

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

CHENIERE MARKETING, LLC AND
CORPUS CHRISTI LIQUEFACTION, LLC

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DOCKET NO. 19-124-LNG

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

DOE/FECM ORDER NO. 4799

MARCH 16, 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
CCL	Corpus Christi Liquefaction, LLC
CCL Stage III	Corpus Christi Liquefaction Stage III, LLC
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
STEO	Short-Term Energy Outlook
Tcf	Trillion Cubic Feet

I. INTRODUCTION

On September 27, 2019, Cheniere Marketing, LLC (Cheniere Marketing) and Corpus Christi Liquefaction, LLC (CCL and, collectively with Cheniere Marketing, CMI) 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 requesting long-term, multi-contract authorization³ to export domestically produced liquefied natural gas (LNG) under section 3 of the Natural Gas Act (NGA).⁴ In light of increased liquefaction production capacity at its existing LNG trains made possible by modifications to maintenance and production processes, CMI seeks to export an additional quantity of LNG in a volume equivalent to 108.16 billion cubic feet (Bcf) per year (Bcf/yr) of natural gas, for a total approved export volume of 875.16 Bcf/yr. CMI seeks to export this LNG by vessel from the Corpus Christi Liquefaction Project (Trains 1-3) (Liquefaction Project), located at the Corpus Christi LNG Terminal in San Patricio and Nueces Counties, Texas.⁵ CMI began exporting LNG from the Liquefaction Project in 2018, with all three trains in service as of March 2021.⁶

Also on September 27, 2019, CCL filed an application with the Federal Energy Regulatory Commission (FERC). CCL asked FERC to amend its existing NGA section 3 authorization to increase the total liquefaction production capacity of the Project from 767 to 875.16 Bcf/yr of natural gas—for an additional 108.16 Bcf/yr in capacity “uprate” (Uprate

¹ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC, Application of Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC for Long-Term Authorization to Export Liquefied Natural Gas to Free Trade Agreement and Non-Free Trade Agreement Nations (Sept. 27, 2019) [hereinafter CMI App.].

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

³ For purposes of this Order, DOE uses the terms “authorization” and “order” interchangeably.

⁴ 15 U.S.C. § 717b. The authority to regulate the imports and exports of natural gas, including LNG, 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.

⁵ See CMI App. at 1-2.

⁶ See U.S. Dep’t of Energy, *LNG Monthly*, at 14 (Mar. 2022), at 14, available at: <https://www.energy.gov/sites/default/files/2022-03/LNG%20Monthly%20January%202022.pdf>.

Amendment).⁷ To satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA),⁸ FERC staff prepared an environmental assessment (EA) for the requested Uprate Amendment in 2020 (Uprate Amendment EA or EA).⁹

In an order issued on October 21, 2021, FERC granted CMI's Uprate Amendment.¹⁰ FERC observed that this increased LNG production capacity across the Liquefaction Project's three LNG trains "would be achieved through modifications to maintenance and production processes made possible by enhancements made during the facilities' final design, construction, and initial operation."¹¹ FERC found that the Uprate Amendment would not require any new construction or modifications to the Liquefaction Project,¹² and "would not increase the levels of any criteria pollutants or greenhouse gas [GHG] emissions above the levels previously analyzed" for the Liquefaction Project's construction and operation.¹³ On this basis, FERC authorized CMI to increase the Project's liquefaction production capacity to 875.16 Bcf/yr, and ordered that, in all other respects, CMI's existing authorization for the Liquefaction Project "shall remain in full force and effect."¹⁴

⁷ See *Corpus Christi Liquefaction, LLC*, Order Amending Authorization Under Section 3 of the Natural Gas Act, 177 FERC 61,029, 1 (Oct. 21, 2021) [hereinafter FERC Order]; see also *id.* at ¶ 3 (summarizing FERC's authorization issued to CCL for the construction and operation of the Liquefaction Project); see also *infra* § VII (FERC Proceeding).

⁸ 42 U.S.C. § 4321 *et seq.*

⁹ Federal Energy Regulatory Comm'n, *Corpus Christi Liquefaction Amendment Project Environmental Assessment* (Corpus Christi Liquefaction, LLC), Docket No. CP19-514-000 (Feb. 2020), available at: <https://www.ferc.gov/sites/default/files/2020-04/CP19-514-EA.pdf> [hereinafter EA].

¹⁰ See FERC Order at 1, 15, and Ordering Para. A.

¹¹ *Id.* at ¶ 4; see also EA at 1 (stating that "[c]onstruction and operation of Trains 1 and 2 has provided [CCL] with more accurate knowledge and insight concerning the actual optimized production capacity of the liquefaction trains.").

¹² FERC Order at ¶¶ 4, 7.

¹³ *Id.* at ¶ 10 n.21.

¹⁴ *Id.* at Ordering Para. B; see also *id.* at ¶¶ 14-15 (order conditioned on CCL complying with its stated maximum hourly production rate). This liquefaction capacity does not reflect the capacity of the Stage 3 LNG Project at the Corpus Christi LNG Terminal—an expansion of the Liquefaction Project approved by FERC in 2019 for CMI's affiliate, Corpus Christi Liquefaction Stage III, LLC (CCL Stage III). See *id.* at ¶ 1 n.3; see also *infra* at §§ IV.B, X.F, Appendix A (discussing CCL Stage III's export volumes).

In this proceeding, CMI requests authorization to export the additional volume of LNG from the Liquefaction Project achievable through modifications to maintenance and production processes to: (i) 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),¹⁵ and (ii) any other country with which trade is not prohibited by U.S. law or policy (non-FTA countries).¹⁶

On April 14, 2020, in Order No. 4519-A (as amended),¹⁷ DOE granted the FTA portion of the Application in the requested volume of 108.16 Bcf/yr of natural gas, bringing CMI's total FTA export volume to 875.16 Bcf/yr under its existing FTA authorizations.¹⁸ The term of this FTA authorization, like all of CMI's existing long-term authorizations, extends through December 31, 2050.¹⁹

Currently, under Order No. 3638-B (as amended), CMI is authorized to export LNG from the Liquefaction Project to non-FTA countries in a volume equivalent to 767 Bcf/yr of natural gas.²⁰ CMI states that it seeks to export the additional volume of 108.16 Bcf/yr to non-FTA

¹⁵ 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.

¹⁶ 15 U.S.C. § 717b(a); *see* CMI App. at 1-2, 6-7.

¹⁷ *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FE Order No. 4519, Docket No. 19-124-LNG, Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Free Trade Agreement Nations (Apr. 14, 2020), *amended by* DOE/FE Order No. 4519-A (Oct. 28, 2020) (extending export term).

¹⁸ *See infra* at § IV.B (Procedural History) and Appendix A (Table 1, identifying CMI's FTA authorizations); *see also* CMI App. at 2 n.3.

¹⁹ After CMI filed its Application, DOE issued a policy statement in which DOE adopted a term through December 31, 2050, as the standard export term for long-term non-FTA authorizations. *See* 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). At CMI's request, DOE amended CMI's then-existing orders to reflect this term extension. *See Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FE Order Nos. 3164-B, *et al.*, Docket Nos. 12-97-LNG, *et al.*, Order Extending Export Term for Authorizations to Free Trade and Non-Free Trade Agreement Nations Through December 31, 2050 (Oct. 28, 2020).

