNG (Apr. 2, 2019) [hereinafter IECA Pleading]. Under DOE’s regulations, only a state commission may file a notice of intervention. See 10 C.F.R. §§ 590.303(a), (b), 590.102(q). Therefore, DOE construes IECA’s filing as a motion to intervene under 10 C.F.R. § 590.303(b).

³⁴ Magnolia LNG LLC, Request to Reject Industrial Energy Consumers of America’s Notice of Intervention and Answer to Motion to Motion to Intervene, Protest, and Comment, Docket No. 13-132-LNG (Apr. 17, 2019) [hereinafter Magnolia LNG Answer].

administrative record, DOE has determined that it has not been shown that Magnolia LNG's proposed increase in exports of LNG to non-FTA countries will be inconsistent with the public interest, as would be required to deny the Application under NGA section 3(a).

DOE therefore grants the requested amendment to increase Magnolia LNG's approved non-FTA export volume in Order No. 3909, as amended, to 449 Bcf/yr of natural gas, or 1.23 Bcf/d.³⁵ This authorization is subject to the Terms and Conditions and Ordering Paragraphs set forth herein, which incorporate by reference the environmental conditions previously imposed in Magnolia LNG's FERC authorization for the proposed Terminal.

Additionally, DOE has reviewed FERC's Order under NEPA. FERC adopted the mitigation measures recommended in the final SEIS for the Amendment (and noted that these mitigation measures were "in addition to the mandatory conditions already in effect from Magnolia LNG's 2016 authorization").³⁶ After an independent review, DOE adopted the final SEIS on February 13, 2020 (DOE/EIS-0498-S1),³⁷ and the U.S. Environmental Protection Agency (EPA) published a notice of the adoption on February 21, 2020.³⁸

As discussed below, DOE has determined that it is appropriate to supplement FERC's environmental review with DOE's environmental studies, as well as the Marine Transport Technical Support Document (Technical Support Document) prepared by DOE to consider the potential effects associated with transporting natural gas, including LNG, on marine vessels.³⁹

³⁵ See *infra* §§ IX-XI. Because the export volumes authorized in Magnolia LNG's FTA orders and this Order each reflect the planned liquefaction capacity of the Terminal as approved by FERC, the FTA and non-FTA volumes are not additive.

³⁶ FERC Order at ¶¶ 18-19.

³⁷ Letter from Amy Sweeney, DOE, to Julie Roemele, U.S. Env'tl. Prot. Agency (Feb. 13, 2020) (adoption of final SEIS).

³⁸ U.S. Env'tl. Prot. Agency, Environmental Impact Statements; Notice of Availability, 85 Fed. Reg. 10,164 (Feb. 21, 2020).

³⁹ U.S. Dep't of Energy, Technical Support Document, Notice of Final Rulemaking, National Environmental Policy Act Implementing Procedures (10 C.F.R. Part 1021) (Nov. 2020),

On the basis of this record, DOE is issuing an Amended Record of Decision (Amended ROD) for the proposed Terminal as Appendix B to this Order. This Order requires Magnolia LNG’s compliance with the new environmental conditions adopted in the FERC Order.

Concurrently with this Order, DOE is issuing Order No. 3978-E to Golden Pass LNG Terminal LLC (Golden Pass LNG), amending its long-term non-FTA authorization to increase its non-FTA export volume.⁴⁰ The incremental amendment volumes approved in this Order and the Golden Pass LNG order are 0.15 Bcf/d and 0.35 Bcf/d, respectively. Together, these amended orders bring DOE’s cumulative total of approved non-FTA exports of LNG and compressed natural gas (CNG) from the lower-48 states to 46.07 Bcf/d of natural gas.⁴¹

II. BACKGROUND

A. DOE’s LNG Export Studies

1. 2012 EIA and NERA Studies

In 2011, DOE engaged EIA and NERA Economic Consulting (NERA) to conduct a two-part study of the economic impacts of U.S. LNG exports, which together was called the “2012 LNG Export Study.” The first part, performed by EIA and published in January 2012, assessed how specified scenarios of increased natural gas exports could affect domestic energy markets.

https://www.energy.gov/sites/prod/files/2020/12/f81/10-cfr-1021-ng-tsd-2020-11_0.pdf [hereinafter Technical Support Document]. DOE prepared the Technical Support Document in connection with a NEPA rulemaking pertaining to authorizations issued under NGA section 3. *See* U.S. Dep’t of Energy, National Environmental Policy Act Implementing Procedures, 85 Fed. Reg. 78,197 (Dec. 4, 2020); *see also infra* § II.D.

⁴⁰ *Golden Pass LNG Terminal LLC*, DOE/FECM Order No. 3978-E, Docket No. 12-156-LNG, Order Amending Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Apr. 27, 2022).

⁴¹ Final non-FTA orders that were later vacated are not included in this total volume. *See infra* § VIII.D (identifying long-term orders vacated to date). Additionally, DOE has issued one final long-term order authorizing exports of LNG produced from sources from a proposed facility to be constructed in Alaska to non-FTA countries. *See Alaska LNG Project LLC*, DOE/FE Order No. 3643-A, Docket No. 14-96-LNG, Final Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Aug. 20, 2020), *reh’g granted in part*, DOE/FE Order No. 3642-B (Apr. 15, 2021) (rehearing ongoing). The Alaska volume is not included in the volumes discussed herein, which involve the export of LNG and compressed natural gas produced from the lower-48 states. Because there is no natural gas pipeline interconnection between Alaska and the lower 48 states, DOE generally views those LNG export markets as distinct.

Specifically, EIA examined how prescribed levels of natural gas exports (at 6 Bcf/d and 12 Bcf/d) above baseline cases could affect domestic energy markets.

The second part, performed by NERA under contract to DOE, evaluated the macroeconomic impact of LNG exports on the U.S. economy. NERA used a general equilibrium macroeconomic model of the U.S. economy with an emphasis on the energy sector and natural gas. The 2012 NERA Study projected that, across all scenarios studied—assuming either 6 Bcf/d or 12 Bcf/d of LNG export volumes—the United States would experience net economic benefits from allowing LNG exports.

In December 2012, DOE published a notice of availability of the 2012 LNG Export Study in the *Federal Register* for public comment.⁴² DOE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.⁴³

2. 2014 and 2015 LNG Export Studies

By May 2014, in light of the volume of LNG exports to non-FTA countries then authorized by DOE and the number of non-FTA export applications still pending, DOE determined that an updated study was warranted to consider the economic impacts of exporting LNG from the lower-48 states to non-FTA countries. DOE announced plans to undertake new economic studies to gain a better understanding of how higher levels of U.S. LNG exports—at levels between 12 and 20 Bcf/d of natural gas—would affect the public interest.⁴⁴

⁴² See U.S. Dep't of Energy, Notice of Availability of 2012 LNG Export Study and Request for Comments, 77 Fed. Reg. 73,627 (Dec. 11, 2012), http://energy.gov/sites/prod/files/2013/04/f0/fr_notice_two_part_study.pdf.

⁴³ See, e.g., *Freeport LNG Expansion L.P., et al.*, DOE/FE Order No. 3282, Docket No. 10-161-LNG, Order Conditionally Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Freeport LNG Terminal on Quintana Island, Texas to Non-Free Trade Agreement Nations, at 56-109 (May 17, 2013).

⁴⁴ See U.S. Dep't of Energy, Office of Fossil Energy, Request for an Update of EIA's January 2012 Study of Liquefied Natural Gas Export Scenarios, <https://www.energy.gov/fe/downloads/request-update-eia-s-january-2012-study-liquefied-natural-gas-export-scenarios> (May 29, 2014) (memorandum from FE to EIA).

DOE commissioned two new macroeconomic studies. The first, *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets*, was performed by EIA and published in October 2014 (2014 LNG Export Study or 2014 Study).⁴⁵ The 2014 Study assessed how specified scenarios of increased natural gas exports could affect domestic energy markets. At DOE's request, this 2014 Study served as an update of EIA's January 2012 study of LNG export scenarios and used baseline cases from EIA's *Annual Energy Outlook 2014* (AEO 2014).⁴⁶

The second study, *The Macroeconomic Impact of Increasing U.S. LNG Exports*, was performed jointly by the Center for Energy Studies at Rice University's Baker Institute and Oxford Economics under contract to DOE (together, Rice-Oxford) and published in October 2015 (2015 LNG Export Study or 2015 Study).⁴⁷ The 2015 Study was a scenario-based assessment of the macroeconomic impact of levels of U.S. LNG exports, sourced from the lower-48 states, under different assumptions including U.S. resource endowment, U.S. natural gas demand, international LNG market dynamics, and other factors. The 2015 Study considered export volumes ranging from 12 to 20 Bcf/d of natural gas, as well as a high resource recovery case examining export volumes up to 28 Bcf/d of natural gas. The analysis covered the time period from 2015 to 2040.

In December 2015, DOE published a Notice of Availability of the 2014 and 2015 Studies in the *Federal Register*, and invited public comment on those Studies.⁴⁸ DOE subsequently

⁴⁵ U.S. Energy Info. Admin., *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets* (Oct. 2014), <https://www.eia.gov/analysis/requests/fe/pdf/lng.pdf>.

⁴⁶ Each Annual Energy Outlook (AEO) presents EIA's long-term projections of energy supply, demand, and prices. It is based on results from EIA's National Energy Modeling System (NEMS) model.

⁴⁷ Center for Energy Studies at Rice University Baker Institute and Oxford Economics, *The Macroeconomic Impact of Increasing U.S. LNG Exports* (Oct. 29, 2015), http://energy.gov/sites/prod/files/2015/12/f27/20151113_macro_impact_of_lng_exports_0.pdf.

⁴⁸ U.S. Dep't of Energy, *Macroeconomic Impacts of LNG Exports Studies; Notice of Availability and Request for Comments*, 80 Fed. Reg. 81,300, 81,302 (Dec. 29, 2015).

responded to the public comments in connection with the LNG export proceedings identified in that notice.⁴⁹

3. 2018 LNG Export Study

a. Overview

At the time DOE commissioned the 2018 LNG Export Study in 2017, 25 non-FTA applications were pending before DOE.⁵⁰ In light of both the volume of LNG requested for export in those pending applications and the cumulative volume of non-FTA exports then-authorized (equivalent to 21.35 Bcf/d of natural gas), DOE determined that a new macroeconomic study was warranted.⁵¹ Accordingly, DOE, through its support contractor KeyLogic Systems, Inc., commissioned NERA to conduct the 2018 LNG Export Study. DOE published the 2018 LNG Export Study (or 2018 Study) on its website on June 7, 2018,⁵² and concurrently provided notice of the availability of the Study, as discussed below.⁵³

Like the four prior economic studies, the 2018 LNG Export Study examines the impacts of varying levels of LNG exports on domestic energy markets. However, the 2018 LNG Export Study differs from DOE's earlier studies in the following ways:

⁴⁹ See, e.g., *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3792, Docket No. 15-63-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Sabine Pass LNG Terminal Located in Cameron Parish, Louisiana, to Non-Free Trade Agreement Nations, at 66-121 (Mar. 11, 2016).

⁵⁰ See U.S. Dep't of Energy, Study on Macroeconomic Outcomes of LNG Exports; Notice of Availability of the 2018 LNG Export Study and Request for Comments, 83 Fed. Reg. 27,314 (June 12, 2018) (identifying 25 docket proceedings) [hereinafter 2018 Study Notice].

⁵¹ Additionally, as of the date of the 2018 Study, DOE had authorized a cumulative total of LNG exports to FTA countries under NGA section 3(c) in a volume of 59.33 Bcf/d of natural gas. These FTA volumes were not additive to the authorized non-FTA volumes.

⁵² See NERA Economic Consulting, *Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports* (June 7, 2018), <https://www.energy.gov/sites/prod/files/2018/06/f52/Macroeconomic%20LNG%20Export%20Study%202018.pdf> [hereinafter 2018 LNG Export Study or 2018 Study].

⁵³ See 2018 Study Notice.

- (i) Includes a larger number of scenarios (54 scenarios) to capture a wider range of uncertainty in four natural gas market conditions than examined in the previous studies;
- (ii) Includes LNG exports in all 54 scenarios that are market-determined levels, including the three alternative baseline scenarios that are based on the projections in EIA's *Annual Energy Outlook 2017* (AEO 2017);⁵⁴
- (iii) Examines unconstrained LNG export volumes beyond the levels examined in the previous studies;
- (iv) Examines the likelihood of those market-determined LNG export volumes; and
- (v) Provides macroeconomic projections associated with several of the scenarios lying within the more likely range of exports.⁵⁵

b. Methodology and Scenarios

In its Response to Comments published in the *Federal Register* in December 2018, DOE provided a detailed discussion of the methodology and scenarios used in the 2018 Study, including NERA's Global Natural Gas Model (GNGM) and NewERA models.⁵⁶ The 2018 Study develops 54 scenarios by identifying various assumptions for domestic and international supply and demand conditions to capture a wide range of uncertainty in natural gas markets. The scenarios include three baseline cases based on EIA's AEO 2017 projections (the most recent EIA projections available at the time), with varying assumptions about U.S. natural gas supply.⁵⁷ The three cases for U.S. natural gas supply derived from AEO 2017 are:

- i. AEO 2017's Reference case, which provides a central estimate of U.S. natural gas production;

⁵⁴ U.S. Energy Info. Admin., *Annual Energy Outlook 2017* (with projections to 2050) (Jan. 5, 2017), <https://www.eia.gov/outlooks/archive/aeo17/> [hereinafter AEO 2017].

⁵⁵ See 2018 Study Notice, 83 Fed. Reg. at 27,316.

⁵⁶ See U.S. Dep't of Energy, Study on Macroeconomic Outcomes of LNG Exports; Response to Comments Received on Study, 83 Fed. Reg. 67,251 (Dec. 28, 2018) [hereinafter 2018 Study Response to Comments].

⁵⁷ 2018 Study Response to Comments, 83 Fed. Reg. at 67,256 (stating that the differences in the natural gas production levels across these cases arise from varying assumptions around unproven offshore resources, onshore shale gas resources, tight gas resources, and conventional and tight oil associated gas resources, as well as the costs of producing these resources).

- ii. High Oil and Gas Resource and Technology (HOGR) case, which provides more optimistic resource development estimates than the Reference case; and
- iii. Low Oil and Gas Resource and Technology (LOGR) case, which provides less optimistic resource development estimates than the Reference case.⁵⁸

Alternative scenarios add other assumptions about future U.S. and international demand for natural gas. The three cases for U.S. natural gas demand are:

- i. AEO 2017's Reference case, which provides a central estimate of U.S. natural gas demand;
- ii. A Robust Economic Growth case, which provides a high estimate for U.S. natural gas demand driven by higher levels of gross domestic product (GDP) growth; and
- iii. A Renewables Mandate case, which provides a low estimate for U.S. natural gas demand driven by the imposition of a stringent renewables mandate.⁵⁹

International assumptions are based on EIA's *International Energy Outlook 2017* (IEO 2017) and the International Energy Agency's (IEA) *World Energy Outlook 2016* (WEO 2016).

As noted above, the 2018 Study also examines the likelihood of conditions leading to various export scenarios. This unique feature provides not only quantification of the effects to the U.S. natural gas market and its overall economy under each of the scenarios outlined, but also an assessment of the probability of each of these scenarios, and thus the probability of the natural gas and macroeconomic outcomes associated with each scenario.⁶⁰

In developing this aspect of the Study, NERA first developed estimates of the probabilities for the level of U.S. supply and demand, as well as supply and demand in the rest of the world.⁶¹ DOE and KeyLogic, Inc. contacted a set of independent experts recommended by

⁵⁸ See *id.*

⁵⁹ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,256.

⁶⁰ See *id.*

⁶¹ See *id.*

DOE (referred to as the peer reviewers) to obtain their probability assignments for these same four metrics. After receiving feedback from the peer reviewers, NERA reevaluated the original probability assignments to arrive at the final probabilities. These peer-reviewed probabilities of uncertainties surrounding developments in the international and domestic natural gas markets were, in turn, combined to develop the 54 export scenarios and their associated macroeconomic impacts.

c. Study Results

The 54 scenarios in the 2018 Study provide a wide range of results. NERA chose to focus on a subset of more likely outcomes, given DOE's assumptions about the probabilities associated with U.S. natural gas production, demand, and supply, as well as demand for natural gas in the rest of the world. NERA's key results include the following:

- The more likely range of LNG exports in the year 2040 was judged to range from 8.7 to 30.7 Bcf/d of natural gas.
- U.S. natural gas prices range from \$5 to approximately \$6.50 per million British thermal unit (MMBtu) in 2040 (in constant 2016 dollars) under Reference case supply assumptions. These central cases have a combined probability of 47%.
- Levels of GDP are most sensitive to assumptions about U.S. supply of natural gas, with high supply driving higher levels of GDP. For each of the supply scenarios, higher levels of LNG exports in response to international demand consistently lead to higher levels of GDP. GDP achieved with the highest level of LNG exports in each group exceeds GDP with the lowest level of LNG exports by \$13 to \$72 billion in 2040 (in constant 2016 dollars).