²⁰ *See 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

countries to align its non-FTA export volume with the Project’s already-approved liquefaction production capacity of 875.16 Bcf/yr.²¹ CMI asks that this authorization commence on the date of first commercial export of the requested volume.²² CMI seeks this authorization on its own behalf and as agent for other entities who will hold title to the LNG at the time of export.²³

On November 26, 2019, DOE published a notice of the non-FTA portion of the Application in the *Federal Register* (Notice of Application).²⁴ The Notice of Application called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by December 26, 2019.²⁵ DOE received a “Notice of Intervention, Protest, and Comment” opposing the Application filed by Industrial Energy Consumers of America (IECA).²⁶ DOE received no other filings in response to the Notice of Application. Subsequently, CMI submitted a response to IECA’s filing entitled “Answer of Corpus Christi Liquefaction, LLC & Cheniere Marketing, LLC in Opposition to Deficient Notice of Intervention, Protest, and Comment.”²⁷

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), *reh’g denied* DOE/FE Order No. 3638-A (May 26, 2016), *amended by* DOE/FE Order No. 3638-B (Oct. 28, 2020) (extending export term); *see also infra* at § IV.B (Procedural History) and Appendix A (Table 2, identifying CMI’s non-FTA authorizations); *see also* CMI App. at 2 n.3.

²¹ CMI App. at 2 n.4; *see also id.* at 7 (describing its Uprate Amendment application then-pending at FERC).

²² *Id.* at 2.

²³ *Id.* at 3.

²⁴ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC, Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations; Notice of Application, 84 Fed. Reg. 65,146 (Nov. 26, 2019).

²⁵ 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).

²⁶ Industrial Energy Consumers of America, Notice of Intervention, Protest and Comment, Docket No. 19-124-LNG (Dec. 20, 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).

²⁷ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC, Answer of Corpus Christi Liquefaction, LLC & Cheniere Marketing, LLC in Opposition to Deficient Notice of Intervention, Protest, and Comment, Docket No. 19-124-LNG (Jan. 6, 2020) [hereinafter CMI Answer].

DOE has reviewed the non-FTA portion of the Application, DOE's economic and environmental studies, the EA, the FERC Order, IECA's Protest, CMI's Answer, and the most recent long-term projections from the U.S. Energy Information Administration (EIA), among other evidence discussed below. Based on this substantial administrative record, DOE has determined that it has not been shown that CMI'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 notes that, while CMI is already authorized to export LNG from the Project at its maximum liquefaction capacity to FTA countries, this Order will provide CMI with the flexibility to allow its existing LNG export capacity to additionally serve non-FTA countries.²⁸ These exports can diversify global LNG supplies and improve energy security for U.S. allies and trading partners in Europe and elsewhere.

On this basis, DOE grants the non-FTA portion of the Application in the volume requested—108.16 Bcf/yr of natural gas, or 0.3 Bcf per day (Bcf/d).²⁹ 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 CMI's FERC authorization for the Liquefaction Project.

Additionally, DOE has reviewed FERC's Uprate Amendment EA under NEPA. The EA adopted by reference the final Environmental Impact Statement (EIS) prepared by FERC in 2014 for the Liquefaction Project.³⁰ As discussed below, DOE has determined that it is appropriate to

²⁸ The volume approved in this Order is additive to CMI's existing non-FTA volume, but it is not additive to its FTA volumes because the approved FTA and non-FTA export volumes each reflect the maximum liquefaction capacity of the Liquefaction Project. *See infra* § X.F (Term and Condition F); *see also infra* § IV.B and Appendix A (CMI's export authorizations).

²⁹ *See infra* §§ IX-XI.

³⁰ *See, e.g.*, FERC Order at ¶ 10; *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FE Order No. 3638 at 10, 192 (discussing DOE's adoption of the final EIS for the Liquefaction Project in Docket No. 12-97-LNG).

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.³¹ On the basis of this record, DOE is issuing a Finding of No Significant Impact (FONSI) as Appendix B to this Order. The FONSI adopts the Uprate Amendment EA (DOE/EA-2176) and incorporates by reference other FERC and DOE documents described below.³²

Concurrently with this Order, DOE is issuing a long-term non-FTA authorization, Order No. 4800, to Sabine Pass Liquefaction, LLC (Sabine Pass) in a volume equivalent to 152.64 Bcf/yr of natural gas, or 0.42 Bcf/d.³³ The volume approved in this Order and the Sabine Pass order—0.3 Bcf/d and 0.42 Bcf/d respectively—total 0.72 Bcf/d of natural gas. Together, these orders bring DOE’s cumulative total of approved non-FTA exports of LNG and compressed natural gas (CNG) from the lower-48 states to 46.65 Bcf/d of natural gas.³⁴

³¹ 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), *available at*: https://www.energy.gov/sites/prod/files/2020/12/f81/10-cfr-1021-ng-td-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.

³² *See infra* § VIII.C.1 and Appendix B.

³³ *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).

³⁴ Final non-FTA orders that were later vacated are not included in this total volume. *See supra* § VIII.E (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.

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. 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.³⁵ DOE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.³⁶

³⁵ 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), available at: http://energy.gov/sites/prod/files/2013/04/f0/fr_notice_two_part_study.pdf.

³⁶ 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).

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.³⁷

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).³⁸ 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).³⁹

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).⁴⁰ The 2015 Study was a scenario-based

³⁷ 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, available at: <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).

³⁸ U.S. Energy Info. Admin., *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets* (Oct. 2014), available at: <https://www.eia.gov/analysis/requests/fe/pdf/lng.pdf>.

³⁹ 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.

⁴⁰ Center for Energy Studies at Rice University Baker Institute and Oxford Economics, *The Macroeconomic Impact of Increasing U.S. LNG Exports* (Oct. 29, 2015), available at: http://energy.gov/sites/prod/files/2015/12/f27/20151113_macro_impact_of_lng_exports_0.pdf.

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.⁴¹ DOE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.⁴²

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.⁴³ 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.⁴⁴ Accordingly, DOE, through its support contractor

⁴¹ 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).

⁴² 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).

⁴³ 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].

⁴⁴ 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.

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, 2018,⁴⁵ and concurrently provided notice of the availability of the Study, as discussed below.⁴⁶

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:

- (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);⁴⁷
- (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.⁴⁸

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 N_{ew}ERA models.⁴⁹ The 2018 Study develops 54 scenarios by identifying various assumptions for domestic and international supply

⁴⁵ See NERA Economic Consulting, *Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports* (June 7, 2018), available at: <https://www.energy.gov/sites/prod/files/2018/06/f52/Macroeconomic%20LNG%20Export%20Study%202018.pdf> [hereinafter 2018 LNG Export Study or 2018 Study].

⁴⁶ See 2018 Study Notice.

⁴⁷ U.S. Energy Info. Admin., *Annual Energy Outlook 2017* (with projections to 2050) (Jan. 5, 2017), available at: <https://www.eia.gov/outlooks/archive/aeo17/> [hereinafter AEO 2017].

⁴⁸ See 2018 Study Notice, 83 Fed. Reg. at 27,316.

⁴⁹ 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].

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.⁵⁰

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;
- ii. High Oil and Gas Resource and Technology (HOGRT) case, which provides more optimistic resource development estimates than the Reference case; and
- iii. Low Oil and Gas Resource and Technology (LOGRT) case, which provides less optimistic resource development estimates than the Reference case.⁵¹

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.⁵²

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

⁵⁰ 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).

⁵¹ See *id.*

⁵² See 2018 Study Response to Comments, 83 Fed. Reg. at 67,256.

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.⁵³

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.⁵⁴ DOE and KeyLogic, Inc. contacted a set of independent experts recommended by 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%.

⁵³ See *id.*

⁵⁴ See *id.*

- 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.⁵⁵

- 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.⁵⁶

d. DOE Proceeding

On June 12, 2018, DOE published a notice of availability of the 2018 LNG Export Study and a request for comments.⁵⁷ 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

⁵⁵ See *id.* at 67,264; see also *id.* at 67,266.

⁵⁶ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,255.

⁵⁷ See 2018 Study Notice.

[identified in the notice] and to invite comments on the Study for consideration in the pending and future non-FTA application proceedings.”⁵⁸ 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.⁵⁹ Of those, nine comments supported the Study,⁶⁰ eight comments opposed the 2018 Study and/or exports of LNG,⁶¹ one comment took no position,⁶² and one comment was non-responsive.⁶³

DOE summarized and responded to these comments in the Response to Comments document, published on December 28, 2018.⁶⁴ 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.⁶⁵

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.

⁵⁸ *Id.* at 27,315.

⁵⁹ The public comments are posted on the DOE website at: <https://fossil.energy.gov/app/docketindex/docket/index/10>.

⁶⁰ 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.

⁶¹ 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.

⁶² Comment of John Young.

⁶³ Comment of Vincent Burke.

⁶⁴ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.

⁶⁵ See *id.* at 67,272.

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.⁶⁶ 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.⁶⁷

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.”⁶⁸

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.⁶⁹ 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.⁷⁰

⁶⁶ See *id.*

⁶⁷ See *id.*

⁶⁸ *Id.* at 67,273 (citations to 2018 LNG Export Study omitted).

⁶⁹ U.S. Energy Info. Admin., *Annual Energy Outlook 2018* (with projections to 2050) (Feb. 6, 2018), available at: <https://www.eia.gov/outlooks/archive/aeo18/> [hereinafter AEO 2018].

⁷⁰ 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

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.”⁷¹ 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.⁷²

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).⁷³ 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.⁷⁴

Second, DOE commissioned the National Energy Technology Laboratory (NETL), a DOE applied research laboratory, to conduct an analysis calculating the life cycle greenhouse gas

⁷¹ *Id.* (citing 2018 LNG Export Study at 63 & Appendix F to the Study).

⁷² See 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

⁷³ 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.

⁷⁴ 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 <http://energy.gov/fe/addendum-environmental-review-documents-concerning-exports-natural-gas-united-states>.

(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.

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).⁷⁵ DOE also received public comments on the LCA GHG Report and responded to those comments in prior orders.⁷⁶ 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).⁷⁷ 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

⁷⁵ 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.

⁷⁶ 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).

⁷⁷ 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), available at: <https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf> [hereinafter 2019 Update].

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 Natural Gas Extraction and Power Generation* (April 2019 LCA of Natural Gas Extraction and Power Generation);⁷⁸
- 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.⁷⁹

In all other respects, the LCA GHG Update was unchanged from the 2014 Report.⁸⁰

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.⁸¹ 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.⁸² Additional details are discussed below,⁸³ and in DOE’s Response to Comments on the 2019 Update.

⁷⁸ Nat’l Energy Tech. Lab., *Life Cycle Analysis of Natural Gas Extraction and Power Generation* (DOE/NETL-2019/2039) (Apr. 19, 2019), available at: <https://www.netl.doe.gov/energy-analysis/details?id=3198>.

⁷⁹ 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).

⁸⁰ 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].

⁸¹ See *id.* at 78, 85.

⁸² See *id.* at 86.

⁸³ See *infra* § VIII.C.3.

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.

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, LP⁸⁴); Sabine Pass; and 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*),⁸⁵ and three in a consolidated, unpublished opinion issued on November 1, 2017 (*Sierra Club II*).⁸⁶ 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.⁸⁷

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

⁸⁴ 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).

⁸⁵ *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.*).

⁸⁶ *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).

⁸⁷ 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).

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 under both the NGA and NEPA. The D.C. Circuit rejected Sierra Club’s arguments in a unanimous decision.⁸⁸

First, the Court rejected Sierra Club’s NEPA argument concerning the indirect effects of export-induced natural gas production.⁸⁹ 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.”⁹⁰ In particular, the Court recognized that DOE had described upstream natural gas impacts generally,⁹¹ while affirming DOE’s explanation that particularized impacts are highly location-dependent, and could not be attributed to any given export application.⁹² 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.”⁹³

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.⁹⁴ 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.⁹⁵

⁸⁸ *Sierra Club I*, 867 F.3d at 192.

⁸⁹ *Id.* at 197-99.

⁹⁰ *Id.* at 198.

⁹¹ *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.”).

⁹² *Id.* at 198-199.

⁹³ *Id.* at 201.

⁹⁴ *Sierra Club I*, 867 F.3d at 201.

⁹⁵ *Id.* at 202.

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 not inconsistent with the public interest.”⁹⁶ 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,”⁹⁷ 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.”⁹⁸

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.”⁹⁹ 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.¹⁰⁰

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,¹⁰¹ DOE is incorporating these studies—as well as the 2019 LCA GHG Update—into the NEPA record in this proceeding.¹⁰²

⁹⁶ *Id.* at 203.

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Sierra Club II*, 703 F. App’x at *2.

¹⁰⁰ *Id.*

¹⁰¹ *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.”).

¹⁰² See *infra* § VIII.C.1 and Appendix B (Finding of No Significant Impact).

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.¹⁰³

Additionally, in 2020, DOE conducted a NEPA rulemaking pertaining to authorizations issued under NGA section 3.¹⁰⁴ 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*.¹⁰⁵

In that rulemaking, DOE conducted “a detailed review of technical documents regarding potential effects associated with marine transport of LNG.”¹⁰⁶ These documents were identified in an accompanying Marine Transport Technical Support Document.¹⁰⁷ 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.”¹⁰⁸ In light of CMI’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.¹⁰⁹

¹⁰³ 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.

¹⁰⁴ 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].

¹⁰⁵ See *id.*; see also 10 C.F.R. Part 1021, Subpt. D, App. B, Categorical Exclusion B5.7.

¹⁰⁶ NEPA Implementing Procedures, 85 Fed. Reg. at 78,199.

¹⁰⁷ 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)).

¹⁰⁸ *Id.* at 78,200; see also *id.* at 78,202.

¹⁰⁹ See *infra* § VIII.C.1.

III. PUBLIC INTEREST STANDARD

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

[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 Energy¹¹⁰] 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.¹¹¹

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.¹¹²

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.¹¹³ Before reaching a final decision, DOE must also comply with NEPA.¹¹⁴

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

¹¹⁰ 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.

¹¹¹ 15 U.S.C. § 717b(a).

¹¹² 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)).

¹¹³ 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).

¹¹⁴ See *Sierra Club I*, 867 F.3d at 192.

have looked to certain principles established in its 1984 Policy Guidelines.¹¹⁵ The goals of the 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.¹¹⁶

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.¹¹⁷

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.¹¹⁸ 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.”¹¹⁹

¹¹⁵ 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].

¹¹⁶ *Id.* at 6685.

¹¹⁷ *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)).

¹¹⁸ *See id.* at 13 and n.45.

¹¹⁹ 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)).

Although DOE Delegation Order No. 0204-111 is no longer in effect,¹²⁰ 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 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

CMI is requesting long-term, multi-contract authorization to export LNG in an additional volume of 108.16 Bcf/yr of natural gas from the Liquefaction Project (Trains 1–3) to non-FTA countries, to align with its capacity uprate approved by FERC.¹²¹ Additional information is set forth below.