- About 80% of the increase in LNG exports is satisfied by increased U.S. production of natural gas, with positive effects on labor income, output, and profits in the natural gas production sector.
- Industry subsectors of the economy that rely heavily on natural gas for energy and as a feedstock continue to exhibit robust growth even at higher LNG export levels, albeit at slightly slower rates of increase than cases with lower LNG export levels.
- All scenarios within the more likely range of results are welfare-improving for the average U.S. household.⁶²
- Even the most extreme scenarios of high LNG exports outside the more likely probability range (exhibiting a combined probability of less than 3%) show higher overall economic performance in terms of GDP, household income, and consumer welfare than lower export levels associated with the same domestic supply scenarios.⁶³

d. DOE Proceeding

On June 12, 2018, DOE published a notice of availability of the 2018 LNG Export Study and a request for comments.⁶⁴ The purpose of the notice of availability was “to enter the 2018 LNG Export Study into the administrative record of the 25 pending non-FTA export proceedings [identified in the notice] and to invite comments on the Study for consideration in the pending and future non-FTA application proceedings.”⁶⁵ DOE received 19 comments on the 2018 LNG Export Study from a variety of sources, including participants in the natural gas industry, industrial users, environmental organizations, and individuals.⁶⁶ Of those, nine comments

⁶² See *id.* at 67,264; see also *id.* at 67,266.

⁶³ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,255.

⁶⁴ See 2018 Study Notice.

⁶⁵ *Id.* at 27,315.

⁶⁶ The public comments are posted on the DOE website at: <https://fossil.energy.gov/app/docketindex/docket/index/10>.

supported the Study,⁶⁷ eight comments opposed the 2018 Study and/or exports of LNG,⁶⁸ one comment took no position,⁶⁹ and one comment was non-responsive.⁷⁰

DOE summarized and responded to these comments in the Response to Comments document, published on December 28, 2018.⁷¹ As explained in the Response to Comments, DOE determined that none of the eight comments opposing the 2018 Study provided sufficient evidence to rebut or otherwise undermine the 2018 Study.⁷²

DOE incorporates into the record of this proceeding the 2018 LNG Export Study, the 2018 Study Notice, the public comments received on the 2018 Study, and the 2018 Study Response to Comments—which together constitute the full proceeding for the 2018 LNG Export Study.

e. DOE Conclusions

Based upon the record in the 2018 Study proceeding, DOE determined that the 2018 Study provides substantial support for non-FTA applications within the export volumes considered by the Study—ranging from 0.1 to 52.8 Bcf/d of natural gas.⁷³ The principal conclusion of the 2018 LNG Export Study is that the United States will experience net economic benefits from the export of domestically produced LNG.⁷⁴

⁶⁷ Supporting comments were filed by the Marcellus Shale Coalition; the Center for Liquefied Natural Gas (CLNG); the Pennsylvania Chamber of Business and Industry; the American Petroleum Institute (API); Cheniere Energy, Inc.; Jordan Cove Energy Project L.P. (JCEP); LNG Allies; NextDecade Corp.; and Anonymous. The Anonymous comment is comprised of five comments filed by the same anonymous author.

⁶⁸ Opposing comments were filed by Patricia Weber; Oil Change International; Food & Water Watch; IECA; Oregon Wild; Sierra Club; Deb Evans and Ron Schaaf (the Evans Schaaf Family); and Jody McCaffree (individually and as executive director of Citizens for Renewables/Citizens Against LNG). Oil Change International and Food & Water Watch filed identical comments.

⁶⁹ Comment of John Young.

⁷⁰ Comment of Vincent Burke.

⁷¹ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.

⁷² See *id.* at 67,272.

⁷³ See *id.*

⁷⁴ See *id.*

DOE highlighted a number of key findings from the 2018 Study, including that “[i]ncreasing U.S. LNG exports under any given set of assumptions about U.S. natural gas resources and their production leads to only small increases in U.S. natural gas prices;” increased exports will improve the U.S. balance of trade and GDP; “a large share of the increase in LNG exports is supported by an increase in domestic natural gas production;” and “[n]atural gas intensive [industries] continue to grow robustly at higher levels of LNG exports, albeit at slightly lower rates of increase than they would at lower levels.”⁷⁵

DOE also observed that EIA’s projections in *Annual Energy Outlook 2018* (AEO 2018) showed market conditions that will accommodate increased exports of natural gas.⁷⁶ DOE concluded that, when compared to prior AEO Reference cases—including AEO 2017’s Reference case used in the 2018 Study—the AEO 2018 Reference case projected increases in domestic natural gas production in excess of what is required to meet projected increases in domestic consumption.⁷⁷

For all of these reasons, DOE found that “the 2018 LNG Export Study is fundamentally sound and supports the proposition that exports of LNG from the lower-48 states, in volumes up to and including 52.8 Bcf/d of natural gas, will not be inconsistent with the public interest.”⁷⁸ DOE stated, however, that it will consider each application to export LNG as required under the NGA and NEPA based on the administrative record compiled in each individual proceeding.⁷⁹

⁷⁵ *Id.* at 67,273 (citations to 2018 LNG Export Study omitted).

⁷⁶ U.S. Energy Info. Admin., *Annual Energy Outlook 2018* (with projections to 2050) (Feb. 6, 2018), <https://www.eia.gov/outlooks/archive/aeo18/> [hereinafter AEO 2018].

⁷⁷ 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

⁷⁸ *Id.* (citing 2018 LNG Export Study at 63 & Appendix F to the Study).

⁷⁹ *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

B. DOE's Environmental Studies

On June 4, 2014, DOE issued two notices in the *Federal Register* proposing to evaluate different environmental aspects of the LNG production and export chain. First, DOE announced that it had conducted a review of existing literature on potential environmental issues associated with unconventional natural gas production in the lower-48 states. The purpose of this review was to provide additional information to the public and to inform DOE's public interest evaluation on potential environmental impacts of unconventional natural gas exploration and production activities, including hydraulic fracturing. DOE published its draft report for public review and comment, entitled *Draft Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States* (Draft Addendum).⁸⁰ DOE received public comments on the Draft Addendum, and on August 15, 2014, issued the final Addendum with its response to the public comments contained in Appendix B.⁸¹

Second, DOE commissioned the National Energy Technology Laboratory (NETL), a DOE applied research laboratory, to conduct an analysis calculating the life cycle greenhouse gas (GHG) emissions for LNG exported from the United States. DOE commissioned this life cycle analysis (LCA) to inform its public interest review of non-FTA applications, as part of its broader effort to evaluate different environmental aspects of the LNG production and export chain.

⁸⁰ U.S. Dep't of Energy, Draft Addendum to Environmental Review Documents Concerning Exports of Natural Gas From the United States, 79 Fed. Reg. 32,258 (June 4, 2014). DOE announced the availability of the Draft Addendum on its website on May 29, 2014.

⁸¹ U.S. Dep't of Energy, Addendum to Environmental Review Documents Concerning Exports of Natural Gas From the United States, 79 Fed. Reg. 48,132 (Aug. 15, 2014) [hereinafter Addendum]; *see also* Office of Fossil Energy & Carbon Mgmt., *Addendum to Environmental Review Documents Concerning Exports of Natural Gas From the United States*, U.S. Dep't of Energy, <http://energy.gov/fe/addendum-environmental-review-documents-concerning-exports-natural-gas-united-states>.

DOE sought to determine how domestically produced LNG exported from the United States compares with (i) regional coal (or other LNG sources) for electric power generation in Europe and Asia from a life cycle GHG perspective, and (ii) natural gas sourced from Russia and delivered to the same markets via pipeline. In June 2014, DOE published NETL's report entitled, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States* (2014 LCA GHG Report or 2014 Report).⁸² DOE also received public comments on the LCA GHG Report and responded to those comments in prior orders.⁸³ DOE has relied on the 2014 Report in its review of all subsequent applications to export LNG to non-FTA countries.

In 2018, DOE commissioned NETL to conduct an update to the 2014 LCA GHG Report, entitled *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States: 2019 Update* (LCA GHG Update or 2019 Update).⁸⁴ As with the 2014 Report, the LCA GHG Update compared life cycle GHG emissions of exports of domestically produced LNG to Europe and Asia with alternative fuel sources (such as regional coal and other imported natural gas) for electric power generation in the destination countries. Although core aspects of the analysis—such as the scenarios investigated—were the same as the 2014 Report, the LCA GHG Update contained the following three changes:

- Incorporated NETL's most recent characterization of upstream natural gas production, set forth in NETL's April 2019 report entitled, *Life Cycle Analysis of*

⁸² U.S. Dep't of Energy, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States*, 79 Fed. Reg. 32,260 (June 4, 2014) [hereinafter 2014 LCA GHG Report]. DOE announced the availability of the LCA GHG Report on its website on May 29, 2014.

⁸³ See, e.g., *Magnolia LNG, LLC*, DOE/FE Order No. 3909, Docket No. 13-132-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Magnolia LNG Terminal to be Constructed in Lake Charles, Louisiana, to Non-Free Trade Agreement Nations, at 95-121 (Nov. 30, 2016) (description of LCA GHG Report and response to comments).

⁸⁴ Nat'l Energy Tech. Lab., *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update* (DOE/NETL-2019/2041) (Sept. 12, 2019), <https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf> [hereinafter 2019 Update].

Natural Gas Extraction and Power Generation (April 2019 LCA of Natural Gas Extraction and Power Generation);⁸⁵

- Updated the unit processes for liquefaction, ocean transport, and regasification characterization using engineering-based models and publicly available data informed and reviewed by existing LNG export facilities, where possible; and
- Updated the 100-year global warming potential (GWP) for methane (CH₄) to reflect the current Intergovernmental Panel on Climate Change's Fifth Assessment Report.⁸⁶

In all other respects, the LCA GHG Update was unchanged from the 2014 Report.⁸⁷

The LCA GHG Update demonstrated that the conclusions of the 2014 LCA GHG Report remained the same. Specifically, the 2019 Update concluded that the use of U.S. LNG exports for power production in European and Asian markets will not increase global GHG emissions from a life cycle perspective, when compared to regional coal extraction and consumption for power production.⁸⁸ On this basis, DOE found that the 2019 Update supports the proposition that exports of LNG from the lower-48 states will not be inconsistent with the public interest.⁸⁹ Additional details are discussed below,⁹⁰ and in DOE's Response to Comments on the 2019 Update.

With respect to the Addendum, the 2014 LCA GHG Report, and the 2019 LCA GHG Update, DOE takes all public comments into consideration in this decision and makes those comments, as well as the underlying studies, part of the record in this proceeding.

⁸⁵ Nat'l Energy Tech. Lab., *Life Cycle Analysis of Natural Gas Extraction and Power Generation* (DOE/NETL-2019/2039) (Apr. 19, 2019), <https://www.netl.doe.gov/energy-analysis/details?id=3198>.

⁸⁶ See U.S. Dep't of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States; Notice of Availability of Report Entitled Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States: 2019 Update and Request for Comments, 84 Fed. Reg. 49,278, 49,279 (Sept. 19, 2019).

⁸⁷ See U.S. Dep't of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States: 2019 Update – Response to Comments, 85 Fed. Reg. 72, 75 (Jan. 2, 2020) [hereinafter DOE Response to Comments on 2019 Update].

⁸⁸ See *id.* at 78, 85.

⁸⁹ See *id.* at 86.

⁹⁰ See *infra* § VIII.C.3.

C. Judicial Decisions Upholding DOE's Non-FTA Authorizations

In 2015 and 2016, Sierra Club petitioned the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) for review of five long-term LNG export authorizations issued by DOE under the standard of review discussed below. Sierra Club challenged DOE's approval of LNG exports from projects proposed or operated by the following authorization holders: Freeport LNG Expansion, L.P., *et al.*; Dominion Cove Point LNG, LP (now Cove Point LNG, LP⁹¹); Sabine Pass Liquefaction, LLC (Sabine Pass); and Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (together, CMI). The D.C. Circuit subsequently denied four of the five petitions for review: one in a published decision issued on August 15, 2017 (*Sierra Club I*),⁹² and three in a consolidated, unpublished opinion issued on November 1, 2017 (*Sierra Club II*).⁹³ Sierra Club did not seek further judicial review of either decision. In January 2018, Sierra Club voluntarily withdrew its fifth and remaining petition for review.⁹⁴

In *Sierra Club I*, the D.C. Circuit concluded that DOE had complied with both NGA section 3(a) and NEPA in issuing the challenged non-FTA authorization to Freeport LNG Expansion, L.P. and its related entities (collectively, Freeport). DOE had granted the Freeport application in 2014 in a volume equivalent to 0.4 Bcf/d of natural gas, finding that Freeport's proposed exports were in the public interest under NGA section 3(a). DOE also considered and disclosed the potential environmental impacts of its decision under NEPA. Sierra Club petitioned for review of the Freeport authorization, arguing that DOE fell short of its obligations

⁹¹ See *Cove Point LNG, LP (formerly Dominion Energy Cove Point LNG, LP)*, DOE/FE Order Nos. 3019-C, *et al.*, Docket Nos. 11-115-LNG, *et al.*, Order Granting Request to Amend Authorizations to Import or Export Liquefied Natural Gas to Reflect Corporate Name Change (Dec. 2, 2020).

⁹² *Sierra Club v. U.S. Dep't of Energy*, 867 F.3d 189 (D.C. Cir. 2017) [hereinafter *Sierra Club I*] (denying petition for review of the LNG export authorization issued to Freeport LNG Expansion, L.P., *et al.*).

⁹³ *Sierra Club v. U.S. Dep't of Energy*, 703 F. App'x 1 (D.C. Cir. 2017) [hereinafter *Sierra Club II*] (denying petitions for review in Nos. 16-1186, 16-1252, and 16-1253 of the LNG export authorizations issued to Dominion Cove Point LNG, LP; Sabine Pass; and CMI, respectively).

⁹⁴ See *Sierra Club v. U.S. Dep't of Energy*, No. 16-1426, Per Curiam Order (D.C. Cir. 2018) (granting Sierra Club's unopposed motion for voluntary dismissal).

under both the NGA and NEPA. The D.C. Circuit rejected Sierra Club’s arguments in a unanimous decision.⁹⁵

First, the Court rejected Sierra Club’s NEPA argument concerning the indirect effects of export-induced natural gas production.⁹⁶ The Court found that DOE “offered a reasoned explanation as to why it believed the indirect effects pertaining to increased [natural] gas production were not reasonably foreseeable.”⁹⁷ In particular, the Court recognized that DOE had described upstream natural gas impacts generally,⁹⁸ while affirming DOE’s explanation that particularized impacts are highly location-dependent, and could not be attributed to any given export application.⁹⁹ The Court thus held that, “[u]nder our limited and deferential review, we cannot say that the Department failed to fulfill its obligation under NEPA by declining to make specific projections about environmental impacts stemming from specific levels of export-induced [natural] gas production.”¹⁰⁰

Second, the Court rejected Sierra Club’s challenge to DOE’s examination of the potential “downstream” GHG emissions resulting from the indirect effects of exports—*i.e.*, those resulting from the transport and usage of U.S. LNG abroad.¹⁰¹ The Court pointed to DOE’s 2014 LCA GHG Report, finding there was “nothing arbitrary” about the scope of DOE’s analysis of GHG emissions in that Report.¹⁰²

Third, in reviewing Sierra Club’s claims under the NGA, the Court held that “Sierra Club has given us no reason to question the Department’s judgment that the [Freeport] application is

⁹⁵ *Sierra Club I*, 867 F.3d at 192.

⁹⁶ *Id.* at 197–99.

⁹⁷ *Id.* at 198.

⁹⁸ *Id.* at 201 (“Generalizing the impacts does not necessarily mean minimizing them; and here, the Addendum candidly discussed significant risks associated with increased gas production.”).

⁹⁹ *Id.* at 198–99.

¹⁰⁰ *Id.* at 201.

¹⁰¹ *Sierra Club I*, 867 F.3d at 201.

¹⁰² *Id.* at 202.

not inconsistent with the public interest.”¹⁰³ In particular, because Sierra Club “repeats the same argument it made to support its NEPA claim—namely, that the Department arbitrarily failed to evaluate foreseeable indirect effects of exports,”¹⁰⁴ which the Court “already rejected” under NEPA—the Court determined that “Sierra Club offers no basis for reevaluating the scope of [DOE]’s evaluation for purposes of the Natural Gas Act.”¹⁰⁵

Subsequently, in the consolidated *Sierra Club II* opinion issued on November 1, 2017, the D.C. Circuit ruled that “[t]he court’s decision in [*Sierra Club I*] largely governs the resolution of the [three] instant cases.”¹⁰⁶ Upon its review of the remaining “narrow issues” in those cases, the Court again rejected Sierra Club’s arguments under the NGA and NEPA, and upheld DOE’s actions in issuing the non-FTA authorizations in those proceedings.¹⁰⁷

The D.C. Circuit’s decisions in *Sierra Club I* and *II* continue to guide DOE’s review of applications to export LNG to non-FTA countries. Moreover, consistent with the Court’s treatment of the 2014 LCA GHG Report and the Addendum as part of DOE’s “hard look” review under NEPA,¹⁰⁸ DOE is incorporating these studies—as well as the 2019 LCA GHG Update—into the NEPA record in this proceeding.¹⁰⁹

D. DOE’s Marine Transport Technical Support Document

Among the transportation scenarios modeled in the 2014 LCA GHG Report and 2019 Update, DOE considered how emissions associated with the ocean transport of U.S. LNG in tankers contribute to total life cycle GHG emissions.¹¹⁰

¹⁰³ *Id.* at 203.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Sierra Club II*, 703 F. App’x at *2.

¹⁰⁷ *Id.*

¹⁰⁸ *Sierra Club I*, 867 F.3d at 197 (“For our purposes, we will consider the supplemental materials to be part of the agency’s environmental review.”).

¹⁰⁹ See *infra* § VII and Appendix B (Finding of No Significant Impact).

¹¹⁰ See, e.g., DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 75, 77, 78 n.69; see also 2019 Update at 17-18 & Appendix B.3.