A. Description of Applicant

Cheniere Marketing and CCL are Delaware limited liability companies with their principal place of business in Houston, Texas. Cheniere Marketing and CCL are indirect subsidiaries of Cheniere Energy, Inc., a Delaware corporation with its principal place of business in Houston, Texas.¹²²

B. Procedural History

CMI holds long-term export authorizations from DOE to export LNG from the Liquefaction Project as follows:

¹²⁰ 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).

¹²¹ CMI App. at 2; *see also supra* § I.

¹²² *See id.* at 2, 8.

- DOE/FE Order No. 3164-B, authorizing CMI to export 767 Bcf/yr to FTA countries through December 31, 2050;¹²³
- DOE/FE Order No. 3638-B, authorizing CMI to export 767 Bcf/yr to non-FTA countries through December 31, 2050;¹²⁴ and
- DOE/FE Order No. 4519-A, authorizing CMI to export 108.16 Bcf/yr to FTA countries through December 31, 2050.¹²⁵

Under the terms of Order Nos. 3164-B and 3638-B, the FTA and non-FTA volumes are not additive to one another.

Additionally, CMI's affiliate, Corpus Christi Liquefaction Stage III, LLC, holds an authorization to export domestically produced LNG from an approved expansion of the Liquefaction Project—the Stage 3 LNG Project—to FTA countries in DOE/FE Order No. 4277-A,¹²⁶ and to non-FTA countries in DOE/FE Order No. 4490-A.¹²⁷ Both Order Nos. 4277-A and 4490-A authorize a non-additive export volume equivalent to 582.14 Bcf/yr of natural gas.

With this Order, the Corpus Christi entities (Cheniere Marketing, CCL, and Corpus

¹²³ *Cheniere Marketing, LLC*, DOE/FE Order No. 3164, Docket No. 12-99-LNG, Order Granting Long-Term Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Corpus Christi Liquefaction Project to Free Trade Agreement Nations (Oct. 16, 2012), *amended by Cheniere Marketing, LLC*, DOE/FE Order Nos. 3538 and 3164-A, Docket Nos. 12-97-LNG and 12-99-LNG, Order Amending Application in Docket No. 12-97-LNG to Add Corpus Christi Liquefaction, LLC as Applicant, and Granting Request in DOE/FE Order No. 3164, Docket No. 12-99-LNG, to Add Corpus Christi Liquefaction, LLC as Authorization Holder (Oct. 29, 2014), *further amended by* DOE/FE Order No. 3164-B (Oct. 28, 2020) (extending export term).

¹²⁴ *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FE Order No. 3638, Docket No. 12-97-LNG, Final Opinion and Order 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), *reh'g denied* DOE/FE Order No. 3638-A (May 26, 2016), *amended by* DOE/FE Order No. 3638-B (Oct. 28, 2020) (extending export term).

¹²⁵ *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FE Order No. 4519, Docket No. 19-124-LNG, Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Free Trade Agreement Nations (Apr. 13, 2020), *amended by* DOE/FE Order No. 4519-A (Oct. 28, 2020) (extending export term).

¹²⁶ *Corpus Christi Liquefaction Stage III, LLC*, DOE/FE Order No. 4277, Docket No. 18-78-LNG, Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Stage 3 LNG Facilities to be Located at the Corpus Christi LNG Terminal in San Patricio and Nueces Counties, Texas, to Free Trade Agreement Nations (Nov. 9, 2018), *amended by* DOE/FE Order No. 4277-A (Oct. 21, 2020) (extending export term).

¹²⁷ *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), *amended by* DOE/FE Order No. 4490-A (Oct. 21, 2020) (extending export term).

Christi Liquefaction Stage III, LLC) are authorized to export LNG from the Corpus Christi LNG Terminal to FTA and non-FTA countries in a total volume equivalent to 1457.3 Bcf/yr of natural gas on a non-additive basis.¹²⁸

C. Source of Natural Gas

CMI states that it purchases natural gas to be used as fuel and feedstock for LNG production from the interstate and intrastate grid at points of interconnection with other pipelines and points of liquidity both upstream and downstream of the Corpus Christi Pipeline, owned by Cheniere Corpus Christi Pipeline, L.P. Through these interconnections, the Liquefaction Project has access to almost any point on the U.S. interstate pipeline system through direct delivery or by displacement.¹²⁹

D. Business Model

CMI requests this authorization on its own behalf and as agent for other entities that will hold title to the LNG at the time of export. CMI states that it has submitted to DOE a number of long-term supply purchase transactions associated with the long-term supply of natural gas to the Liquefaction Project.¹³⁰ CMI states that it has not yet entered into any long-term export contracts specific to the requested authorization.¹³¹ According to CMI, these transactions are not tied to individual LNG trains, sales and purchase agreements, or DOE authorizations.¹³² Rather, the natural gas secured under the transactions will be liquefied for export as required to meet CMI's commercial commitments.¹³³ CMI states that it will file, or cause to be filed, all long-term

¹²⁸ Appendix A to this Order provides additional information about these authorizations.

¹²⁹ CMI App. at 7.

¹³⁰ *Id.* at 7-8.

¹³¹ *Id.* at 8.

¹³² *Id.*

¹³³ *Id.*

contracts either unredacted or under seal with DOE. CMI also states that it will comply with all DOE requirements for both exporters and agents, as set forth in recent DOE orders.¹³⁴

V. APPLICANT’S PUBLIC INTEREST ANALYSIS

A. Overview

CMI states that NGA section 3(a) creates a presumption that its proposed non-FTA exports are in the public interest, which opponents bear the burden of overcoming. CMI points to its existing non-FTA authorization in stating that DOE already has determined that “substantial economic and public benefits ... are likely to follow” from exports of LNG.¹³⁵ CMI maintains that the same rationale supporting DOE’s grant of authority in those proceedings applies equally here. CMI incorporates by reference its “substantial” record demonstrating the public interest benefits of exports in Docket No. 12-97-LNG.¹³⁶

Additionally, CMI includes an Appendix to the Application, entitled “Further Discussion of the Projected Need for the Natural Gas to be Exported.”¹³⁷ In the Appendix, CMI asserts that both existing and projected trends concerning U.S. natural gas demand and supply indicate that additional exports will have a positive impact on the U.S. economy, as discussed below.¹³⁸

B. Domestic Natural Gas Supply and Demand

CMI maintains that domestic natural gas production has increased rapidly due to technological innovations, such that “potential supplies ... far exceed market need for the foreseeable future.”¹³⁹ CMI states that, in 2018 (the year before the Application was filed), the United States had the highest production levels in U.S. history at that time, approximately 32.7

¹³⁴ *Id.* at 3-4, 8-9.

¹³⁵ CMI App. at 6.

¹³⁶ *Id.*

¹³⁷ *See* CMI App. at Appendix A [hereinafter App., Appendix A].

¹³⁸ *See id.* at 1.