Additionally, in 2020, DOE conducted a NEPA rulemaking pertaining to authorizations issued under NGA section 3.¹¹¹ As relevant here, DOE revised its NEPA procedures that provide for a categorical exclusion if neither an environmental impact statement (EIS) nor an EA is required—specifically, by promulgating a revised categorical exclusion B5.7, *Export of natural gas and associated transportation by marine vessel*.¹¹²

In that rulemaking, DOE conducted “a detailed review of technical documents regarding potential effects associated with marine transport of LNG.”¹¹³ These documents were identified in an accompanying Marine Transport Technical Support Document.¹¹⁴ On the basis of the data referenced in the Technical Support Document, DOE concluded that “the transport of natural gas by marine vessels adhering to applicable maritime safety regulations and established shipping methods and safety standards normally does not pose the potential for significant environmental impacts.”¹¹⁵ In light of Magnolia LNG’s proposed transport of LNG via ocean-going carrier to non-FTA countries in this proceeding, DOE is supplementing the record with the Technical Support Document, as set forth below.¹¹⁶

III. PUBLIC INTEREST STANDARD

Section 3(a) of the NGA sets forth the standard for review for the non-FTA portion of the Application:

¹¹¹ See U.S. Dep’t of Energy, National Environmental Policy Act Implementing Procedures, Final Rule, 85 Fed. Reg. 78,197 (Dec. 4, 2020) [hereinafter NEPA Implementing Procedures].

¹¹² See *id.*; see also 10 C.F.R. Part 1021, Subpt. D, App. B, Categorical Exclusion B5.7.

¹¹³ NEPA Implementing Procedures, 85 Fed. Reg. at 78,199.

¹¹⁴ See *id.* at 78,198 n.16 (citing U.S. Dep’t of Energy, Technical Support Document, Notice of Final Rulemaking, National Environmental Policy Act Implementing Procedures (10 C.F.R. Part 1021) (Nov. 2020)).

¹¹⁵ *Id.* at 78,200; see also *id.* at 78,202.

¹¹⁶ See *infra* § VIII.C.1.

[N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the [Secretary of Energy¹¹⁷] authorizing it to do so. The [Secretary] shall issue such order upon application, unless after opportunity for hearing, [she] finds that the proposed exportation or importation will not be consistent with the public interest. The [Secretary] may by [the Secretary's] order grant such application, in whole or part, with such modification and upon such terms and conditions as the [Secretary] may find necessary or appropriate.¹¹⁸

DOE, as affirmed by the D.C. Circuit, has consistently interpreted NGA section 3(a) as creating a rebuttable presumption that a proposed export of natural gas is in the public interest.¹¹⁹

Accordingly, DOE will conduct an informal adjudication and grant a non-FTA application unless DOE finds that the proposed exportation will not be consistent with the public interest.¹²⁰ Before reaching a final decision, DOE must also comply with NEPA.¹²¹

Although NGA section 3(a) establishes a broad public interest standard and a presumption favoring export authorizations, the statute does not define “public interest” or identify criteria that must be considered in evaluating the public interest. DOE’s prior decisions have looked to certain principles established in its 1984 Policy Guidelines.¹²² The goals of the

¹¹⁷ The Secretary’s authority was established by the Department of Energy Organization Act, 42 U.S.C. § 7172, which transferred jurisdiction over imports and export authorizations from the Federal Power Commission to the Secretary of Energy.

¹¹⁸ 15 U.S.C. § 717b(a).

¹¹⁹ See *Sierra Club I*, 867 F.3d at 203 (“We have construed [NGA section 3(a)] as containing a ‘general presumption favoring [export] authorization.’”) (quoting *W. Va. Pub. Serv. Comm’n v. U.S. Dep’t of Energy*, 681 F.2d 847, 856 (D.C. Cir. 1982)).

¹²⁰ See *id.* (“there must be ‘an affirmative showing of inconsistency with the public interest’ to deny the application” under NGA section 3(a)) (quoting *Panhandle Producers & Royalty Owners Ass’n v. Econ. Regulatory Admin.*, 822 F.2d 1105, 1111 (D.C. Cir. 1987)). As of August 24, 2018, qualifying small-scale exports of natural gas to non-FTA countries are deemed to be consistent with the public interest under NGA section 3(a). See 10 C.F.R. § 590.102(p); 10 C.F.R. § 590.208(a); see also U.S. Dep’t of Energy, Small-Scale Natural Gas Exports; Final Rule, 83 Fed. Reg. 35,106 (July 25, 2018).

¹²¹ See *Sierra Club I*, 867 F.3d at 192.

¹²² U.S. Dep’t of Energy, New Policy Guidelines and Delegations Order Relating to Regulation of Imported Natural Gas, 49 Fed. Reg. 6684 (Feb. 22, 1984) [hereinafter 1984 Policy Guidelines].

Policy Guidelines are to minimize federal control and involvement in energy markets and to promote a balanced and mixed energy resource system. The Guidelines provide that:

The market, not government, should determine the price and other contract terms of imported [or exported] natural gas The federal government's primary responsibility in authorizing imports [or exports] will be to evaluate the need for the gas and whether the import [or export] arrangement will provide the gas on a competitively priced basis for the duration of the contract while minimizing regulatory impediments to a freely operating market.¹²³

While the Policy Guidelines are nominally applicable to natural gas import cases, DOE subsequently held in Order No. 1473 that the same Policy Guidelines should be applied to natural gas export applications.¹²⁴

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.¹²⁵ That delegation order directed the regulation of exports of natural gas “based on a consideration of the domestic need for the gas to be exported and such other matters as the Administrator [of the Economic Regulatory Administration] finds in the circumstances of a particular case to be appropriate.”¹²⁶

Although DOE Delegation Order No. 0204-111 is no longer in effect,¹²⁷ DOE has identified a range of factors that it evaluates when reviewing an application for export authorization. Specifically, DOE’s review of export applications focuses on: (i) the domestic

¹²³ *Id.* at 6685.

¹²⁴ *Phillips Alaska Natural Gas Corp., et al.*, DOE/FE Order No. 1473, Docket No. 96-99-LNG, Order Extending Authorization to Export Liquefied Natural Gas from Alaska (Apr. 2, 1999), at 14 (citing *Yukon Pacific Corp.*, DOE/FE Order No. 350, Order Granting Authorization to Export Liquefied Natural Gas From Alaska, 1 FE ¶ 70,259, at 71,128 (1989)).

¹²⁵ *See id.* at 13 and n.45.

¹²⁶ DOE Delegation Order No. 0204-111 (Feb. 22, 1984), at 1 (¶ (b)); *see also* 1984 Policy Guidelines, 49 Fed. Reg. at 6690 (incorporating DOE Delegation Order No. 0204-111). In February 1989, the Assistant Secretary for Fossil Energy assumed the delegated responsibilities of the Administrator of the Economic Regulatory Administration. *See Applications for Authorization to Construct, Operate, or Modify Facilities Used for the Export or Import of Natural Gas*, 62 Fed. Reg. 30,435, 30,437 n.15 (June 4, 1997) (citing DOE Delegation Order No. 0204-127, 54 Fed. Reg. 11,436 (Mar. 20, 1989)).

¹²⁷ DOE Delegation Order No. 0204-111 was later rescinded by DOE Delegation Order No. 00-002.00 (¶ 2) (Dec. 6, 2001), and DOE Redelegation Order No. 00-002.04 (¶ 2) (Jan. 8, 2002).

need for the natural gas proposed to be exported, (ii) whether the proposed exports pose a threat to the security of domestic natural gas supplies, (iii) whether the arrangement is consistent with DOE's policy of promoting market competition, and (iv) any other factors bearing on the public interest as determined by DOE, such as international and environmental impacts. To conduct this review, DOE looks to record evidence developed in the application proceeding.

IV. DESCRIPTION OF REQUEST

Under Order No. 3909, as amended, Magnolia LNG is currently authorized to export LNG from the Magnolia LNG Terminal in a volume equivalent to 394.2 Bcf/yr of natural gas.¹²⁸ As relevant here, Magnolia LNG asks DOE to amend Order No. 3909 to increase its non-FTA export volume to 1.23 Bcf/d of natural gas, or 449 Bcf/yr.¹²⁹ For additional background information, DOE incorporates by reference Order No. 3909, as amended by Order No. 3909-B.

A. Description of Applicant

Magnolia LNG is a Delaware limited liability company with its principal place of business in Houston, Texas.¹³⁰ At the time that it filed the Application, Magnolia LNG was a wholly-owned, indirect subsidiary of Liquefied Natural Gas Limited (LNGL), a publicly listed Australian company.¹³¹ Subsequently, Magnolia LNG informed DOE of a change in its ownership with respect to LNGL.¹³²

Magnolia LNG stated that, on May 26, 2020, LNGL transferred all of its interest in Magnolia LNG to Magnolia LNG Holdings, LLC (Magnolia Holdings), a Delaware limited liability company, for valuable consideration.¹³³ As a result, Magnolia Holdings now holds

¹²⁸ See *Magnolia LNG LLC*, DOE/FE Order No. 3909, at 167 (Ordering Para. A).

¹²⁹ See App. at 1-3, 13.

¹³⁰ *Id.* at 3.

¹³¹ *Id.*

¹³² See *Magnolia LNG, LLC*, Statement and Notice of Change in Control, Docket Nos. 12-183-LNG, *et al.* (June 24, 2020).

¹³³ See *id.*

100% of the membership interests in Magnolia LNG and is Magnolia LNG’s sole owner.¹³⁴

Magnolia LNG stated that Magnolia Holdings is wholly owned by Glenfarne Infrastructure Holdings, LLC—which, in turn, is wholly owned by Glenfarne Group, LLC, a New York-based developer, owner-operator, and industrial manager of energy and infrastructure assets.¹³⁵ On January 5, 2021, DOE determined that the change in control continued in effect,¹³⁶ pursuant to DOE’s Procedures for Changes in Control Affecting Applications and Authorizations to Import or Export Natural Gas.¹³⁷

B. Magnolia LNG Terminal

Magnolia LNG states that its initial calculation of the Terminal’s nameplate capacity—8 mtpa, as approved by FERC—was based on conservative design and operating assumptions.¹³⁸ Magnolia LNG states that it has since refined its final “optimized” design for the Terminal, such that it estimates that the Terminal’s maximum LNG production capacity will be 8.8 mtpa.¹³⁹

DOE notes that, in Magnolia LNG’s Semi-Annual Report filed on April 1, 2022, Magnolia LNG states that it “has not commenced construction on any of its four trains at this time and ... does not plan to commence any construction activities until it achieves a Final Investment Decision.”¹⁴⁰

¹³⁴ See U.S. Dep’t of Energy, Statement and Notice Regarding Change in Control, Docket Nos. 12-183-LNG, *et al.*, at 2-3 (Jan. 5, 2021).

¹³⁵ *Id.* at 3.

¹³⁶ See *id.* at 4.

¹³⁷ See U.S. Dep’t of Energy, Procedures for Changes in Control Affecting Applications and Authorizations to Import or Export Natural Gas, 79 Fed. Reg. 65,541 (Nov. 5, 2014).

¹³⁸ See App. at 4-5, 12.

¹³⁹ See *id.*

¹⁴⁰ Magnolia LNG LLC, Semi-Annual Report for the Period Ending March 31, 2022, Docket Nos. 12-183-LNG, *et al.*, at 2 (Apr. 1, 2022), <https://www.energy.gov/sites/default/files/2022-04/Magnolia%20LNG%20--%20DOE%20Semi-Annual%20Report%20%284-2022%29.pdf> [hereinafter Magnolia LNG Semi-Annual Report].

C. Source of Natural Gas

Magnolia LNG states that it “has executed a precedent agreement with Kinder Morgan Louisiana Pipeline (KMLP) to provide the direct connection to the Magnolia LNG Terminal through which feed gas supplies will flow,” as well as the compression required to transport the feed gas to the Terminal.¹⁴¹ Magnolia LNG further states that, in light of the Terminal’s proximity to Henry Hub through the Kinder Morgan Louisiana Pipeline, Magnolia LNG’s tolling customers will be able to directly access multiple other interstate natural gas pipelines and storage facilities, thus providing a variety of stable and economical supply options.¹⁴²

Magnolia LNG states that it anticipates the sources of natural gas to include conventional and unconventional supplies from various producing regions, including recent shale gas discoveries in the Haynesville, Eagle Ford, Barnett, Floyd-Neal/Conasauga, and Marcellus shale plays.¹⁴³ Magnolia LNG states that these shale plays contain a vast supply totaling an estimated 3,693 trillion cubic feet of recoverable natural gas.¹⁴⁴ According to Magnolia LNG, the size of traditional and emerging natural gas supply sources in close proximity to the Magnolia LNG Terminal will provide its potential customers with diverse and reliable natural gas supply options.¹⁴⁵

D. Business Model

In the Application, Magnolia states that it is continuing to negotiate with potential customers for the offtake of LNG from the Terminal.¹⁴⁶ DOE notes that, in Magnolia LNG’s Semi-Annual Report, Magnolia LNG states that it remains actively engaged in discussions with

¹⁴¹ App. at 7.

¹⁴² *Id.*

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ *Id.* at 7-8.

¹⁴⁶ *Id.* at 12.

third parties for the LNG offtake.¹⁴⁷ According to Magnolia LNG, “[r]ecent global events have led to a rekindling of European interest in U.S.-sourced natural gas, and Magnolia LNG is in active discussions with major European buyers as well as continuing to develop other opportunities in Latin America and Asia.”¹⁴⁸ Magnolia LNG thus states that it will file with DOE a copy of any long-term contracts, including long-term supply contracts, within 30 days of execution in accordance with Order No. 3909.¹⁴⁹

V. APPLICANT’S PUBLIC INTEREST ANALYSIS

Quoting the standard set forth in its existing non-FTA authorization, Order No. 3909, Magnolia LNG states that NGA section 3(a) “creates a rebuttable presumption that a proposed export of natural gas is in the public interest.”¹⁵⁰ Magnolia LNG also points to its non-FTA authorization in stating that DOE has already determined that exports from the Magnolia LNG Terminal to non-FTA countries are in the public interest.¹⁵¹ Magnolia LNG incorporates by reference the record it previously developed in this proceeding which, according to Magnolia LNG, demonstrates the “public interest benefits” associated with its exports of LNG.¹⁵²

Specifically, citing DOE’s public interest finding in Order No. 3909, Magnolia LNG states that its non-FTA exports from the Terminal will “create jobs, develop industry, foster continued production of domestic conventional and unconventional natural gas supplies, promote international trade and improve the U.S. balance of trade, and promote strong relationships with strategic allies.”¹⁵³ Magnolia LNG therefore asserts that DOE’s approval of its Application will support DOE’s previous determination in Order No. 3909 and “allow Magnolia LNG to continue

¹⁴⁷ See Magnolia LNG Semi-Annual Report, at 2.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ App. at 8 (citing *Magnolia LNG LLC*, DOE/FE Order No. 3909, at 10).

¹⁵¹ *Id.*

¹⁵² *Id.* at 9.

¹⁵³ *Id.* at 10.

its progress towards construction and commercial operation, which will allow Magnolia LNG to contribute to the local, regional, and national economies.”¹⁵⁴

As further support for its Application, Magnolia LNG states that DOE’s 2018 LNG Export Study (discussed *supra* § II.A.3) demonstrates that gross domestic product (GDP) grows as U.S. LNG exports increase, without resulting in significant price impacts to U.S. consumers.¹⁵⁵

Additionally, Magnolia LNG points to FERC’s prior approval of the Terminal facilities under NGA section 3.¹⁵⁶ Magnolia LNG states that its Application to increase its non-FTA export volume does not require the construction of new facilities or the modification of its previously authorized facilities.¹⁵⁷ Accordingly, Magnolia LNG maintains that “there are no environmental impacts associated with this Application that DOE has not already considered” in issuing Magnolia LNG’s existing non-FTA authorization.¹⁵⁸

VI. CURRENT PROCEEDING BEFORE DOE

In response to the Notice of Application, DOE received one filing from IECA opposing Magnolia LNG’s requested non-FTA authorization. Magnolia LNG submitted an Answer to IECA’s filing, and both are summarized below.

A. Motion to Intervene, Protest, and Comment of Industrial Energy Consumers of America

On April 2, 2019, IECA submitted its “Notice of Intervention, Protest and Comment” which DOE is construing as a motion to intervene and protest.¹⁵⁹ IECA states that it is a nonpartisan association of leading manufacturing companies with \$1.0 trillion in annual sales and

¹⁵⁴ *Id.* at 9-10.

¹⁵⁵ *See id.* at 10 (citing 2018 LNG Export Study at 67).

¹⁵⁶ *See App.* at 11.

¹⁵⁷ *Id.* at 10.

¹⁵⁸ *Id.* at 11.

¹⁵⁹ IECA Pleading at 1; *see supra* § I.

more than 1.7 million employees worldwide.¹⁶⁰ IECA’s stated purpose is to promote the interests of manufacturing companies. IECA’s membership represents a diverse set of industries including chemicals, plastics, aluminum, fertilizer, automotive, and many more.¹⁶¹ IECA challenges Magnolia LNG’s proposed increase in exports and DOE’s approval of LNG exports generally as contrary to the public interest.

IECA contends that DOE should not rely upon the 1984 Policy Guidelines (discussed *supra* § III) in reviewing LNG export applications.¹⁶² IECA argues that the 1984 Policy Guidelines were drafted to address natural gas imports, which—at that time—were in the public interest because they reduced risks for domestic consumers and manufacturers.¹⁶³ IECA argues that LNG exports “increase risk and especially market-determined LNG exports levels by increasing consumer prices and reliability risks.”¹⁶⁴ Therefore, IECA claims that DOE’s reliance on the 1984 Policy Guidelines to inform its decision-making on LNG exports is inconsistent with Congress’s intent under the NGA.¹⁶⁵ Instead, according to IECA, DOE should undertake a rulemaking to define the public interest for LNG exports before giving consideration to pending applications for export authorization.¹⁶⁶

According to IECA, the NGA is intended to protect the public interest by encouraging the orderly development of plentiful supplies of natural gas at reasonable prices, and by protecting consumers against exploitation by natural gas companies.¹⁶⁷ IECA maintains these statutory

¹⁶⁰ *Id.* at 3.