¹³⁹ *Id.* at 2.

trillion cubic feet (Tcf). Citing the U.S. Energy Information Administration’s (EIA) *Annual Energy Outlook 2019* (AEO 2019), CMI states that “[t]otal U.S. dry gas production is projected to be 43.41 Tcf by 2050 in the Reference Case, with a 1.2% annual growth rate between 2018 and 2050.”¹⁴⁰ CMI adds that growth in natural gas production supports increasing both domestic consumption—particularly in the industrial and electric power sectors—and higher levels of natural gas exports.¹⁴¹

Turning to demand for natural gas, CMI argues that production is outpacing domestic consumption. Citing the AEO 2019 Reference Case, CMI states that energy consumption for natural gas is expected to grow at an annual rate of 0.6% through 2050, while total U.S. dry gas production during the same period is projected to increase 1.2% annually.¹⁴² CMI also projects limited demand expansion through 2050 based on a sector-by-sector analysis drawn from AEO 2019.¹⁴³

Pointing to the supply-demand balance, CMI contends that there is little, if any, domestic need for the natural gas proposed for export. For this reason, CMI states that the “surplus of deliverable supply in excess of foreseeable U.S. market demand demonstrates that resources are available for export and would not interfere with the public interest.”¹⁴⁴

C. Impact on Domestic Natural Gas Prices

CMI states that its requested authorization is supported by economic projections of the impact on domestic natural gas markets resulting from LNG exports.¹⁴⁵ Citing DOE’s 2018 LNG Export Study (discussed *supra* § II.A.3), CMI maintains that, because U.S. natural gas

¹⁴⁰ *Id.* at 3 (citing U.S. Energy Info. Admin., *Annual Energy Outlook 2019* (with projections to 2050) (Jan. 24, 2019), available at: <https://www.eia.gov/outlooks/archive/aeo19/> [hereinafter AEO 2019]).

¹⁴¹ *See id.*

¹⁴² *See id.*

¹⁴³ App., Appendix A, at 3-5.

¹⁴⁴ *Id.* at 5.

¹⁴⁵ *See id.*

supply is projected to outpace demand, the impact on domestic prices from LNG exports should be “insignificant.”¹⁴⁶ CMI adds that, with rising LNG exports, U.S. consumer well-being increases and total economic activity expands.¹⁴⁷

VI. CURRENT PROCEEDING BEFORE DOE

In response to the Notice of Application, DOE received one filing from IECA opposing CMI’s requested non-FTA authorization. CMI 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 December 20, 2019, IECA submitted its “Notice of Intervention, Protest and Comments,” which DOE is construing as a motion to intervene and protest.¹⁴⁸ IECA states that it is a nonpartisan association of leading manufacturing companies with \$1.0 trillion in annual sales and more than 1.7 million employees worldwide. 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.¹⁴⁹ IECA challenges CMI’s proposed increase in exports and DOE’s approval of LNG exports generally as contrary to the public interest.

DOE’s evaluation of the public interest under NGA section 3(a). IECA contends that DOE should not rely upon the 1984 Policy Guidelines (discussed *supra* § III) in reviewing LNG export applications.¹⁵⁰ 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

¹⁴⁶ *Id.*

¹⁴⁷ *Id.* (citing DOE’s 2018 Study Response to Comments).

¹⁴⁸ *See* IECA Pleading at 11.

¹⁴⁹ *See id.* at 1.

¹⁵⁰ *See id.* at 8-9.

for domestic consumers and manufacturers. IECA argues that “[t]he reverse is true for LNG exports” because they allegedly increase consumer prices of natural gas and reliability risks.¹⁵¹ 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.¹⁵²

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.¹⁵³ IECA maintains that these statutory purposes are frustrated by LNG exports because the exports will tend to reduce domestic supplies and increase domestic prices.¹⁵⁴

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 24, 2019.¹⁵⁵ 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*.” In IECA’s view, “LNG exports exploit U.S. consumers when low domestic prices rise due to high global LNG demand.”¹⁵⁶

Pipeline capacity. IECA contends that DOE should not approve more LNG export volumes in light of “a serious growing problem of inadequate natural gas pipeline capacity today and going forward, as significant LNG export capacity comes online.”¹⁵⁷ IECA asserts that “LNG export volumes decrease available pipeline capacity for the domestic market because the

¹⁵¹ *Id.* at 9.

¹⁵² *See id.* (citing U.S. Government Accountability Office, “Federal Approval Process for Liquefied Natural Gas Exports” (Sept. 2014)).

¹⁵³ *See id.* (citing *NAACP v. Fed Power Comm’n*, 425 U.S. 662, 669-70 (1976)).

¹⁵⁴ *See* IECA Pleading at 9.

¹⁵⁵ *See id.* at 9-10 (citing Attorney General Barr, Summary of The Special Counsel’s Report (Mar. 24, 2019)).

¹⁵⁶ *Id.*

¹⁵⁷ *Id.* at 2.

exported natural gas is going offshore to supply other countries, not U.S. consumers.”¹⁵⁸ IECA further contends that firm access pipeline arrangements “lock in” pipeline capacity for LNG exporters and reduce available pipeline capacity for domestic consumers, particularly during peak seasonal winter demand.¹⁵⁹ According to IECA, DOE has not undertaken a study to determine whether pipeline and storage capacity will be adequate to support both peak domestic demand and exports of LNG.¹⁶⁰ Citing a study by the Interstate Natural Gas Association of America, IECA also argues that FERC has not approved enough miles of new pipeline to meet this demand.¹⁶¹

U.S. manufacturing sector. IECA claims that DOE has “committed itself to approv[ing] every LNG export application[,]” which “threatens the U.S. manufacturing sector long-term”¹⁶² According to IECA, the global competitiveness of the manufacturing sector is dependent upon low-cost natural gas, feedstock, and natural gas-fired power generation. IECA states that the U.S. manufacturing sector contributes \$2,321.2 billion to the U.S. economy, 11.3 percent of U.S. GDP, and 13 million jobs.¹⁶³ IECA compares the manufacturing sector to the oil and gas industry, which (according to IECA) contributes “only \$236.8 billion to the economy, just 1.2 percent of U.S. GDP and employs only 415[,000] jobs, less than 4 percent of that of manufacturing.”¹⁶⁴ IECA thus asserts that the economic importance of the oil and gas sector “pales in comparison to the economic importance of the manufacturing sector,” and that—in approving LNG exports—DOE is putting trillions of dollars of manufacturing assets at risk.¹⁶⁵

¹⁵⁸ *Id.* at 2-3 (emphasis removed).

¹⁵⁹ *Id.* at 6 (stating that, by the end of 2019, LNG exports will reduce pipeline capacity by nearly 10 Bcf/d).

¹⁶⁰ IECA Pleading at 4.

¹⁶¹ *Id.* at 2-3 (citation omitted).

¹⁶² *Id.* at 2.

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

More broadly, IECA argues that only natural gas producers and exporters benefit from LNG exports. According to IECA, “everyone else in the U.S. economy are losers”—and will face significantly higher natural gas prices, wage decreases, capital investment decreases (especially in manufacturing), and reduced indirect economic income.¹⁶⁶

Domestic price impacts. Addressing natural gas prices, IECA asserts that DOE’s 2018 LNG Export Study, as well as DOE’s prior macroeconomic studies, have shown that “the public does not benefit from LNG exports and[,] in fact, are damaged by them” due to rising natural gas prices.¹⁶⁷ IECA further states that DOE’s approval of LNG export volumes will connect low U.S. natural gas prices to high global LNG prices, which will drive up prices for U.S. consumers.¹⁶⁸ IECA points to increased U.S. crude oil prices, which it states are connected to the global market price. IECA also argues that U.S. natural gas prices will be driven up because importing nations (via state-owned enterprises or government-controlled utilities) will compete with U.S. consumers for U.S.-sourced natural gas without regard to price.¹⁶⁹

B. Answer of CMI

In its Answer to IECA’s pleading filed on January 6, 2020, CMI asks DOE to deny IECA’s intervention request and to reject IECA’s protest and comments.¹⁷⁰

First, CMI argues that, because IECA’s motion to intervene “is comprised of generalized arguments which fail to state any particularized interest in this proceeding,” IECA should not be granted intervenor status.¹⁷¹ CMI states that IECA’s only reference to the Application is in the

¹⁶⁶ IECA Pleading at 7-8.

¹⁶⁷ *Id.* at 7, 10-11.

¹⁶⁸ *Id.* at 4-5.

¹⁶⁹ *See id.*

¹⁷⁰ Corpus Christi Liquefaction, LLC & Cheniere Marketing, LLC, Answer of Corpus Christi Liquefaction, LLC & Cheniere Marketing, LLC in Opposition to Deficient Notice of Intervention, Protest, and Comment, Docket No. 19-124-LNG (Jan. 6, 2020) [hereinafter CMI Answer].

¹⁷¹ *Id.* at 1, 3.

first paragraph of IECA's filing.¹⁷² According to CMI, IECA provides no issues of policy, fact, or law specific to CMI's requested increase in exports, and instead makes "boilerplate, cookie-cutter arguments" that "cannot be properly addressed in this proceeding."¹⁷³

Next, CMI asserts that "IECA makes numerous critiques of DOE/FE's handling of export applications generally," which CMI states are not persuasive or particular to this proceeding.¹⁷⁴ In addressing IECA's arguments concerning inadequate pipeline capacity, CMI states that "no additional natural gas pipeline capacity above what was previously considered in the [FERC] permitting process is required for the export of the requested quantities," and therefore "DOE/FE granting the Application will have no impact on available capacity in the U.S. pipeline network."¹⁷⁵

CMI further emphasizes that "DOE/FE has no role in the construction, approval and oversight of the interstate pipeline network."¹⁷⁶ Rather, any "[e]valuation of pipeline capacity constraints, impacts on competing pipelines or pipeline capacity holders ..., or the general functioning of interstate pipeline transportation capacity markets, is the purview of [FERC], not DOE/FE."¹⁷⁷ According to CMI, FERC recognizes that allocation of pipeline capacity is market driven, and fuel-use neutral. For this reason, CMI maintains that "IECA's members have the same opportunity today to bid on and secure pipeline capacity as that afforded to any other plant operator in U.S. markets."¹⁷⁸

Finally, CMI argues that IECA's other concerns, even if deemed applicable to this

¹⁷² *Id.* at 3-4 (citing IECA Pleading at 1).

¹⁷³ *Id.* at 3 & n.5 (noting that "IECA submitted identical filings in three other [LNG export] proceedings on the same day"), 4.

¹⁷⁴ *Id.* at 4.

¹⁷⁵ *Id.* at 5.

¹⁷⁶ CMI Answer at 6.

¹⁷⁷ *Id.*

¹⁷⁸ *Id.*

proceeding, are not persuasive and have already been considered and rejected by DOE in prior proceedings. CMI states, for example, that “DOE/FE has ... found, repeatedly, that LNG exports will benefit the U.S. economy—a fact IECA failed to disclose” in its filing.¹⁷⁹ CMI also states that, with respect to price impacts, DOE has directly refuted IECA’s claims in other export proceedings.¹⁸⁰

Addressing IECA’s arguments concerning domestic natural gas supply and prices, CMI points to EIA’s AEO 2019 to assert that the forecast for future increases in domestic natural gas supply capacity is “robust,” with growth in natural gas production supporting both increased domestic consumption and higher levels of exports.¹⁸¹ More broadly, CMI contends that it is not DOE’s role under the NGA “to protect one U.S. industry at the expense of another, or to restrict the operation of free markets.”¹⁸²

Additionally, in seeking to rebut IECA’s objection to DOE’s use of the 1984 Policy Guidelines, CMI states that DOE has applied the 1984 Policy Guidelines to export authorizations for over 30 years and “has continually rejected similar arguments from IECA and others.”¹⁸³ For these and other reasons set forth in the Answer, CMI argues that DOE should reject IECA’s arguments that its requested non-FTA exports are not in the public interest.

¹⁷⁹ *Id.* at 5.

¹⁸⁰ *Id.* (citations omitted).

¹⁸¹ CMI Answer at 6-7; *see also* CMI App., Appendix A, at 3.

¹⁸² *Id.* at 5.

¹⁸³ *Id.* at 7 (citations omitted).

VII. FERC PROCEEDING

A. FERC's Environmental Review

On September 27, 2019, CCL filed its application at FERC requesting the Uprate Amendment to increase the total liquefaction capacity of the Liquefaction Project.¹⁸⁴ FERC assigned Docket No. CP19-514-000 to CCL's application. FERC staff issued a Notice of Application to Amend on October 17, 2019.¹⁸⁵ The application was unopposed.¹⁸⁶

On February 28, 2020, in compliance with NEPA, FERC staff issued the environmental assessment (EA) for the Uprate Amendment (Uprate Amendment EA or EA).¹⁸⁷ In the EA, FERC staff adopted by reference the 2014 EIS for the Liquefaction Project.¹⁸⁸ Because the requested Uprate Amendment did not involve construction of new facilities or the modification of previously authorized facilities, the EA's analysis was limited to the "proposed process design modifications."¹⁸⁹

The EA found that the Uprate Amendment would not affect the following resources: ground water, springs, or aquifers; wetlands or waterbodies; surface water, water intakes, or sources water protection areas; cultural resources, forested lands, and vegetation; residential or commercial areas; fish or wildlife, including federally threatened and/or endangered species; geologic resources and soils; noise; and state or national parks, forests, recreation areas, or refuge areas.¹⁹⁰

¹⁸⁴ See *supra* § I; see also *Corpus Christi Liquefaction, LLC*, Application of Corpus Christi Liquefaction, LLC, for Limited Amendment to Authorization Granted under Section 3 of the Natural Gas Act, FERC Docket No. CP19-514-000 (Sept. 27, 2019).

¹⁸⁵ Fed. Energy Reg. Comm'n, *Corpus Christi Liquefaction, LLC*; Notice of Application to Amend, FERC Docket No. CP19-514-000, 84 Fed. Reg. 55,571 (Oct. 17, 2019); see also FERC Order at ¶ 5.

¹⁸⁶ See FERC Order at ¶ 5.

¹⁸⁷ Fed. Energy Reg. Comm'n, *Corpus Christi Liquefaction Amendment Project Environmental Assessment* (Corpus Christi Liquefaction, LLC), Docket No. CP19-514-000 (Feb. 2020), available at: <https://www.ferc.gov/sites/default/files/2020-04/CP19-514-EA.pdf> [hereinafter EA]; see also FERC Order at ¶ 10.

¹⁸⁸ See FERC Order at ¶ 10; see also EA at 2-3.

¹⁸⁹ FERC Order at ¶ 10; see also EA at 2.

¹⁹⁰ See EA at 2-3; FERC Order at ¶ 10.

The EA also addressed air quality and safety. In assessing air quality, FERC staff explained that the requested production capacity increase would not result in a maximum potential to emit criteria pollutants or GHG emissions beyond the level previously analyzed.¹⁹¹ FERC staff noted that the Liquefaction Project’s air permit “already encompasses 8760 hours/year of availability and a conservative amount of maintenance hours.”¹⁹² FERC staff also noted that the Amendment “would [not] ... require additional LNG vessel transits” beyond those already authorized for the Liquefaction Project.¹⁹³

In assessing safety and reliability, FERC staff evaluated the proposed process design modifications and considered the highest production rate scenario provided by CCL.¹⁹⁴ FERC staff used this maximum hourly production rate to determine any safety and reliability impacts on process and mechanical design, among other areas.¹⁹⁵

Based on its environmental analysis, FERC staff determined that there would be no impacts on other past, present, or reasonably foreseeable projects in the project region, and no additional environmental impacts associated with the Uprate Amendment.¹⁹⁶ The EA concluded that, “if [CCL] operates the proposed facilities in accordance with its application and supplements, approval of the Amendment would not constitute a major federal action significantly affecting the quality of the human environment.”¹⁹⁷ FERC received no comments on the EA.¹⁹⁸

¹⁹¹ See FERC Order at ¶ 10 & n.21 (citing EA at 4).