¹⁶¹ *Id.*

¹⁶² *Id.* at 4.

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ IECA Pleading at 4 (citing U.S. Government Accountability Office, “Federal Approval Process for Liquefied Natural Gas Exports” (Sept. 2014)).

¹⁶⁶ *Id.* at 7.

¹⁶⁷ *See id.* at 4 (citing *NAACP v. Fed. Power Comm’n*, 425 U.S. 662, 669-70 (1976)).

purposes are frustrated by LNG exports because the exports will tend to reduce domestic supplies and increase domestic prices.¹⁶⁸

In addressing the phrase “public interest,” IECA cites then-U.S. Attorney General William Barr’s summary of “The Special Counsel’s Report,” submitted to Congress on March 19, 2019.¹⁶⁹ IECA states that Attorney General Barr’s use of the phrase “public interest” demonstrates that (in IECA’s words), “[t]he public interest is about people,” and “not about net economic benefits nor markets.”¹⁷⁰ IECA reproduces Table 3 from the 2012 LNG Export Study¹⁷¹ to support its position that only “a small and narrow portion of the U.S. economy”¹⁷² will benefit from LNG exports. IECA also states that the 2018 LNG Export Study shows that natural gas prices could more than double because of LNG exports.¹⁷³

According to IECA, high volumes of LNG exports also will harm domestic manufacturing industries and there are many more manufacturing jobs at risk due to LNG exports than the number of jobs likely to be created in the oil and gas industry if LNG exports are allowed.¹⁷⁴ IECA refers to data from the Bureau of Labor Statistics indicating that the oil and gas industry had only 3.3% of the number of jobs relative to the number of high-paying jobs in the manufacturing sector of the economy in 2018.¹⁷⁵ “This means,” according to IECA, “that

¹⁶⁸ See *id.* at 5.

¹⁶⁹ *Id.* at 4-5 (citing Attorney General Barr, The Special Counsel’s Report (Mar. 24, 2019)).

¹⁷⁰ *Id.* at 5 (emphasis in original).

¹⁷¹ IECA Pleading at 5.

¹⁷² *Id.* at 1.

¹⁷³ IECA, referring to page 54 of the 2018 LNG Export Study, states that for all the reference scenarios in the more likely range, the price of natural gas has a 47% probability of rising from the current price of approximately \$3.00 per MMBtu to \$5.00 to \$6.50 per MMBtu in 2040. This is the highest probability that the Study assigned to any scenario, according to IECA. *Id.* at 6.

¹⁷⁴ *Id.* at 1.

¹⁷⁵ *Id.*

even if oil and gas jobs doubled due to LNG exports, the gain in jobs would pale in comparison of what would be lost in the manufacturing sector.”¹⁷⁶

In addition, IECA states that DOE needs to address several economic risk and cost factors that (according to IECA) DOE has failed to address in orders authorizing LNG exports.

These include:

- Domestic Price Impacts of Foreign LNG Purchases: IECA maintains that DOE has failed to consider the fact that state-owned enterprises (SOEs) and foreign government-controlled utilities in importing nations will be purchasing U.S. LNG in the greatest volume during peak demand periods in the United States without regard to price (due to the market power of the SOEs and their use of automatic cost pass-through provisions), thereby driving up natural gas prices for U.S. consumers.¹⁷⁷
- Domestic Price Impacts of Global Natural Gas Prices: IECA states that DOE has failed to consider the fact that LNG exports will mean that the price paid by domestic consumers in the United States for the first time will be connected to the higher price of natural gas paid in global markets, thereby driving up the price of natural gas and electricity for U.S. consumers. As an example, IECA cites increases in Australia’s domestic prices of natural gas.¹⁷⁸
- Domestic Capacity Limitations: IECA claims that DOE has failed to consider the fact that natural gas pipeline and storage capacity and deliverability capacity in the United States will be limited in the face of peak demand and LNG exports. IECA charges that “[a]ll DOE reports” incorrectly assume that pipeline and storage capacity will be available despite the fact that capacity constraints already exist and the build-out of new capacity is threatened by legal and public opposition.¹⁷⁹
- Cumulative Demand: IECA argues that DOE has failed to address the fact that forecasted demand for natural gas is outstripping forecasted growth in supplies. This is illustrated, according to IECA, by EIA’s *Annual Energy Outlook 2019* (AEO 2019) which projects peak LNG exports of 13.8 Bcf/d but estimates that cumulative demand through 2050 would consume 58% of technically recoverable natural gas resources.¹⁸⁰
- Uncertain Nature of Technically Recoverable Resources: IECA charges that “all DOE LNG export reports” assume that all technically recoverable resources are economical to produce when, in fact, that may not prove to be correct.¹⁸¹

¹⁷⁶ *Id.*

¹⁷⁷ IECA Pleading at 2 and 7.

¹⁷⁸ *Id.* at 2.

¹⁷⁹ *Id.* at 7.

¹⁸⁰ *Id.* at 8.

¹⁸¹ *Id.*

- Producers' Cash Flow: IECA contends that DOE studies have failed to consider the fact that the majority of natural gas producers do not have a positive cash flow business and that producers' indebtedness in the face of higher interest rates will drive increases in the price of natural gas.¹⁸²
- Higher Infrastructure Costs: IECA maintains that DOE has failed to consider that U.S. consumers of natural gas will be forced to pay for the cost of domestic infrastructure related to exports of LNG while the foreign importers of that LNG will not.¹⁸³

Finally, IECA argues that DOE's LNG export studies "lack integrity and cannot be trusted" because the study results are not reproducible.¹⁸⁴ IECA contends that DOE has decided that the Data Quality Act does not apply to it.¹⁸⁵

B. Answer of Magnolia LNG

In its Answer to IECA's pleading filed on April 17, 2019, Magnolia LNG asks DOE to deny IECA's intervention request and to reject IECA's protest and comments.¹⁸⁶

First, Magnolia LNG argues that, because IECA's motion to intervene "does not style itself as a 'motion,' ...use the terms 'motion to intervene' or 'move to intervene,...and...does not attempt to meet DOE's standards for granting a motion to intervene...DOE should deny such a motion."¹⁸⁷ Magnolia LNG states that IECA does not state the factual and legal basis for IECA's positions rather it raises numerous macroeconomic concerns that are not at issue in this proceeding.¹⁸⁸

Second, Magnolia LNG contends that IECA's arguments are conclusory in nature and based on information that DOE has already evaluated and found insufficient to support a determination that LNG exports are inconsistent with the public interest.¹⁸⁹ For example, IECA

¹⁸² *Id.* at 8-9.

¹⁸³ IECA Pleading at 9.

¹⁸⁴ *Id.* at 3.

¹⁸⁵ *Id.*

¹⁸⁶ Magnolia LNG's Answer at 1.

¹⁸⁷ *Id.* at 4.

¹⁸⁸ *Id.* at 4-5.

¹⁸⁹ *Id.*

has referred to Table 3 of the 2012 LNG Export Study, but Magnolia LNG states that DOE has previously evaluated the 2012 LNG Export Study and found that the Study supported the conclusion that LNG exports were not inconsistent with the public interest.¹⁹⁰

Third, Magnolia LNG rejects IECA's arguments that DOE needs to adjust the framework for evaluating the public interest in relation to LNG export proposals.¹⁹¹ Magnolia LNG states that the definition of "public interest" employed by DOE is a matter of agency discretion.¹⁹² Magnolia LNG further argues that DOE has reasonably balanced various economic and non-economic factors in its public interest determinations, and these determinations have been upheld by reviewing courts.¹⁹³

Fourth, Magnolia LNG submits that the several risk and cost factors identified by IECA do not refute DOE's longstanding findings, including its findings in Order No. 3909 as to the Magnolia LNG Project, that LNG exports yield net economic benefits.¹⁹⁴ In particular, Magnolia LNG submits that IECA does not point to any information in the record of this proceeding, or any extra-record information, to support the claim that foreign state-owned utility buyers are distorting the global gas market, that future domestic gas production or transportation markets may become constrained, or that changes in the financial stability of some domestic gas producers will affect the continued viability of the U.S. natural gas production sector.¹⁹⁵

Magnolia LNG adds that the 2018 LNG Export Study also supports the conclusion that LNG

¹⁹⁰ *Id.* at 8 n.27.

¹⁹¹ *Id.* at 9.

¹⁹² Magnolia LNG's Answer at 9.

¹⁹³ *Id.* at 9-10.

¹⁹⁴ *Id.* at 10-11.

¹⁹⁵ *Id.*

exports produce net economic benefits as well as increases in economic welfare for the average U.S. household.¹⁹⁶

Finally Magnolia LNG emphasizes that its requested amendment will not affect the economy-wide issues that IECA has raised.¹⁹⁷ Magnolia LNG asserts that IECA inappropriately seeks to convert this proceeding into a broad referendum on DOE's LNG export policy and to remedy its past failure to intervene in the original Magnolia LNG dockets. For these reasons, Magnolia LNG maintains that IECA's intervention should be denied.

VII. FERC PROCEEDING

A. FERC's Environmental Review

On November 19, 2018, Magnolia LNG filed its application at FERC requesting to amend its authorization to increase the total LNG production capacity of the Magnolia LNG Project (referred to by FERC as the Production Capacity Amendment).¹⁹⁸ FERC assigned Docket No. CP19-19-000 to Magnolia LNG's application.

On June 13, 2019, FERC issued a Notice of Intent to Prepare a Supplemental Environmental Impact Statement for the Production Capacity Amendment.¹⁹⁹ DOE participated as a cooperating agency in FERC's environmental review.²⁰⁰

In compliance with NEPA, FERC staff issued a Notice of Availability of the Draft Supplemental Environmental Statement for the Production Capacity Amendment on September

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

¹⁹⁸ Magnolia LNG LLC, Application of Magnolia LNG LLC for Limited Amendment to Authorization Granted Under Section 3 of the Natural Gas Act, FERC Docket No. CP19-19-000 (Nov. 19, 2018).

¹⁹⁹ Fed. Energy Reg. Comm'n, Magnolia LNG LLC; Notice of Intent to Prepare a Supplemental Environmental Impact Statement for the Proposed Magnolia LNG Production Capacity Amendment and Request for Comments on Environmental Issues, FERC Docket No. CP19-19-000, 84 Fed. Reg. 27,627 (June 13, 2019); *see also* FERC Order at ¶¶ 11-12.

²⁰⁰ *See* FERC Order at ¶ 12.

27, 2019, and placed the draft SEIS into the public record.²⁰¹ FERC staff issued the final SEIS on January 4, 2020, and published notice of it on January 30, 2020.²⁰² The final SEIS responded to one comment received on the draft SEIS.²⁰³

As noted above, FERC’s SEIS focused on the impacts of the proposed design modifications on air quality, noise, and reliability and safety.²⁰⁴ For all other environmental resources, FERC staff stated that their analysis and conclusions were unchanged from those presented in Magnolia LNG’s 2015 EIS for the Magnolia LNG Project and in FERC’s existing NGA section 3 authorization.²⁰⁵

FERC staff stated that “the proposed Production Capacity Amendment does not change the site footprint and adds only incremental facilities that would not affect any resource areas.”²⁰⁶ Since the resource areas would not be impacted by the Production Capacity Amendment, FERC staff concluded there would be no cumulative impacts.²⁰⁷ Specifically, FERC staff considered both air quality and noise for the Magnolia LNG Project, concluding that any cumulative impacts on air quality and from noise “would be minimal.”²⁰⁸ Therefore, cumulative impacts were not addressed further in the SEIS.

In assessing air quality, FERC staff concluded that the Production Capacity Amendment would not result in significant air quality impacts from the operation of the Magnolia LNG

²⁰¹ *See id.* at ¶ 13.

²⁰² Fed. Energy Reg. Comm’n, Magnolia LNG LLC; Notice of Availability of the Final Supplemental Environmental Impact Statement for the Proposed Magnolia LNG Production Capacity Amendment, FERC Docket No. CP19-19-000, 85 Fed. Reg. 5424 (Jan. 30, 2020); *see also* FERC Order at ¶ 14.

²⁰³ *See* FERC Order at ¶ 13.

²⁰⁴ *See* SEIS at 2.

²⁰⁵ *See id.* We note that Magnolia LNG’s docket for the 2015 EIS (FERC Docket No. CP14-347-000) was joined with a docket for Kinder Morgan Louisiana Pipeline (FERC Docket No. CP14-511-000).

²⁰⁶ *Id.* at 52.

²⁰⁷ *Id.*

²⁰⁸ SEIS at 52.

Project.²⁰⁹ FERC staff stated that the air permit to Magnolia LNG issued by the Louisiana Department of Environmental Quality would not need to be revised.²¹⁰ Further, the modeled air quality impacts from operation of the Project “would be similar as those previously identified” and “would not result in any exceedances of the [National Ambient Air Quality Standards].”²¹¹

Next, FERC staff concluded the Production Capacity Amendment would not result in significant noise impacts.²¹² FERC staff considered the existing requirements for noise surveys and mitigation in FERC’s existing NGA section 3 authorization. FERC staff pointed out that, because the existing noise conditions in that Order apply to noise generated from the proposed Magnolia LNG Terminal, the conditions also will apply to any noise generated by the facilities specific to the Production Capacity Amendment.²¹³

In assessing safety and reliability, FERC staff noted that regulatory oversight, hazards, and engineering designs remain largely unchanged from that analyzed in the 2015 EIS for the Magnolia LNG Project. FERC noted, however, that the limited modifications to the engineering design, nonetheless, would “result in larger offsite hazards that warranted a re-evaluation of the layers of protection.”²¹⁴ FERC staff conducted a preliminary engineering and technical review of the Magnolia LNG Project design and proposed modifications.²¹⁵ Based on that review, FERC staff made additional recommendations, in addition to the mandatory conditions already in effect from the 2016 FERC Order, to ensure continuous oversight prior to initial site preparation, construction of final design, commission, introduction of hazardous fluids, and

²⁰⁹ *Id.* at 8.

²¹⁰ *Id.*

²¹¹ *Id.* at 8.

²¹² *Id.* at 10.

²¹³ SEIS at 10.

²¹⁴ *Id.* at 12.

²¹⁵ *See id.* at 49.

commencement of service, and throughout the life of the facility.²¹⁶ FERC staff concluded that “with the incorporation of these mitigation measures and oversight,” the Magnolia LNG Project design would “include acceptable layers of protection or safeguards that would reduce the risk of a potentially hazardous scenario from developing into an event that could impact the offsite public.”²¹⁷

Based on this environmental analysis, FERC staff concluded that, “[i]f the Production Capacity Amendment is constructed and operated in accordance with applicable laws and regulations, the mitigation measures discussed in this supplemental EIS, and our recommendations, the project environmental impacts project would be reduced to less than significant levels.”²¹⁸ FERC staff also recommended 17 mitigation measures as conditions to any authorization FERC may issue on the requested Amendment.²¹⁹

B. FERC’s Order Granting the Amendment

On June 18, 2020, FERC issued its Order amending Magnolia LNG’s existing NGA section 3 authorization to increase the approved LNG production capacity of the Magnolia LNG Terminal from 8.0 mtpa to 8.8 mtpa.²²⁰

First, FERC reviewed Magnolia LNG’s procedural history. As relevant here, FERC summarized its existing NGA section 3 order authorizing Magnolia LNG to site, construct, and operate the proposed Terminal export facilities.²²¹

Turning to the requested Production Capacity Amendment, FERC observed that it “may not be possible” to accurately calculate a facility’s maximum or peak liquefaction capacity at the

²¹⁶ *Id.* at 49-52.

²¹⁷ *Id.* at 52.

²¹⁸ SEIS at 52.

²¹⁹ *Id.* at 53-55.

²²⁰ FERC Order at ¶¶ 6-7.

²²¹ *Id.* at ¶ 1.

time an initial application for construction is filed.²²² For this reason, FERC stated that “it is appropriate for an ultimate authorization to reflect the maximum or peak capacity, as such a level represents the actual potential production of LNG.”²²³ FERC found that, by optimizing its Project design, the Magnolia LNG Terminal is capable of producing a maximum total LNG output of 8.8 mtpa.²²⁴ FERC noted that the Production Capacity Amendment would require limited modifications to the planned engineering design of the Terminal—including additional equipment and different process conditions—but would not alter its feed gas rates.²²⁵

Additionally, FERC evaluated the different environmental issues considered in the SEIS. For example, FERC discussed Magnolia LNG’s demonstration to the Pipeline and Hazardous Materials Safety Administration (PHMSA) that its proposed Amendment complies with PHMSA’s federal safety standards for hazardous releases of LNG.²²⁶ FERC pointed to findings in the SEIS that the proposed Amendment would not result in significant air quality impacts, require revisions to Magnolia LNG’s air permit, or result in exceedances of the National Ambient Air Quality Statements.²²⁷ FERC also emphasized the mandatory environmental conditions currently in effect under Magnolia LNG’s NGA section 3 authorization, as well as the 17 mitigation measures recommended in the SEIS to minimize noise and to enhance safety at the

²²² *Id.* at ¶ 8.

²²³ *Id.*

²²⁴ *Id.* at ¶ 4.

²²⁵ *Id.* at ¶¶ 4, 17.

²²⁶ FERC Order at ¶ 9 (describing a supplemental conditional Letter of Determination issued by PHMSA for Magnolia LNG’s proposed Amendment).