¹⁹² EA at 3; FERC Order at ¶ 10 & n.21.

¹⁹³ EA at 2.

¹⁹⁴ See FERC Order at ¶ 12.

¹⁹⁵ *Id.*

¹⁹⁶ See EA at 2.

¹⁹⁷ *Id.* at 4; see also FERC Order at ¶ 13.

¹⁹⁸ FERC Order at ¶ 13.

B. FERC's Order Granting the Uprate Amendment

On October 21, 2021, FERC issued its Order amending CCL's existing NGA section 3 authorization to increase the approved liquefaction production capacity of the Liquefaction Project from 767 Bcf/yr to 875.16 Bcf/yr.¹⁹⁹

First, FERC reviewed CCL's procedural history for the Liquefaction Project. As relevant here, FERC summarized its existing NGA section 3 order authorizing CCL to construct and operate the Liquefaction Project.²⁰⁰

Turning to the requested Uprate Amendment, FERC observed that it "may not be possible" for a facility to accurately calculate its liquefaction capacity at the time an initial application for construction is filed.²⁰¹ For this reason, FERC stated that "it is appropriate for the ultimate authorization to reflect the maximum or peak capacity at optimal conditions."²⁰² Addressing CCL's application, FERC found that the Liquefaction Project could accommodate the requested uprate in liquefaction capacity without requiring any modification of the Liquefaction Project facilities, while at the same time increasing the efficiency of the Project's liquefaction process.²⁰³

Next, FERC pointed to the findings in the EA that the Uprate Amendment would not affect any of the environmental resources analyzed by FERC staff.²⁰⁴ FERC noted, for example, that the increased liquefaction capacity would not require any ground-disturbing activities, would not cause impacts to landowners or terrestrial environmental resources, and "would not increase

¹⁹⁹ *Id.* at ¶¶ 1, 15, & Ordering Para. A.

²⁰⁰ *Id.* at ¶ 3 (citing *Corpus Christi Liquefaction, LLC*, Order Granting Authorization Under Section 3 of the Natural Gas Act and Issuing Certificates, 149 FERC ¶ 61,283 (Dec. 30, 2014), *reh'g denied*, 151 FERC ¶ 61,098 (May 6, 2015)).

²⁰¹ *Id.* at ¶ 7.

²⁰² *Id.*

²⁰³ *Id.* at ¶ 7 & n.14; *see also id.* at ¶ 4.

²⁰⁴ FERC Order at ¶ 10.

the levels of any criteria pollutants or greenhouse gas emissions above the levels” previously analyzed in the 2014 EIS.²⁰⁵ FERC also relied on evidence that the Uprate Amendment would not increase the annual number of LNG tanker visits previously approved for the Liquefaction Project by the U.S. Coast Guard, and noted that the Liquefaction Project complies with federal safety standards set by the Pipeline and Hazardous Materials Safety Administration (PHMSA).²⁰⁶

Based on the analysis in the EA, FERC concluded that, if CCL operates the Liquefaction Project in accordance with its application and supplements (and, specifically, does not exceed its approved maximum hourly production rate), and complies with the environmental and engineering conditions imposed in FERC’s existing authorization for the Liquefaction Project, FERC’s approval “would not constitute a major federal action significantly affecting the quality of the human environment.”²⁰⁷ Subject to those conditions, FERC found that the Uprate Amendment was not inconsistent with the public interest under NGA section 3.²⁰⁸ FERC also ordered that, in all other respects, CCL’s existing NGA section 3 authorization—including the environmental conditions set forth in that order—“shall remain in full force and effect.”²⁰⁹

VIII. DISCUSSION AND CONCLUSIONS

In reviewing the non-FTA portion of CMI’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:

- CMI’s Application, IECA’s motion to intervene and protest in opposition to the Application, and CMI’s Answer;

²⁰⁵ *Id.* at ¶¶ 10-11 & n.21.

²⁰⁶ *Id.* at ¶¶ 4, 9 (stating that any modification of the Liquefaction Project facilities would require further review by PHMSA).

²⁰⁷ *Id.* at ¶ 14-15.

²⁰⁸ *Id.* at ¶ 15.

²⁰⁹ *Id.* at Ordering Para. B; *see supra* note 200 (FERC’s authorization order for the Liquefaction Project).

- FERC’s Uprate Amendment EA and October 21, 2021 Order, which adopt by reference FERC’s 2014 EIS and existing NGA section 3 authorization for the Liquefaction Project;
- 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;
- The 2018 LNG Export Study, including comments received in response to that Study; and
- The Marine Transport Technical Support Document, prepared by DOE as part of its 2020 NEPA rulemaking.

A. Procedural Matters

CMI opposes the motion to intervene filed by IECA. CMI contends that IECA has articulated only generalized arguments that do not relate to the Application and thus are not sufficient to warrant intervention.²¹⁰

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. CMI 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.²¹¹

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.”²¹² IECA asserts, among other arguments, that

²¹⁰ CMI Answer at 1 and 3.

²¹¹ *See infra* § XI.M.

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

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.²¹³ 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.²¹⁴

DOE previously reviewed and rejected these arguments made by IECA, including in two non-FTA orders issued several months before IECA filed its protest in this proceeding.²¹⁵ 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.²¹⁶ 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.’”²¹⁷

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,

²¹³ See IECA Pleading at 8-9.

²¹⁴ *Id.* (citing report by then-U.S. Attorney General William Barr).

²¹⁵ See *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, at 43-47 (May 2, 2019); *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, at 39-42 (May 2, 2019).

²¹⁶ *Sierra Club v. U.S. Dep’t of Energy*, 867 F.3d 189, 203 (D.C. Cir. 2017) (citation omitted) [hereinafter *Sierra Club I*].

²¹⁷ 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)).

as determined by DOE.²¹⁸ 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.²¹⁹ Furthermore, the D.C. Circuit has recognized DOE’s approach to evaluating the public interest,²²⁰ including its consideration of numerous factors, and upheld DOE’s decision-making under this statutory and regulatory framework.²²¹

For these reasons and 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 CMI’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.²²² 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.²²³ 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.²²⁴ As noted herein, DOE’s cumulative volume of approved non-FTA exports from the lower-48 states as of today—46.65 Bcf/d of natural gas—is

²¹⁸ See *supra* § III.

²¹⁹ 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 (Apr. 2, 1999), at 14; see also *supra* § III.

²²⁰ *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.”).

²²¹ See, e.g., *id.* at 193-94, 202-03.

²²² See *supra* § II.A.3.

²²³ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,272.

²²⁴ See *id.* at 67,273.

within this upper volume. With today’s authorizations for CMI and Sabine Pass, the cumulative total of U.S. LNG export capacity that is currently operating or under construction across all U.S. projects is 16.26 Bcf/d.²²⁵

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 Outlook 2022* (AEO 2022), issued on March 3, 2022.²²⁶ 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)²²⁷ 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

²²⁵ See U.S. Energy Info. Admin., *U.S. Liquefaction Capacity* (Dec. 8, 2021), available at: <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 an additional 0.72 Bcf/d with this Order and Order No. 4800 issued to Sabine Pass).