²²⁷ *Id.* at ¶¶ 15-16.

proposed Terminal, among other issues.²²⁸ FERC adopted these mitigation measures as 17 new environmental conditions to its Order.²²⁹

FERC concluded that, if Magnolia LNG constructs and operates the Magnolia LNG Terminal as described in the SEIS, “the environmental impacts associated with the project are acceptable considering the public benefits that will be provided by the project.”²³⁰ FERC further concluded that “the proposed amendment is not inconsistent with the public interest” under NGA section 3.²³¹ Finally, FERC ordered that, in all other respects, Magnolia LNG’s existing NGA section 3 authorization—including the environmental conditions set forth in that order—“remain in effect.”²³²

VIII. DISCUSSION AND CONCLUSIONS

In reviewing Magnolia LNG’s Application, DOE has considered its obligations under NGA section 3(a) and NEPA. To accomplish these purposes, DOE has examined a wide range of information addressing environmental and non-environmental factors, including but not limited to:

- Magnolia LNG’s Application, IECA’s motion to intervene and protest in opposition to the Application, and Magnolia LNG’s Answer;
- FERC’s SEIS and June 18, 2020 Order, which adopt by reference FERC’s 2015 EIS and existing NGA section 3 authorization for the Magnolia LNG Terminal;
- The Draft Addendum, comments received in response to the Draft Addendum, and the final Addendum;
- The 2014 LCA GHG Report and the 2019 LCA GHG Update, including comments submitted in response to those documents; and

²²⁸ See, e.g., *id.* at ¶¶ 14-15, 18.

²²⁹ See *id.* at ¶ 19, Ordering Para. A, and Appendix (“Environmental Conditions”).

²³⁰ FERC Order at ¶ 20.

²³¹ *Id.* at ¶ 21.

²³² *Id.* at Ordering Para. B.

- The 2018 LNG Export Study, including comments received in response to that Study.

A. Procedural Matters

Magnolia LNG opposes the motion to intervene filed by IECA. Magnolia LNG contends that IECA has articulated only generalized arguments that do not relate to the Application and, thus, are not sufficient to warrant intervention.²³³

On review, we find that the evidence presented in this proceeding, as well as in the 2018 LNG Export Study, could affect the interests of IECA and its members. In addition, IECA raises issues that are relevant to the public interest. Magnolia LNG was afforded an opportunity to respond to IECA’s motion pursuant to 10 C.F.R. § 590.304(f), and it did so. Accordingly, we grant IECA’s motion to intervene.²³⁴

B. Non-Environmental Issues

1. Public Interest Standard

NGA section 3(a) requires DOE to consider whether a proposed export of natural gas “will not be consistent with the public interest.”²³⁵ IECA asserts, among other arguments, that DOE may not rely on the 1984 Policy Guidelines in evaluating the public interest in this proceeding, as those Guidelines were promulgated for natural gas imports rather than exports.²³⁶ IECA also argues that DOE misunderstands the meaning of “public interest” in NGA section 3(a), as that statutory term (according to IECA) refers to people, not to net economic benefits or markets.²³⁷

²³³ See Magnolia LNG Answer at 1, 5.

²³⁴ See *infra* § XI.

²³⁵ 15 U.S.C. § 717b(a); *supra* § III.

²³⁶ See IECA Pleading at 4-5.

²³⁷ *Id.* at 2, 5 (citing report by then-U.S. Attorney General William Barr).

DOE previously reviewed and rejected these arguments made by IECA.²³⁸ Nonetheless, we again observe that, in *Sierra Club I*, the D.C. Circuit found that the public interest standard in NGA section 3(a) contains a general presumption favoring export authorization.²³⁹ We also understand that a public interest standard in a statute is an “instrument for the exercise of discretion by the expert body which Congress has charged to carry out its legislative policy.”²⁴⁰

In dozens of LNG export proceedings to date, DOE has reasonably exercised this discretion by considering a range of relevant factors in evaluating the public interest. DOE’s review of an application to export U.S. LNG has generally focused on: (i) the domestic need for the natural gas proposed to be exported, (ii) whether the proposed exports pose a threat to the security of domestic natural gas supplies, (iii) whether the arrangement is consistent with DOE’s policy of promoting market competition, and (iv) any other factors bearing on the public interest, as determined by DOE.²⁴¹ Contrary to IECA’s statements, DOE has determined that the goals of the 1984 Policy Guidelines—to minimize federal control and involvement in energy markets and to promote a balanced and mixed energy resource system—apply to exports of natural gas, as well as to imports.²⁴² Furthermore, the D.C. Circuit has recognized DOE’s approach to evaluating the public interest,²⁴³ including its consideration of numerous factors, and upheld DOE’s decision-making under this statutory and regulatory framework.²⁴⁴ For these reasons and

²³⁸ See, e.g., *Venture Global Calcasieu Pass, LLC*, DOE/FE Order No. 4346, Docket Nos. 13-69-LNG, 14-88-LNG, 15- 25-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, at 49-51, 53-54 (Mar. 5, 2019).

²³⁹ *Sierra Club I*, 867 F.3d at 203 (citation omitted).

²⁴⁰ See, e.g., *Fed. Comm. Comm’n v. WNCN Listeners Guild, et al.*, 450 U.S. 582, 593 (1981) (quoting *Fed. Comm. Comm’n v. Pottsville Broadcasting Co.*, 309 U.S. 134, 138 (1940)).

²⁴¹ See *supra* § III.

²⁴² See *Phillips Alaska Natural Gas Corp., et al.*, DOE/FE Order No. 1473, Docket No. 96-99-LNG, Order Extending Authorization to Export Liquefied Natural Gas from Alaska, at 14 (Apr. 2, 1999); see also *supra* § III.

²⁴³ *Sierra Club I*, 867 F.3d at 203 (“For its ‘public interest’ review, the Department considered various factors such as domestic economic effects (e.g., job creation and tax revenue ...) and foreign policy goals (e.g., global fuel diversification and energy security for our foreign trading partners ...), in addition to the environmental impacts it examined through the NEPA process.”).

²⁴⁴ See, e.g., *id.* at 193-94, 202-03.

those previously stated, we reject IECA’s argument that DOE should not rely on the 1984 Policy Guidelines—and DOE’s long-standing regulatory framework—in reviewing Magnolia LNG’s Application in this proceeding.

2. Significance of the 2018 LNG Export Study

DOE commissioned the 2018 LNG Export Study and invited public comments on the Study.²⁴⁵ DOE analyzed this material in its Response to Comments, published in the *Federal Register* on December 28, 2018. Based on the 2018 LNG Export Study, DOE concluded that the United States will experience net economic benefits from the issuance of authorizations to export domestically produced LNG.²⁴⁶ The 2018 Study further supports the proposition that exports of LNG from the lower-48 states, in volumes up to and including 52.8 Bcf/d of natural gas, will not be inconsistent with the public interest.²⁴⁷ As noted herein, DOE’s cumulative volume of approved non-FTA exports from the lower-48 states to date—46.07 Bcf/d of natural gas—is within this upper volume. With today’s order being issued concurrently to Golden Pass LNG, the cumulative total of U.S. LNG export capacity that is currently operating or under construction across all U.S. projects is 16.61 Bcf/d.²⁴⁸

The assumptions underlying the 2018 Study’s findings remain consistent with more recent assessments of current and future natural gas supply, demand, and prices. We take administrative notice of EIA’s recent authoritative projections, set forth in the *Annual Energy*

²⁴⁵ See *supra* § II.A.3.

²⁴⁶ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,272.

²⁴⁷ See *id.* at 67,273.

²⁴⁸ See U.S. Energy Info. Admin., *U.S. Liquefaction Capacity* (Dec. 8, 2021), <https://www.eia.gov/naturalgas/U.S.liquefactioncapacity.xlsx> (total of 15.54 Bcf/d calculated by adding Column N in “Existing & Under Construction” worksheet, plus 0.72 Bcf/d granted in Order Nos. 4799 to CMI and 4800 to Sabine Pass on March 16, 2022, and an additional 0.35 Bcf/d with today’s Golden Pass LNG authorization, Order No. 3978-E).

Outlook 2022 (AEO 2022), issued on March 3, 2022.²⁴⁹ DOE has assessed AEO 2022 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study. The AEO 2017 Reference case without the Clean Power Plan (CPP)²⁵⁰ shows net LNG exports of 12.5 Bcf/d of natural gas in 2050, compared with the AEO 2022 Reference case that shows net LNG exports of 15.9 Bcf/d in 2050.

EIA’s projections in AEO 2022 continue to show market conditions that will accommodate increased exports of natural gas. When compared to the AEO 2017 Reference case without the CPP, the AEO 2022 Reference case projects increases in domestic natural gas production—well in excess of what is required to meet projected increases in domestic consumption. For example, for the year 2050, the AEO 2022 Reference case anticipates 7.1% more natural gas production, and less than 1% growth in natural gas consumption in the lower-48 states, than the AEO 2017 Reference case without the CPP. Under the AEO 2022 Reference case, EIA projects that, by 2050, “approximately 25% more natural gas will be produced than consumed in the United States.”²⁵¹ Based on these projections, the AEO 2022 Reference case is even more supportive of exports than the AEO 2017 Reference case without the CPP.

Finally, IECA argues that the 2018 LNG Export Study, as well DOE’s prior economic studies, “lack integrity and cannot be trusted,” and do not comply with the Data Quality Act.²⁵² We note that, on March 20, 2019, weeks before IECA filed its pleading in this proceeding on April 2, 2019, DOE notified IECA that it was denying its formal request for correction of the

²⁴⁹ U.S. Energy Info. Admin., *Annual Energy Outlook 2022* (with projections to 2050) (Mar. 3, 2022), https://www.eia.gov/outlooks/aeo/pdf/AEO2022_Narrative.pdf.

²⁵⁰ AEO 2017 included two versions of the Reference case—one with, and one without, the implementation of a rulemaking by the U.S. Environmental Protection Agency (EPA) called the Clean Power Plan. EPA repealed the CPP in 2019. In this Order, we refer only to the AEO 2017 Reference case without the CPP. The AEO 2022 Reference case does not include the CPP, so the comparisons between AEO 2017 and AEO 2022 are consistent in that regard.

²⁵¹ See AEO 2022 at 26.

²⁵² IECA Pleading at 3.

2018 LNG Export Study under the Data Quality Act.²⁵³ DOE therefore finds that these arguments have been previously addressed and rejected. Additionally, we incorporate DOE's responses to IECA's arguments concerning the Data Quality Act into this proceeding.

For these reasons, we reaffirm that the 2018 LNG Export Study is fundamentally sound. The 2018 Study, as well as AEO 2022, support our finding that Magnolia LNG's proposed amendment to its non-FTA authorization—increasing its approved export volume by 54.8 Bcf/yr of natural gas—will not be inconsistent with the public interest.

3. Magnolia LNG's Application

Upon review of the Application and IECA's arguments in opposition, DOE finds that several factors identified in the Application, as well as in the 2018 LNG Export Study, support a grant of Magnolia LNG's authorization under NGA section 3(a).

First, IECA has not explained how its broader concerns about LNG exports pertain to Magnolia LNG's request for an increased export volume made possible due to its refinements of the Terminal's final design. IECA asserts that increased exports of U.S. LNG will take pipeline capacity away from U.S. manufacturers and consumers.²⁵⁴ The proposed Magnolia LNG Terminal, however, will be constructed in Calcasieu Parish, Louisiana, and Magnolia LNG states that it has executed a precedent agreement to receive its feed gas through the Kinder Morgan Louisiana Pipeline.²⁵⁵ The Terminal thus will have access to multiple storage and other interstate and intrastate pipelines with multiple interconnection points, upstream of the Kinder

²⁵³ See Letter from Stephen (Max) Everett, Chief Info. Officer of the U.S. Dep't of Energy, to Paul Cicio, President of IECA, Docket No. 2018-12621 (Mar. 20, 2019), at 2-3 <https://www.energy.gov/sites/default/files/2019/04/f62/Data%20Quality%20Act%20Request%20for%20Correction%20USDOE%202018%20LNG%20Export%20Study%20FINA..%20%28002%29.pdf> (citing DOE's response to IECA's arguments in the 2018 Study Response to Comments, 83 Fed. Reg. at 67,269-71).

²⁵⁴ See IECA Pleading at 3, 7-8.

²⁵⁵ See *supra* at § IV.C (citing App. at 7); see also *Magnolia LNG*, DOE/FE Order No. 3909, at 7-8, 16-17, 124, 131.

Morgan Louisiana Pipeline.²⁵⁶ IECA has not demonstrated that there are regular or longstanding pipeline constraints within the Gulf Coast, or “South Central,” region that could be impacted by the requested authorization.²⁵⁷

DOE takes administrative notice that, of the new interstate natural gas pipeline capacity added in 2021 totaling 7.44 Bcf/d across all U.S. regions, “more than two-thirds ... or 5.01 Bcf/d” was added to transport natural gas into and within the South Central region.²⁵⁸ EIA observed that “[m]ost of [this] additional capacity is intended to serve growing LNG export demand, primarily by better connecting other interstate pipelines with LNG export terminals.”²⁵⁹ Accordingly, we find that the existing natural gas pipeline system has more than enough capacity to support the increase in Magnolia LNG’s non-FTA export volume—54.8 Bcf/yr of natural gas, or 0.15 Bcf/d—as well as Magnolia LNG’s total non-FTA export volume under this Order (449 Bcf/yr, or 1.23 Bcf/d of natural gas).

Additionally, under NGA section 7, FERC has exclusive authority over the construction and operation of interstate natural gas pipelines and related facilities.²⁶⁰ We agree with Magnolia LNG that IECA’s generalized arguments concerning the permitting and regulation of interstate pipelines are beyond the scope of this proceeding and are properly raised with FERC, not DOE.²⁶¹ To the extent these arguments are relevant to this proceeding, they do not overcome the statutory presumption favoring export authorization.²⁶²

²⁵⁶ See *id.*; see App. at 7.

²⁵⁷ See U.S. Energy Info. Admin., *Today in Energy* (Feb. 24, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=51398> (showing a map of the “U.S. South Central natural gas infrastructure and new pipelines (2021),” which includes the planned location of the proposed Magnolia LNG Terminal in Calcasieu Parish, Louisiana).

²⁵⁸ See *id.*

²⁵⁹ *Id.*

²⁶⁰ 15 U.S.C. § 717f.

²⁶¹ See Magnolia LNG’s Answer at 5 (“IECA’s arguments are not specific to the limited scope of Magnolia LNG’s Application and are irrelevant to this proceeding.”).

²⁶² See *supra* § III.

Second, Magnolia LNG points to DOE's 2018 LNG Export Study in asserting that the United States has significant natural gas resources available to meet both projected future domestic needs and demand for the proposed exports.²⁶³ We agree. Specifically, we find that the 2018 Study and AEO 2022 project robust domestic supply conditions that are more than adequate to satisfy both domestic needs and exports of LNG, including those proposed in the Application.²⁶⁴ We therefore reject IECA's claim that forecasted demand for natural gas, including the demand related to the proposed export of LNG, will outstrip new resources.²⁶⁵

Third, as noted above, the 2018 LNG Export Study indicates that exports of LNG will generate net economic benefits to the broader U.S. economy.²⁶⁶ Indeed, the 2018 Study consistently shows macroeconomic benefits to the U.S. economy across the range of scenarios, as well as positive annual growth across the energy intensive sectors of the economy.²⁶⁷ U.S. households benefit from the additional wealth transferred into the United States, which increases the value of the dollar and reduces prices of other imported goods.²⁶⁸ Further, households will receive labor income when they work and income from the capital and resources they own from natural gas-related activities, providing U.S. consumers with additional income to spend on goods and services.²⁶⁹ For these reasons, we disagree with IECA's contention that the net economic benefits projected in the 2018 LNG Export Study (and in DOE's prior economic studies) will be limited to producers and exporters of natural gas. We also reject IECA's argument that the proposed exports likely will have a negative impact on the U.S. economy by

²⁶³ See App. at 7-8, 10.

²⁶⁴ See, e.g., 2018 Study Response to Comments, 83 Fed. Reg. at 67,262; *supra* at § VIII.B.2.

²⁶⁵ See IECA Pleading Protest and Comment at 8.

²⁶⁶ See, e.g., 2018 Study Response to Comments, 83 Fed. Reg. at 67,262.

²⁶⁷ See *id.* at 67,268-69 (citing 2018 LNG Export Study at 67, 70).

²⁶⁸ See *id.* at 67,266 (citing 2018 LNG Export Study at 73).

²⁶⁹ See *id.* at 67,259 (citing 2018 LNG Export Study at 65).

substantially increasing the price of natural gas (discussed below) and causing leading manufacturers to lose the competitive advantage of relatively low natural gas prices.²⁷⁰

In response to IECA’s concerns about the costs of LNG exports falling on American citizens such that U.S. consumers will be “damaged” by the export of LNG,²⁷¹ we note that in *Sierra Club II*, the D.C. Circuit rejected Sierra Club’s argument that DOE “erred by failing to consider distributional impacts” when evaluating the public interest under NGA section 3(a).²⁷² The Court upheld DOE’s conclusion that “given that exports will benefit the economy as a whole and absent stronger record evidence on the distributional consequences, [DOE] could not say that ... exports were inconsistent with the public interest on these grounds.”²⁷³ On this basis, the Court held that DOE had “adequately addressed” concerns regarding distributional impacts.²⁷⁴ Likewise, in this proceeding, IECA has not provided an analysis of the distributional consequences of authorizing LNG exports at the household level. Given the evidence of broad net macroeconomic benefits and absent stronger record evidence on the alleged distributional consequences, we cannot say that increased LNG exports are inconsistent with the public interest on these grounds.

Fourth, over the term of the authorization, the proposed exports will improve the United States’ ties with its allies and trade partners and make a positive contribution to the United States’ trade balance. Other benefits of this international trade are discussed below. For these reasons, we find that Magnolia LNG’s requested additional non-FTA export volume is consistent with U.S. policy.

²⁷⁰ See IECA Pleading at 1-2, 5-6.

²⁷¹ *Id.* at 1.

²⁷² See *Sierra Club II*, 703 F. App’x. at *3 (discussed *supra* § II.C).

²⁷³ *Id.* (internal quotations omitted and alteration in original).

²⁷⁴ *Id.*

On review, DOE finds that the record evidence showing that the proposed exports will be in the public interest outweighs IECA's concerns. DOE has considered and rejected IECA's economic arguments in earlier proceedings based on the 2012, 2014, and 2015 LNG Export Studies and, more recently, in the 2018 LNG Export Study proceeding. The 2018 Study shows, for example, that "[o]verall GDP improves as LNG exports increase for all scenarios with the same U.S. natural gas supply conditions."²⁷⁵ The 2018 Study also shows that energy intensive industries will continue to grow robustly even at higher levels of LNG exports, albeit at slightly lower rates of increase than they would at lower levels of export.²⁷⁶

Accordingly, based on the 2018 Study and the most recent data in AEO 2022, DOE finds that the market will be capable of sustaining the additional level of non-FTA exports requested in Magnolia LNG's Application over the authorization term without negative economic impacts, including domestic price impacts (discussed below).

4. Price Impacts

IECA alleges that higher volumes of LNG exports, including Magnolia LNG's proposed exports, will lead to large increases in domestic prices of natural gas.²⁷⁷ We disagree. As discussed above, the 2018 LNG Export Study projects the economic impacts of LNG exports in a range of scenarios, including scenarios that exceed the cumulative volume of approved non-FTA exports from the lower-48 states to date (equivalent to a total of 46.07 Bcf/d of natural gas with the issuance of this Order and Order No. 3978-E being issued concurrently to Golden Pass LNG). The 2018 Study found that, "[i]ncreasing U.S. LNG exports under any given set of

²⁷⁵ 2018 Study Response to Comments, 83 Fed. Reg. at 67,259.

²⁷⁶ *Id.*

²⁷⁷ IECA Pleading at 2, 4-6, 7-8.

assumptions about U.S. natural gas resources and their production leads to only small increases in U.S. natural gas prices[.]”²⁷⁸

We further note IECA’s assertion that the 2018 LNG Export Study “confirms that market determined U.S. LNG exports will connect U.S. prices to higher global LNG prices.”²⁷⁹ This is an inaccurate characterization of the 2018 Study. IECA and other commenters raised this issue in the 2018 LNG Export Study proceeding, and DOE examined it thoroughly—concluding that “the 2018 Study shows that U.S. natural gas prices *will not* rise to the same levels as global natural gas prices as a result of increased LNG exports.”²⁸⁰ DOE added that “[t]his result is consistent with the 2015 Study’s analysis of the linkages between U.S. and global natural gas prices, as DOE/FE previously discussed.”²⁸¹

Additionally, DOE has analyzed price projections in AEO 2022 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study. The AEO 2022 Reference case projects market conditions in the lower-48 states that include higher production and demand for natural gas coupled with lower prices. Specifically, the AEO 2022 Reference case projects that, “[d]espite LNG export growth and increased domestic demand for natural gas ... the Henry Hub price will remain below \$4/MMBtu throughout the projection period in most cases.”²⁸² For the year 2050, the AEO 2022 Reference case projects an average Henry Hub natural gas price that is lower than the AEO 2017 Reference case without the CPP by 43%. Table 1 below shows these comparisons.

²⁷⁸ 2018 Study Response to Comments, 83 Fed. Reg. at 67,258 (citing 2018 LNG Export Study at 55).

²⁷⁹ IECA Pleading at 6.

²⁸⁰ 2018 Study Response to Comments, 83 Fed. Reg. at 67,268 (emphasis added).

²⁸¹ *Id.*

²⁸² AEO 2022 at 30.

Table 1: Year 2050 Reference Case Comparisons in AEO 2017 Reference Case Without the CPP and AEO 2022 Reference Case

	AEO 2017 Reference Case Without the CPP	AEO 2022 Reference Case
Lower-48 Dry Natural Gas Production (Bcf/d)	107.9	115.6
Total Natural Gas Consumption (Bcf/d)	92.4	93.2
Electric Power Sector Consumption (Bcf/d)	31.8	31.4
<u>Net</u> Exports by Pipeline (Bcf/d)	3.4	6.9
<u>Net</u> LNG Exports (Bcf/d)	12.5	15.9
LNG Exports – Total (Bcf/d)	12.7	16.1
Henry Hub Spot Price (\$/MMBtu) ^(Note 1)	\$6.27 (2021\$)	\$3.59 (2021\$)

Note 1: Prices adjusted to 2021\$ with the AEO 2017 projection of a Gross Domestic Product price index.

For these reasons, and as explained in DOE’s Response to Comments on the 2018 Study, we find that arguments concerning domestic price increases are not supported by the record evidence.²⁸³

²⁸³ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,267-69 (DOE’s response to comments on natural gas price impacts).

5. Benefits of International Trade

We have also considered the international consequences of our decision. As discussed above, we review applications to export LNG to non-FTA nations under section 3(a) of the NGA. The foreign policy and trade impacts to the United States of exports are factors bearing on that review.

An efficient, transparent international market for natural gas with diverse sources of supply provides both economic and strategic benefits to the United States and our allies. For example, in light of the recent Russian invasion of Ukraine, there are renewed concerns about energy security for Europe and Central Asia, particularly given the relative share of Russian natural gas supplies into those regions.²⁸⁴ By authorizing additional exports to non-FTA countries, including to U.S. allies in Europe and elsewhere, this Order will enable Magnolia LNG to help mitigate energy security concerns once it begins exporting U.S. LNG.²⁸⁵ More generally, to the extent U.S. exports diversify global LNG supplies and increase the volumes of LNG available globally, these additional exports will improve energy security for many U.S. allies and trading partners. Therefore, we find that authorizing Magnolia LNG's requested increase in exports will advance the public interest for reasons that are distinct from and additional to the economic benefits identified in the 2018 LNG Export Study and DOE's prior macroeconomic studies.

²⁸⁴ According to current EIA data, natural gas imports delivered by pipeline into Europe provide most imported volumes into Europe, with imports sourced from Russia comprising the largest share. See U.S. Energy Info. Admin., *Today in Energy* (Feb. 11, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=51258>.

²⁸⁵ We note that Europe has been the primary destination of U.S. LNG in recent months. In January 2022, for example, the United States supplied more than half of all LNG imports into Europe. See U.S. Dep't of Energy, *LNG Monthly* (Mar. 2022), at 1, <https://www.energy.gov/sites/default/files/2022-03/LNG%20Monthly%20January%202022.pdf>; see also U.S. Energy Info. Admin., *Today in Energy* (Feb. 22, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=51358>. We expect that relatively high LNG demand in Asia and Europe will support continued U.S. LNG exports. See, e.g., U.S. Energy Info. Admin., *Today in Energy* (Apr. 20, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=52118>.

C. Environmental Issues

In reviewing the potential environmental impacts of Magnolia LNG’s proposal to export additional volumes of LNG, DOE has considered both its obligation under NEPA and its obligation under NGA section 3(a) to ensure that the proposal is not inconsistent with the public interest.

1. Adoption of FERC’s Supplemental Environmental Impact Statement

DOE has reviewed the administrative record compiled at FERC for the Magnolia LNG Terminal. DOE notes that Magnolia LNG is already subject to 115 environmental conditions for the Terminal.²⁸⁶ DOE has also reviewed the record compiled in this proceeding, including the 17 new environmental conditions imposed by FERC in connection with Magnolia LNG’s Amendment.²⁸⁷ On February 13, 2020, DOE adopted the final SEIS (DOE/EIS-0498-S1).²⁸⁸

Additionally, in light of Magnolia LNG’s proposed transport of LNG via ocean-going carrier to non-FTA countries, DOE is supplementing the record with the Marine Transport Technical Support Document prepared by DOE in 2020.²⁸⁹ On the basis of the Technical Support Document, DOE concluded that “the transport of natural gas by marine vessels ... normally does not pose the potential for significant environmental impacts.”²⁹⁰ We also note

²⁸⁶ See *supra* at § VII.A, B; see also *Magnolia LNG, LLC*, DOE/FE Order No. 3909 at 169 (Ordering Para. H) (conditioning non-FTA order on Magnolia LNG’s compliance with all terms and conditions established in FERC’s EIS, among other requirements).

²⁸⁷ See FERC Order at ¶ 19 and Appendix.

²⁸⁸ Letter from Amy Sweeney, DOE, to Julie Roemele, U.S. Env’tl. Prot. Agency (Feb. 13, 2020); see *supra* § I.

²⁸⁹ See *supra* § II.D.

²⁹⁰ U.S. Dep’t of Energy, National Environmental Policy Act Implementing Procedures, Final Rule, 85 Fed. Reg. 78,197, 78,198 n.16 (Dec. 4, 2020) (citing U.S. Dep’t of Energy, Technical Support Document, Notice of Final Rulemaking, National Environmental Policy Act Implementing Procedures (10 C.F.R. Part 1021) (Nov. 2020)).

that the 2014 LCA GHG Report and 2019 Update examined, in relevant part, the GHG emissions associated with the ocean transport of LNG in determining total life cycle emissions.²⁹¹

Based on this comprehensive review, DOE is issuing an Amended Record of Decision as Appendix B to this Order. The Amended ROD incorporates by reference the FERC Order, the Addendum, the 2014 LCA GHG Report, the 2019 LCA GHG Update, and the Marine Transport Technical Support Document, which are discussed further below. Based on that record, in the Amended ROD, DOE has decided to issue DOE Order No. 3909-C, increasing Magnolia LNG's authorized export volume to 449 Bcf/yr.

2. Environmental Impacts Associated with Induced Production of Natural Gas

The current rapid development of natural gas resources in the United States likely will continue, with or without the export of natural gas to non-FTA nations.²⁹² Nevertheless, a decision by DOE to authorize exports to non-FTA nations could accelerate that development by some increment. As discussed above, the Addendum reviewed the academic and technical literature covering the most significant issues associated with unconventional natural gas production, including impacts to water resources, air quality, GHG emissions, induced seismicity, and land use.

The Addendum shows that there are potential environmental issues associated with unconventional natural gas production that need to be carefully managed, especially with respect to emissions of volatile organic compounds and methane, and the potential for groundwater contamination. These environmental concerns do not lead us to conclude, however, that the

²⁹¹ See *supra* § II.D (citing DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 75, 77, 78 n.69; 2019 Update at 17-18 and Appendix B-3, which identify the key modeling parameters for ocean transport of LNG and the assumptions used to calculate emissions for ocean transport, respectively).

²⁹² Addendum at 2.

increase in exports requested by Magnolia LNG to non-FTA nations should be prohibited. A denial of these exports under NGA section 3(a) based on the environmental impacts associated with induced production would be too blunt an instrument to address these environmental concerns efficiently. Moreover, such a finding would cause the United States to forego entirely the economic and international benefits discussed herein.

DOE believes the public interest is also served by addressing these environmental concerns through federal, state, or local regulation. We note that environmental regulators have imposed requirements on natural gas production and transportation to balance benefits and burdens, and have continued to update these regulations as technological practices and scientific understanding evolve.

For these reasons, we conclude that the environmental concerns associated with natural gas production from the lower-48 states do not establish that Magnolia LNG's requested increase in exports to non-FTA nations are inconsistent with the public interest. We further note that the D.C. Circuit in *Sierra Club I* rejected Sierra Club's arguments regarding the Addendum. In particular, the Court found that DOE offered a reasoned explanation as to why it believed the location-specific indirect effects pertaining to increased "export-induced" natural gas production "were not reasonably foreseeable" under NEPA.²⁹³ The Court's conclusions and reasoning guide our review in this proceeding.²⁹⁴

3. Greenhouse Gas Impacts Associated with U.S. LNG Exports

Sierra Club and other commenters on the Addendum, 2014 LCA GHG Report, 2019 LCA GHG Update, and 2018 LNG Export Study (as well as DOE's earlier economic studies)

²⁹³ *Sierra Club I*, 867 F.3d at 198-99.

²⁹⁴ *Id.*; see *supra* § II.C.

expressed concern that exports of U.S. LNG may have a negative effect on the total amount of energy consumed in foreign nations and on global GHG emissions.

As explained above, both the 2014 LCA GHG Report and the 2019 Update estimated the life cycle GHG emissions of U.S. LNG exports to Europe and Asia, compared with certain other fuels used to produce electric power in those importing countries.²⁹⁵ The 2019 Update was based on the most current available science, methodology, and data from the U.S. natural gas system to assess GHG emissions associated with exports of U.S. LNG produced in the lower-48 states.²⁹⁶

The conclusions of the 2019 Update are consistent with those of the 2014 LCA GHG Report.²⁹⁷ While acknowledging uncertainty, the LCA GHG Update shows that, to the extent U.S. LNG exports are preferred over coal in LNG-importing nations, U.S. LNG exports are likely to reduce global GHG emissions on per unit of energy consumed basis for power production.²⁹⁸ Furthermore, to the extent U.S. LNG exports are preferred over other forms of imported natural gas, they are likely to have only a small impact on global GHG emissions.²⁹⁹

The 2019 LCA GHG Update (like the 2014 Report) does not provide information on whether authorizing exports of U.S. LNG to non-FTA nations will increase or decrease GHG emissions on a global scale.³⁰⁰ Recognizing there is a global market for LNG, exports of U.S. LNG will affect the global price of LNG which, in turn, will affect energy systems in numerous countries. DOE further acknowledges that regional coal and imported natural gas are not the only fuels with which U.S.-exported LNG will compete. U.S. LNG exports may also compete

²⁹⁵ See *supra* § II.B.

²⁹⁶ DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 85.

²⁹⁷ *Id.*

²⁹⁸ *Id.*

²⁹⁹ *Id.*

³⁰⁰ *Id.* at 81.

with renewable energy, nuclear energy, petroleum-based liquid fuels, coal imported from outside East Asia or Western Europe, indigenous natural gas, synthetic natural gas derived from coal, and other resources. However, the net global GHG emission impacts of increased exports will be affected by the market dynamics in importing countries over the coming decades, as well as the potential interventions of numerous foreign governments in those markets. To model the net change that a given amount of U.S. LNG exports would have on global GHG emissions would require projections of how each of these fuel sources would be affected in each LNG-importing nation.³⁰¹ In responding to comments on the 2019 Update, DOE explained that the uncertainty associated with estimating each of these factors would likely render such an analysis too speculative to inform the public interest determination in DOE’s non-FTA proceedings.³⁰² Based on the evidence in this proceeding, DOE is unable to conclude that an increase in exports of U.S. LNG associated with Magnolia LNG’s Application will increase global GHG emissions in a material or predictable way.³⁰³

Finally, we note that the D.C. Circuit held in *Sierra Club I* that there was “nothing arbitrary about the Department’s decision” under NEPA to compare emissions from exported U.S. LNG to emissions of coal or other sources of natural gas.³⁰⁴ The Court’s decision in *Sierra Club I* guided DOE’s development of the 2019 Update.

D. Other Considerations

The conclusion of the 2018 LNG Export Study is that the United States will experience net economic benefits from the export of domestically produced LNG in volumes up to and

³⁰¹ DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 81.

³⁰² *Id.*

³⁰³ *See id.* at 86.

³⁰⁴ *Sierra Club I*, 867 F.3d at 202 (finding that “Sierra Club’s complaint ‘falls under the category of flyspecking’”) (citation omitted).

including 52.8 Bcf/d of natural gas. Nonetheless, DOE’s decision in this Order is not premised on an uncritical acceptance of that Study. Certain public comments received on the 2018 Study identify significant uncertainties and even potential negative impacts from LNG exports. The economic impacts of higher natural gas prices and potential increases in natural gas price volatility are two of the factors that we view most seriously.

DOE notes that, although Henry Hub natural gas prices nearly doubled from their historic lows in 2020 to 2021 and have periodically increased above \$7 in 2022,³⁰⁵ prices are projected to average below \$4.00/MMBtu throughout the projection period in AEO 2022 Reference Case in real dollars.³⁰⁶ At these levels, nominal U.S. natural gas prices are expected to average at levels lower than, or in line with domestic natural gas prices beginning in approximately 2009, even without the historical prices being adjusted for inflation. Yet, DOE also has taken into account factors that could mitigate these impacts, such as the current long-term oversupply situation and data indicating that the natural gas industry would increase natural gas supply in response to increasing exports. Further, we note continuing uncertainty that all or even most of the proposed LNG export projects will ever be realized because of the time, difficulty, and expense of commercializing, financing, and constructing LNG export terminals, as well as the uncertainties and competition inherent in the global market for LNG.³⁰⁷

More generally, DOE continues to subscribe to the principle set forth in our 1984 Policy Guidelines³⁰⁸ that, under most circumstances, the market is the most efficient means of

³⁰⁵ Henry Hub prices averaged \$2.03/MMBtu in 2020 and \$3.89/MMBtu in 2021. See U.S. Energy Info. Admin., Table, “Henry Hub Natural Gas Spot Price (Dollars per Million Btu)” (Apr. 27, 2022), <https://www.eia.gov/dnav/ng/hist/rngwhhdA.htm> (viewing annual history). Certain same-month year-on-year differences were starker, with Henry Hub prices at \$1.91/MMBtu in February 2020 and \$5.35/MMBtu in February 2021. See *id.* (viewing monthly history).

³⁰⁶ See AEO 2022 at 17.

³⁰⁷ See *infra* § VIII.E (identifying long-term orders vacated to date).

³⁰⁸ 1984 Policy Guidelines, 49 Fed. Reg. 6684.

allocating natural gas supplies. However, agency intervention may be necessary to protect the public in the event there is insufficient domestic natural gas for domestic use, or as a result of other facts or circumstances beyond those presented here.³⁰⁹ Given these possibilities, DOE recognizes the need to monitor market developments closely as the impact of successive authorizations of LNG exports unfolds.

E. Conclusion

DOE has reviewed the evidence in the record and relevant precedent in earlier non-FTA export decisions and has not found an adequate basis to conclude that Magnolia LNG's proposed increase in exports of LNG to non-FTA countries will be inconsistent with the public interest.

This Order and Order No. 3978-E being issued concurrently to Golden Pass LNG both amend existing non-FTA orders. Therefore, with the vacatur of previous long-term non-FTA authorizations,³¹⁰ there are currently 40 final non-FTA authorizations from the lower 48-states in a cumulative volume of exports totaling 46.07 Bcf/d of natural gas, or approximately 16.8 trillion

³⁰⁹ In previous orders, some commenters asked DOE to clarify the circumstances under which the agency would exercise its authority to revoke (in whole or in part) final LNG export authorizations. DOE stated that it could not precisely identify all the circumstances under which such action might be considered. Subsequently, in 2018, DOE issued a policy statement addressing this issue. See U.S. Dep't of Energy, Policy Statement Regarding Long-Term Authorizations to Export Natural Gas to Non-Free Trade Agreement Countries, 83 Fed. Reg. 28,841 (June 21, 2018).

³¹⁰ To date, DOE has vacated seven long-term non-FTA authorizations (none over the objection of the authorization holder) in the following proceedings: *Jordan Cove Energy Project L.P.*, Docket No. 12-32-LNG (Apr. 22, 2022); *Air Flow North America Corp.*, Docket No. 14-206-LNG (Dec. 30, 2021); *Emera CNG, LLC*, Docket No. 13-157-CNG (Oct. 20, 2021); *Annova LNG Common Infrastructure, LLC*, Docket No. 19-34-LNG (Apr. 23, 2021); *Floridian Natural Gas Storage Co., LLC*, Docket No. 15-38-LNG (Oct. 22, 2020); *Carib Energy (USA) LLC*, Docket No. 11-141-LNG (Nov. 17, 2020); *Flint Hills Resources, LP*, Docket No. 15-168-LNG (Feb. 5, 2019).

cubic feet per year, as follows:³¹¹ Sabine Pass Liquefaction, LLC (2.2 Bcf/d),³¹² Cameron LNG, LLC (1.7 Bcf/d),³¹³ FLEX I (1.4 Bcf/d),³¹⁴ FLEX II (0.4 Bcf/d),³¹⁵ Cove Point LNG, LP (0.77 Bcf/d),³¹⁶ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),³¹⁷ Sabine Pass Liquefaction, LLC Expansion Project (1.38 Bcf/d),³¹⁸ American LNG Marketing LLC (0.008 Bcf/d),³¹⁹ Bear Head LNG Corporation and Bear Head LNG (USA), LLC (0.81 Bcf/d),³²⁰

³¹¹ Any number discrepancies are due to rounding. Additionally, this cumulative volume of non-FTA exports from the lower-48 states does not include export volumes granted pursuant to DOE's regulations for small-scale exports of natural gas. See 10 C.F.R. §§ 590.102(p), 208(a); U.S. Dep't of Energy, Office of Fossil Energy and Carbon Management, Long Term Applications Received by DOE/FE to Export Domestically Produced LNG, CNG, CGL from the Lower-48 States, at 11 (as of Mar. 28, 2022), <https://www.energy.gov/fecm/articles/summary-lng-export-applications-lower-48-states> (identifying small-scale applications and status).

³¹² *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 2961-A, Docket No. 10-111-LNG, Final Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas from Sabine Pass LNG Terminal to Non-Free Trade Agreement Nations (Aug. 7, 2012).

³¹³ *Cameron LNG, LLC*, DOE/FE Order No. 3391-A, Docket No. 11-162-LNG, Final Opinion and Order Granting Long-Term Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Cameron LNG Terminal in Cameron Parish, Louisiana, to Non-Free Trade Agreement Nations (Sept. 10, 2014).

³¹⁴ *Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 3282-C, Docket No. 10-161-LNG, Final Opinion and Order Granting Long-Term Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Freeport LNG Terminal on Quintana Island, Texas, to Non-Free Trade Agreement Nations (Nov. 14, 2014) (FLEX I Final Order).

³¹⁵ *Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 3357-B, Docket No. 11-161-LNG, Final Opinion and Order Granting Long-Term Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Freeport LNG Terminal on Quintana Island, Texas, to Non-Free Trade Agreement Nations (Nov. 14, 2014) (FLEX II Final Order).

³¹⁶ *Cove Point LNG, LP*, DOE/FE Order No. 3331-A, Docket No. 11-128-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Cove Point LNG Terminal in Calvert County, Maryland, to Non-Free Trade Agreement Nations (May 7, 2015), *reh'g denied*, DOE/FE Order No. 3331-B (Apr. 18, 2016), *amended by* DOE/FE Order No. 3331-C (Aug. 4, 2017), *further amended by* DOE/FE Order No. 3331-D (Dec. 2, 2020).

³¹⁷ *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FE Order No. 3638, Docket No. 12-97-LNG, Final Order and Opinion Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Corpus Christi Liquefaction Project to Be Located in Corpus Christi, Texas, to Non-Free Trade Agreement Nations (May 12, 2015).

³¹⁸ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3669, Docket Nos. 13-30-LNG, 13-42-LNG, & 13-121-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Sabine Pass LNG Terminal Located in Cameron Parish, Louisiana, to Non-Free Trade Agreement Nations (June 26, 2015).

³¹⁹ *American LNG Marketing LLC*, DOE/FE Order No. 3690, Docket No. 14-209-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers Loaded at the Proposed Hialeah Facility Near Medley, Florida, and Exported by Vessel to Non-Free Trade Agreement Nations (Aug. 7, 2015).

³²⁰ *Bear Head LNG Corp. and Bear Head LNG (USA)*, DOE/FE Order No. 3770, Docket No. 15-33-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export U.S.-Sourced Natural Gas by Pipeline to Canada for Liquefaction and Re-Export in the Form of Liquefied Natural Gas to Non-Free Trade Agreement Countries (Feb. 5, 2016).

Pieridae Energy (USA) Ltd.,³²¹ Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),³²² Cameron LNG, LLC Design Increase (0.42 Bcf/d),³²³ Cameron LNG, LLC Expansion Project (1.41 Bcf/d),³²⁴ Lake Charles Exports, LLC (2.0 Bcf/d),³²⁵ Lake Charles LNG Export Company, LLC,³²⁶ Carib Energy (USA), LLC (0.004 Bcf/d),³²⁷ Magnolia LNG, LLC (1.23 Bcf/d),³²⁸ Southern LNG Company, L.L.C. (0.36 Bcf/d),³²⁹ the FLEX Design Increase (0.34 Bcf/d),³³⁰

³²¹ *Pieridae Energy (USA) Ltd.*, DOE/FE Order No. 3768, Docket No. 14-179-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export U.S.-Sourced Natural Gas by Pipeline to Canada for Liquefaction and Re-Export in the Form of Liquefied Natural Gas to Non-Free Trade Agreement Countries (Feb. 5, 2016).

³²² *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3792, Docket No. 15-63-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Sabine Pass LNG Terminal Located in Cameron Parish, Louisiana, to Non-Free Trade Agreement Nations (Mar. 11, 2016).

³²³ *Cameron LNG, LLC*, DOE/FE Order No. 3797, Docket No. 15-67-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Cameron Terminal Located in Cameron and Calcasieu Parishes, Louisiana, to Non-Free Trade Agreement Nations (Mar. 18, 2016).

³²⁴ *Cameron LNG, LLC*, DOE/FE Order No. 3846, Docket No. 15-90-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from Trains 4 and 5 of the Cameron LNG Terminal Located in Cameron and Calcasieu Parishes, Louisiana, to Non-Free Trade Agreement Nations (July 15, 2016).

³²⁵ *Lake Charles Exports, LLC*, DOE/FE Order No. 3324-A, Docket No. 11-59-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Lake Charles Terminal in Calcasieu Parish, Louisiana, to Non-Free Trade Agreement Nations (July 29, 2016).

³²⁶ *Lake Charles LNG Export Co., LLC*, DOE/FE Order No. 3868, Docket No. 13-04-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Lake Charles Terminal in Calcasieu Parish, Louisiana to Non-Free Trade Agreement Nations (July 29, 2016).

³²⁷ *Carib Energy (USA) LLC*, DOE/FE Order No. 3937, Docket No. 16-98-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers Loaded at Designated Pivotal LNG, Inc. Facilities and Exported by Vessel to Non-Free Trade Agreement Nations in Central America, South America, or the Caribbean (Nov. 28, 2016).

³²⁸ *Magnolia LNG, LLC*, DOE/FE Order No. 3909, Docket No. 13-132-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Magnolia LNG Terminal to be Constructed in Lake Charles, Louisiana, to Non-Free Trade Agreement Nations (Nov. 30, 2016), *further amended by* DOE/FECM Order No. 3909-C (Apr. 27, 2022) (increasing export volume).

³²⁹ *Southern LNG Company, L.L.C.*, DOE/FE Order No. 3956, Docket No. 12-100-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Elba Island Terminal in Chatham County, Georgia, to Non-Free Trade Agreement Nations (Dec. 16, 2016).

³³⁰ *Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 3957, Docket No. 16-108-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Freeport LNG Terminal on Quintana Island, Texas, to Non-Free Trade Agreement Nations (Dec. 19, 2016).

Golden Pass LNG Terminal LLC (2.57 Bcf/d),³³¹ Delfin LNG LLC (1.8 Bcf/d),³³² the Lake Charles LNG Export Company, LLC Design Increase (0.33 Bcf/d),³³³ the Lake Charles Exports, LLC Design Increase,³³⁴ Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),³³⁵ Mexico Pacific Limited LLC (1.7 Bcf/d),³³⁶ Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),³³⁷ ECA Liquefaction, S. de R.L. de C.V. (Mid-Scale Project) (0.44 Bcf/d),³³⁸ Energía Costa Azul, S. de R.L. de C.V. (Large-Scale Project) (1.3 Bcf/d),³³⁹ Port Arthur LNG, LLC (1.91 Bcf/d),³⁴⁰

³³¹ *Golden Pass LNG Terminal LLC*, DOE/FE Order No. 3978, Docket No. 12-156-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Golden Pass LNG Terminal Located in Jefferson County, Texas, to Non-Free Trade Agreement Nations (Apr. 25, 2017), *amended by* DOE/FE Order No. 3978-B, Order Granting Request to Transfer Authorizations and Responding to Statement of Change in Control (Mar. 4, 2020), *further amended by* DOE/FECM Order No. 3978-E (Apr. 27, 2022) (increasing export volume).

³³² *Delfin LNG LLC*, DOE/FE Order No. 4028, Docket No. 13-147-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from a Proposed Floating Liquefaction Project and Deepwater Port 30 Miles Offshore of Louisiana to Non-Free Trade Agreement Nations (June 1, 2017).

³³³ *Lake Charles LNG Export Co., LLC*, DOE/FE Order No. 4010, Docket No. 16-109-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Lake Charles Terminal in Lake Charles, Louisiana, to Free Trade Agreement and Non-Free Trade Agreement Nations (June 29, 2017).

³³⁴ *Lake Charles Exports, LLC*, DOE/FE Order No. 4011, Docket No. 16-110-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Lake Charles Terminal in Lake Charles, Louisiana, to Free Trade Agreement and Non-Free Trade Agreement Nations (June 29, 2017).

³³⁵ *Eagle LNG Partners Jacksonville II LLC*, DOE/FE Order No. 4078, Docket No. 17-79-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers Loaded at the Eagle Maxville Facility in Jacksonville, Florida, and Exported by Vessel to Free Trade Agreement and Non-Free Trade Agreement Nations (Sept. 15, 2017).

³³⁶ *See Mexico Pacific Limited LLC*, DOE/FE Order No. 4312, Docket No. 18-70-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export U.S.-Sourced Natural Gas by Pipeline to Mexico for Liquefaction and Re-Export in the Form of Liquefied Natural Gas to Non-Free Trade Agreement Countries (Dec. 14, 2018).

³³⁷ *Venture Global Calcasieu Pass, LLC*, DOE/FE Order No. 4346, Docket Nos. 13-69-LNG, 14-88-LNG, 15-25-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Mar. 5, 2019).

³³⁸ *ECA Liquefaction, S. de R.L. de C.V.*, DOE/FE Order No. 4364, Docket No. 18-144-LNG, Opinion and Order Granting Long-Term Authorization to Re-Export U.S.-Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Non-Free Trade Agreement Countries (ECA Mid-Scale Project) (Mar. 29, 2019), *amended by* DOE/FE Order No. 4364-A (Oct. 7, 2019) (transferring authorization from Energía Costa Azul, S. de R.L. de C.V. to ECA Liquefaction, S. de R.L. de C.V.).

³³⁹ *Energía Costa Azul, S. de R.L. de C.V.*, DOE/FE Order No. 4365, Docket No. 18-145-LNG, Opinion and Order Granting Long-Term Authorization to Re-Export U.S.-Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Non-Free Trade Agreement Countries (ECA Large-Scale Project) (Mar. 29, 2019).

³⁴⁰ *Port Arthur LNG, LLC*, DOE/FE Order No. 4372, Docket No. 15-96-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (May 2, 2019).

Driftwood LNG LLC (3.88 Bcf/d),³⁴¹ FLEX4 (0.72 Bcf/d),³⁴² Gulf LNG Liquefaction Company, LLC (1.53 Bcf/d),³⁴³ Eagle LNG Partners Jacksonville LLC (0.14 Bcf/d),³⁴⁴ Venture Global Plaquemines LNG, LLC (3.40 Bcf/d),³⁴⁵ Texas LNG Brownsville LLC (0.56 Bcf/d),³⁴⁶ Corpus Christi Liquefaction Stage III, LLC (1.59 Bcf/d),³⁴⁷ Rio Grande LNG, LLC (3.61 Bcf/d),³⁴⁸ Epsilon LNG LLC (1.083 Bcf/d),³⁴⁹ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (0.3 Bcf/d),³⁵⁰ and Sabine Pass Liquefaction, LLC (0.42 Bcf/d).³⁵¹

We note that the volumes authorized for export in the *Lake Charles Exports* and *Lake Charles LNG Export* orders are both 2.0 Bcf/d and 0.33 Bcf/d, respectively, yet are not additive to one another because the source of LNG approved under all of those orders is the Lake Charles

³⁴¹ *Driftwood LNG LLC*, DOE/FE Order No. 4373, Docket No. 16-144-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (May 2, 2019).

³⁴² *Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 4374, Docket No. 18-26-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (May 28, 2019).

³⁴³ *Gulf LNG Liquefaction Co., LLC*, DOE/FE Order No. 4410, Docket No. 12-101-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (July 31, 2019).

³⁴⁴ *Eagle LNG Partners Jacksonville LLC*, DOE/FE Order No. 4445, Docket No. 16-15-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Oct. 3, 2019).

³⁴⁵ *Venture Global Plaquemines LNG, LLC*, DOE/FE Order No. 4446, Docket No. 16-28-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Oct. 16, 2019).

³⁴⁶ *Texas LNG Brownsville LLC*, DOE/FE Order No. 4489, Docket No. 15-62-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).

³⁴⁷ *Corpus Christi Liquefaction Stage III, LLC*, DOE/FE Order No. 4490, Docket No. 18-78-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).

³⁴⁸ *Rio Grande LNG, LLC*, DOE/FE Order No. 4492, Docket No. 15-190-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).

³⁴⁹ *Epsilon LNG LLC*, DOE/FE Order No. 4629, Docket No. 20-31-LNG, Opinion and Order Granting Long-Term Authorization to Export Natural Gas to Mexico for Liquefaction, and to Re-Export U.S. Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Free Trade Agreement and Non-Free Trade Agreement Nations (Dec. 8, 2020).

³⁵⁰ *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FECM Order No. 4799, Docket No. 19-124-LNG, Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Mar. 16, 2022).

³⁵¹ *Sabine Pass Liquefaction, LLC*, DOE/FECM Order No. 4800, Docket No. 19-125-LNG, Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Mar. 16, 2022).

Terminal.³⁵² Additionally, the volumes authorized for export in the *Bear Head* and *Pieridae US* orders are not additive; together, they are limited to the capacity of the Maritimes Northeast Pipeline at the U.S.-Canadian border.³⁵³

In sum, the total export volume granted to date is within the range of scenarios analyzed in the 2018 LNG Export Study. The 2018 Study found that exports of LNG from the lower-48 states, in volumes up to and including 52.8 Bcf/d of natural gas, will not result in economic consequences that would render additional exports to be inconsistent with the public interest.³⁵⁴ DOE further notes that the amount of U.S. LNG export capacity that is currently operating or under construction totals 16.61 Bcf/d of natural gas across eight large-scale export projects in the lower-48 states.³⁵⁵

DOE will continue taking a measured approach in reviewing the other pending applications to export natural gas. Specifically, DOE will continue to assess the cumulative impacts of each succeeding request for export authorization on the public interest with due regard to the effect on domestic natural gas supply and demand fundamentals.

The reasons in support of proceeding cautiously are several: (1) the 2018 LNG Export Study, like any study based on assumptions and economic projections, is inherently limited in its predictive accuracy; (2) applications to export significant quantities of domestically produced LNG are still a relatively new phenomena with uncertain impacts; and (3) the market for natural

³⁵² *Lake Charles LNG Export Co., LLC*, DOE/FE Order No. 4010, at 55; *see also Lake Charles Exports, LLC*, DOE/FE Order No. 4011, at 54.

³⁵³ *See Bear Head LNG Corporation and Bear Head LNG (USA)*, DOE/FE Order No. 3770, at 178-79.

³⁵⁴ *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (citing 2018 LNG Export Study at 63 & Appendix F to the Study).

³⁵⁵ *See* U.S. Energy Info. Admin., *U.S. Liquefaction Capacity* (Dec. 8, 2021), <https://www.eia.gov/naturalgas/U.S.liquefactioncapacity.xlsx> (showing a total of 15.54 Bcf/d calculated by adding Column N in “Existing & Under Construction” worksheet, plus 0.72 Bcf/d granted in Order Nos. 4799 to CMI and 4800 to Sabine Pass on March 16, 2022, and an additional 0.35 Bcf/d with today’s Golden Pass LNG authorization, Order No. 3978-E).

gas has experienced rapid reversals in the past and is again changing rapidly due to economic, geopolitical, technological, regulatory, and climate change-related developments. The market of the future very likely will not resemble the market of today. In recognition of these factors, DOE intends to monitor developments that could tend to undermine the public interest in grants of successive applications for exports of domestically produced LNG and to attach terms and conditions to LNG export authorizations to protect the public interest.

IX. FINDINGS

On the basis of the findings and conclusions set forth above, DOE grants the non-FTA portion of Magnolia LNG's Application, subject to the Terms and Conditions and Ordering Paragraphs set forth below.

X. TERMS AND CONDITIONS

The Terms and Conditions imposed by DOE in Order No. 3909, as amended, remain in effect. As necessitated by this Order, Term and Condition H and I are amended below. Magnolia LNG must abide by each Term and Condition or face appropriate sanction.

H. Export Quantity

This Order grants the requested amendment to Order No. 3909 (as most recently amended in Order No. 3909-B), such that Magnolia LNG is authorized to export LNG in the full volume requested for non-FTA countries, equivalent to 449 Bcf/yr of natural gas.

I. Combined FTA and Non-FTA Export Authorization Volumes

With this Order, Magnolia LNG now holds FTA and non-FTA export authorizations for the entire liquefaction capacity of the Magnolia LNG Terminal, as approved by FERC (8.8 mtpa of LNG, or 449 Bcf/yr of natural gas). Accordingly, the volume of LNG authorized in this Order is not additive to the volumes authorized in Magnolia LNG's long-term FTA orders (Order Nos. 3245-B and 3406-B).

XI. ORDER

Pursuant to section 3 of the Natural Gas Act, it is ordered that:

A. Magnolia LNG LLC (Magnolia LNG) is authorized to export domestically produced LNG by vessel from the proposed Magnolia LNG Terminal to be located near Lake Charles, Calcasieu Parish, Louisiana, in a volume equivalent to 449 Bcf/yr of natural gas. The authorization period will commence when Magnolia LNG commences commercial export of

domestically sourced LNG from the Magnolia LNG Terminal and will extend through December 31, 2050. Magnolia LNG is authorized to export the LNG on its own behalf and as agent for other entities that hold title to the natural gas, pursuant to one or more contracts of any duration.³⁵⁶

B. This LNG may be exported to any country with which the United States does not have a FTA requiring national treatment for trade in natural gas, which currently has or in the future develops the capacity to import LNG, and with which trade is not prohibited by U.S. law or policy.

C. Magnolia LNG shall ensure that all transactions authorized by this Order are permitted and lawful under U.S. laws and policies, including the rules, regulations, orders, policies, and other determinations of the Office of Foreign Assets Control of the U.S. Department of the Treasury and FERC. Failure to comply with these requirements could result in rescission of this authorization and/or other civil or criminal penalties.

D. Magnolia LNG must commence export operations using the planned liquefaction facilities no later than seven years from the date of issuance of Order No. 3909 (*i.e.*, by November 30, 2023).³⁵⁷

E. Magnolia LNG shall ensure compliance with all terms and conditions established by FERC in the orders for the Magnolia LNG Terminal (FERC Docket Nos. CP14-347-000 and CP19-19-000). This includes the 115 environmental conditions adopted in FERC's April 15, 2016 Order (based on the 2015 EIS) and the 17 environmental conditions adopted in the June 18, 2020 FERC Order (based on the 2020 SEIS). Additionally, this authorization is conditioned on

³⁵⁶ These contracts may include the export of commissioning volumes prior to the start of facility operations on a non-additive basis. *See supra* note 18.

³⁵⁷ *See Magnolia LNG, LLC*, DOE/FE Order No. 3909, at 161 (Term and Condition B), 168 (Ordering Para. D).

Magnolia LNG's ongoing compliance with any other preventative and mitigative measures at the Terminal imposed by federal or state agencies.

F. (i) Magnolia LNG shall file, or cause others to file, with the U.S. Department of Energy, Office of Fossil Energy and Carbon Management, Office of Resource Sustainability, Office of Regulation, Analysis, and Engagement (FE-34) a non-redacted copy of all executed long-term contracts associated with the long-term export of LNG from the Terminal on its own behalf or as agent for other entities. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described in Order No. 3909.

(ii) Magnolia LNG shall file, or cause others to file, with the Office of Regulation, Analysis, and Engagement a non-redacted copy of all executed long-term contracts associated with the long-term supply of natural gas to the Terminal. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described in Order No. 3909.

G. Magnolia LNG is permitted to use its authorization to export LNG as agent for other LNG title-holders (Registrants), after registering those entities with DOE. Registration materials shall include an agreement by the Registrant to supply Magnolia LNG with all information necessary to permit Magnolia LNG to register that person or entity with DOE, including: (1) the Registrant's agreement to comply with this Order and all applicable requirements of DOE's regulations at 10 C.F.R. Part 590, including but not limited to destination restrictions; (2) the exact legal name of the Registrant, state/location of incorporation/registration, primary place of doing business, and the Registrant's ownership structure, including the ultimate parent entity if the Registrant is a subsidiary or affiliate of another entity; (3) the name, title, mailing address, e-mail address, and telephone number of a corporate officer or employee of the Registrant to

whom inquiries may be directed; and (4) within 30 days of execution, a copy of any long-term contracts not previously filed with DOE, described in Ordering Paragraph F of this Order.

Any change in the registration materials—including changes in company name, contact information, length of the long-term contract, termination of the long-term contract, or other relevant modification—shall be filed with DOE within 30 days of such change(s).

H. Magnolia LNG, or others for whom Magnolia LNG acts as agent, shall include the following provision in any agreement or other contract for the sale or transfer of LNG exported pursuant to this Order:

Customer or purchaser acknowledges and agrees that it will resell or transfer LNG purchased hereunder for delivery only to countries identified in Ordering Paragraph B of DOE/FECM Order No. 3909-C, issued April 27, 2022, in Docket No. 13-132-LNG, and/or to purchasers that have agreed in writing to limit their direct or indirect resale or transfer of such LNG to such countries. Customer or purchaser further commits to cause a report to be provided to Magnolia LNG LLC that identifies the country (or countries) into which the LNG was actually delivered, and to include in any resale contract for such LNG the necessary conditions to ensure that Magnolia LNG LLC is made aware of all such actual destination countries.

I. Within two weeks after the first export authorized in Ordering Paragraph A occurs, Magnolia LNG shall provide written notification of the date that the first export occurred.

J. Magnolia LNG shall file with the Office of Regulation, Analysis, and Engagement, on a semi-annual basis, written reports describing the status of the Magnolia LNG Terminal. The reports shall be filed on or by April 1 and October 1 of each year, and shall include information on the status of the Terminal, the date the Terminal is expected to commence first exports of LNG, and the status of any associated long-term supply and export contracts.

K. With respect to any change in control of the authorization holder, Magnolia LNG must comply with DOE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.³⁵⁸

L. Monthly Reports: With respect to the exports authorized by this Order, Magnolia LNG shall file with the Office of Regulation, Analysis, and Engagement, within 30 days following the last day of each calendar month, a report on Form FE-746R indicating whether exports have been made. The first monthly report required by this Order is due not later than the 30th day of the month following the month of first export. In subsequent months, if exports have not occurred, a report of "no activity" for that month must be filed. If exports have occurred, the report must provide the information specified for each applicable activity and mode of transportation, as set forth in the Guidelines for Filing Monthly Reports. These Guidelines are available at: <https://www.energy.gov/fecm/guidelines-filing-monthly-reports>.

(Approved by the Office of Management and Budget under OMB Control No. 1901-0294)

M. All monthly report filings on Form FE-746R shall be made to the Office of Regulation, Analysis, and Engagement according to the methods of submission listed on the Form FE-746R reporting instructions available at: <https://www.energy.gov/fecm/regulation>.

³⁵⁸ See 79 Fed. Reg. at 65,541-42.

N. The motion to intervene submitted by IECA is granted.

Issued in Washington, D.C., on April 27, 2022.

Amy R. Sweeney
Director, Office of Regulation, Analysis, and Engagement
Office of Resource Sustainability

**APPENDIX A: LONG-TERM EXPORT AUTHORIZATIONS ISSUED TO
MAGNOLIA LNG LLC AS OF APRIL 27, 2022**

Table 1: Orders Issued by DOE to Magnolia LNG for the Long-Term Export of Domestic LNG from the Magnolia LNG Terminal to FTA Countries

Docket No.	Order No.	Date Issued	Volume (Bcf/yr)	Term/Type
12-183-LNG	3245-B	February 26, 2013, as amended	224.5	Export term through December 31, 2050, multi-contract
13-131-LNG	3406-B	March 5, 2014, as amended	224.5	Export term through December 31, 2050, multi-contract
Total FTA Volume			449.0	

Table 2: Order Issued by DOE to Magnolia LNG for the Long-Term Export of Domestic LNG from the Magnolia LNG Terminal to Non-FTA Countries

Docket No.	Order No.	Date Issued	Volume (Bcf/yr)	Term/Type
13-132-LNG	3909-C	November 30, 2016, as amended	449.0	Export term through December 31, 2050, multi-contract
Total Non-FTA Volume			449.0	

APPENDIX B: AMENDED RECORD OF DECISION

In 2016, the Department of Energy (DOE) issued a Record of Decision (ROD)³⁵⁹ in Docket No. 13-132-LNG, to accompany DOE/FE Order No. 3909,³⁶⁰ which authorized exports of domestically produced LNG from the proposed Magnolia LNG Terminal.

On December 31, 2018, Magnolia LNG, LLC (Magnolia LNG) filed an application (Application) with DOE's Office of Fossil Energy and Carbon Management (formerly the Office of Fossil Energy)³⁶¹ under section 3 of the Natural Gas Act (NGA).³⁶² Magnolia LNG asks DOE to amend its existing long-term authorizations, including Order No. 3909, to increase its non-FTA exports from 394.2 Bcf/yr to 449 Bcf/yr of natural gas. DOE has prepared this Amended ROD pursuant to the National Environmental Policy Act of 1969 (NEPA),³⁶³ and in compliance with the Council on Environmental Quality (CEQ) implementing regulations for NEPA³⁶⁴ and DOE's implementing procedures for NEPA.³⁶⁵

As discussed above, DOE participated as a cooperating agency with the Federal Energy Regulatory Commission (FERC) in preparing a supplemental environmental impact statement (SEIS) analyzing the potential environmental impacts of the proposed increase in authorized export capacity for the proposed Magnolia LNG Terminal that would be used to support the

³⁵⁹ See Record of Decision and Floodplain Statement of Findings for the Magnolia LNG, LLC Application to Export Liquefied Natural Gas to Non-Free Trade Agreement Countries (Nov. 30, 2016).

³⁶⁰ *Magnolia LNG, LLC*, DOE/FE Order No. 3909, FE Docket No. 13-132-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Magnolia LNG Terminal to be Constructed in Lake Charles, Louisiana, to Non-Free Trade Agreement Nations (Nov. 30, 2016).

³⁶¹ The Office of Fossil Energy changed its name to the Office of Fossil Energy and Carbon Management on July 4, 2021.

³⁶² 15 U.S.C. § 717b. Authority to regulate the imports and exports of natural gas, including liquefied natural gas, under NGA section 3 has been delegated to the Assistant Secretary for FECM in Redelegation Order No. S4-DEL-FE1-2021, issued on March 25, 2021.

³⁶³ 42 U.S.C. § 4321, *et seq.*

³⁶⁴ 40 C.F.R. Parts 1500-08.

³⁶⁵ 10 C.F.R. Part 1021.

export authorization sought from DOE.³⁶⁶ In accordance with 40 C.F.R. § 1506.3, DOE adopted the SEIS on February 13, 2020, as DOE/EIS-0498-S1,³⁶⁷ and the U.S. Environmental Protection Agency (EPA) published a notice of the adoption on February 21, 2020.³⁶⁸

Magnolia LNG sought authorization from FERC to increase the total production capacity of the previously authorized Magnolia LNG Terminal (or Export Project) from 8 million tons of LNG per year (mtpa) to 8.8 mtpa, equivalent to an increase from 392.4 Bcf/yr to 449.0 Bcf/yr of natural gas. All new or reconfigured facilities would be within the footprint of the previously authorized Magnolia LNG terminal site. The increased LNG production would be achieved by an increase in the capacity and pressures of the ammonia pre-cooling refrigerant cycle and the mixed refrigerant cycle. The auxiliary boiler steam production would also be increased to provide more power to the ammonia compressor steam turbine driver. In addition to the liquefaction uprate changes, the gas pre-treatment process would change from a single heavy hydrocarbon removal column to separate deethanizer and debutanizer columns. An electrically driven overhead booster compressor is proposed as part of the heavy hydrocarbon removal changes. Furthermore, the flare stack would be relocated on the project site, and a separate marine flare added.³⁶⁹

A. Alternatives

Because the proposed Production Capacity Amendment at FERC did not involve any change in the previously authorized LNG terminal site, potential alternatives, such as site

³⁶⁶ Fed. Energy Reg. Comm'n, *Final Environmental Impact Statement Magnolia Liquefied Natural Gas Production Capacity Amendment Project 2020*, Docket No. CP19-19-000 (Jan. 24, 2020) [hereinafter SEIS].

³⁶⁷ Letter from Amy Sweeney, DOE, to Julie Roemele, U.S. Env'tl. Prot. Agency (Feb. 13, 2020) (adoption of final SEIS).

³⁶⁸ U.S. Env'tl. Prot. Agency, *Environmental Impact Statements; Notice of Availability*, 85 Fed. Reg. 10,164 (Feb. 21, 2020).

³⁶⁹ See SEIS at ES-1 to ES-2.

alternatives or system alternatives, were deemed not applicable and were not evaluated.³⁷⁰ The SEIS assessed the No-Action Alternative; that is, if the newly proposed equipment and process modifications are not installed and the LNG production capacity remains at 8.0 mtpa. The SEIS concluded that the No-Action Alternative would not allow Magnolia LNG to meet the purpose and need of the Production Capacity Amendment, and any alternative project to meet the market demand would not likely provide a significant environmental advantage over the proposed action.³⁷¹

B. Environmentally Preferred Alternative

Because no additional alternatives were assessed in the SEIS, and the No Action Alternative would not allow Magnolia LNG to meet the purpose and need of the Production Capacity Amendment, the proposed increase in authorized volume—as modified by the recommended mitigation measures—is the environmentally preferred alternative to meet the Application’s objectives.

C. Decision

DOE has decided to issue Order No. 3909-C, increasing Magnolia LNG’s non-FTA export volume from 394.2 Bcf/yr to 449.0 Bcf/yr of natural gas. DOE’s decision is based on (i) the analysis of potential environmental impacts presented in FERC’s SEIS, and (ii) DOE’s determination that the only intervenor in the proceeding (Industrial Energy Consumers of America) has not demonstrated that Magnolia LNG’s increased volume of exports will be inconsistent with the public interest, as would be required to deny the Application under NGA

³⁷⁰ See SEIS at 7.

³⁷¹ See *id.* at ES-3.

section 3(a).³⁷² DOE also considered the Addendum,³⁷³ the 2014 LCA GHG Report,³⁷⁴ the 2019 Update,³⁷⁵ and the Technical Support Document, which are hereby incorporated by reference.³⁷⁶ All other terms and conditions of DOE's previous authorization to Magnolia LNG in Order No. 3909, as amended, along with the associated ROD, remain in full force and effect.

D. Mitigation

As a condition of its decision to issue Order No. 3909-C, DOE is imposing requirements that will avoid or minimize the environmental impacts of the increased LNG production authorized. Specifically, in its Order authorizing the Production Capacity Amendment on May 21, 2020,³⁷⁷ FERC adopted the 17 mitigation measures recommended in the SEIS as environmental conditions of the FERC order. DOE incorporates those 17 conditions as conditions of Order No. 3909-C.

All previous environmental conditions, as incorporated into Order No. 3909, remain in full force and effect. Mitigation measures beyond those included in Order No. 3909-C that are enforceable by other federal and state agencies are additional conditions of Order No. 3909-C. With these conditions, DOE has determined that all practicable means to avoid or minimize environmental harm from the proposed Application have been adopted.

³⁷² 15 U.S.C. § 717b(a).

³⁷³ U.S. Dep't of Energy, Draft Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States, 79 Fed. Reg. 32,258 (June 4, 2014).

³⁷⁴ U.S. Dep't of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States, 79 Fed. Reg. 32,260 (June 4, 2014).

³⁷⁵ Nat'l Energy Tech. Lab., *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update* (DOE/NETL-2019/2041) (Sept. 12, 2019), <https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf>.

³⁷⁶ *Id.* at 78,200; *see also id.* at 78,202. We note that, in the 2014 LCA GHG Report and 2019 Update, DOE also considered how emissions associated with the ocean transport of U.S. LNG in tankers contribute to total life cycle GHG emissions.

³⁷⁷ *See* FERC Order at 10-13.