²²⁶ U.S. Energy Info. Admin., *Annual Energy Outlook 2022* (with projections to 2050) (Mar. 3, 2022), available at: https://www.eia.gov/outlooks/aeo/pdf/AEO2022_Narrative.pdf.

²²⁷ 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.

case, EIA projects that, by 2050, “approximately 25% more natural gas will be produced than consumed in the United States.”²²⁸ Based on these projections, the AEO 2022 Reference case is even more supportive of exports than the AEO 2017 Reference case without the CPP.

Additionally, in light of the recent attention on energy prices brought into focus by the market recovery from the COVID-19 pandemic and the market impacts of the Russian invasion of Ukraine, we take note of EIA’s most recent forecast on short-term market conditions set forth in its *Short-Term Energy Outlook* (STEO), issued on March 8, 2022.²²⁹ The STEO projects that the total domestic production of natural gas in the United States is expected to rise to an average of 96.7 Bcf/d and 99.1 Bcf/d in 2022 and 2023, respectively, surpassing pre-Covid-19 pandemic production levels.²³⁰

For these reasons, we reaffirm that the 2018 LNG Export Study is fundamentally sound. The 2018 Study, as well as AEO 2022 and the March 2022 STEO, support our finding that CMI’s proposed increase in exports will not be inconsistent with the public interest.

3. CMI’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 CMI’s authorization under NGA section 3(a).

First, IECA has not explained how its broader concerns about LNG exports pertain to CMI’s request for an incremental export volume made possible due to enhancements in the Liquefaction Project’s maintenance and production processes. IECA asserts that increased exports of U.S. LNG will take pipeline capacity away from U.S. manufacturers and

²²⁸ See AEO 2022 at 26.

²²⁹ U.S. Energy Info. Admin., *Short-Term Energy Outlook* (Mar. 8, 2022), available at: https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf/ [hereinafter March 2022 STEO].

²³⁰ See *id.* at 2-3 (“Natural Gas”).

consumers.²³¹ The Corpus Christi LNG Terminal, however, is connected to the Corpus Christi Pipeline with interconnections to existing pipeline systems of Texas Eastern Transmission Corporation, Kinder Morgan Tejas Pipeline LLC, Natural Gas Pipeline Company of America, Transcontinental Gas Pipe Line Corporation, and Tennessee Gas Pipeline Company.²³² The Liquefaction Project thus has access to multiple interstate and intrastate pipelines with multiple interconnection points, both upstream and downstream of these pipeline systems.²³³ 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.²³⁴

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.²³⁵ 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.”²³⁶ Accordingly, we find that the existing natural gas pipeline system has more than enough capacity to support the requested export volume—108.16 Bcf/yr, or 0.30 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.²³⁷ We agree with CMI that

²³¹ See IECA Pleading at 2-6.

²³² See CMI App. at 7; see also *Corpus Christi Liquefaction, LLC and Cheniere Corpus Christi Pipeline, LP*, Order Granting Authorization Under Section 3 of the Natural Gas Act and Issuing Certificates, 149 FERC ¶ 61,283, at ¶ 9 (Dec. 30, 2014).

²³³ CMI App. at 7.

²³⁴ See U.S. Energy Info. Admin., *Today in Energy* (Feb. 24, 2022), available at: <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 location of the Corpus Christi LNG Terminal in Texas).

²³⁵ See *id.*

²³⁶ *Id.*

²³⁷ 15 U.S.C. § 717f.

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.²³⁸ To the extent these arguments are relevant to this proceeding, they do not overcome the statutory presumption favoring export authorization.²³⁹

Second, CMI points to DOE's 2018 LNG Export Study, as well as DOE's older LNG export studies and EIA data, 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.²⁴⁰ We agree. Specifically, we find that the 2018 Study, AEO 2022, and March 2022 STEO 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.²⁴¹ 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.

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.²⁴² 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.²⁴³ 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.²⁴⁴ Further, households will receive labor income when they work and income from the capital and resources they own from

²³⁸ See CMI Answer at 6; *see also* IECA's Pleading at 4 & n.4, 6 (acknowledging FERC's role in approving and regulating interstate natural gas pipelines).

²³⁹ See *supra* § III.

²⁴⁰ See CMI Answer at 6-7.

²⁴¹ See, e.g., 2018 Study Response to Comments, 83 Fed. Reg. at 67,262; *supra* at § VIII.B.2.

²⁴² See, e.g., 2018 Study Response to Comments, 83 Fed. Reg. at 67,262.

²⁴³ See *id.* at 67,268-69 (citing 2018 LNG Export Study at 67, 70).

²⁴⁴ See *id.* at 67,266 (citing 2018 LNG Export Study at 64).

natural gas-related activities, providing U.S. consumers with additional income to spend on goods and services.²⁴⁵ 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 substantially increasing the price of natural gas (discussed below) and causing leading manufacturers to lose the competitive advantage of relatively low natural gas prices.²⁴⁶

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,²⁴⁷ 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).²⁴⁸ 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.”²⁴⁹ On this basis, the Court held that DOE had “adequately addressed” concerns regarding distributional impacts.²⁵⁰ 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.

²⁴⁵ See *id.* at 67,259 (citing 2018 LNG Export Study at 73).

²⁴⁶ See IECA Pleading at 2, 4.

²⁴⁷ *Id.* at 7.

²⁴⁸ See *Sierra Club II*, 703 F. App’x. at *3 (discussed *supra* § II.C).

²⁴⁹ *Id.* (internal quotations omitted and alteration in original).

²⁵⁰ *Id.*

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 CMI's proposed exports are consistent with U.S. policy.

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."²⁵¹ 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.²⁵²

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 level of non-FTA exports requested in CMI'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 CMI's proposed exports, will lead to large increases in domestic prices of natural gas.²⁵³ 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 current amount of LNG exports authorized in the

²⁵¹ 2018 Study Response to Comments, 83 Fed. Reg. at 67,259.

²⁵² *Id.*

²⁵³ IECA Pleading at 2, 4-6, 7-8.

existing non-FTA export authorizations to date (equivalent to a total of 46.65 Bcf/d of natural gas with the issuance of this Order and Order No. 4800 being issued concurrently to Sabine Pass). The 2018 Study found 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[.]”²⁵⁴

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.”²⁵⁵ 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.”²⁵⁶ 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.”²⁵⁷

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.”²⁵⁸ For the year 2050, the AEO 2022 Reference case projects an average Henry Hub natural gas price that is

²⁵⁴ 2018 Study Response to Comments, 83 Fed. Reg. at 67,258 (citing 2018 LNG Export Study at 55).

²⁵⁵ IECA Pleading at 11.

²⁵⁶ 2018 Study Response to Comments, 83 Fed. Reg. at 67,268 (emphasis added).

²⁵⁷ *Id.*

²⁵⁸ AEO 2022 at 30.

lower than the AEO 2017 Reference case without the CPP by 43%. Table 1 below shows these comparisons. Additionally, we note that EIA’s March 2022 STEO (discussed *supra* § VIII.B.2) projects Henry Hub prices averaging below \$4/MMBtu for 2022 and 2023, in line with the AEO 2022 projections set forth above.

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 IECA’s arguments concerning domestic price increases are not supported by the record evidence.²⁵⁹

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 benefits to the United States of exports are factors bearing on that review.

Additionally, 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.²⁶⁰ By authorizing additional exports to non-FTA countries, including to U.S. allies in Europe and elsewhere, this Order will enable CMI to help mitigate the acute and immediate energy security concern.²⁶¹ More generally, to the extent U.S. exports diversify global LNG supplies and increase the volumes of LNG available globally, these exports will improve energy security for many U.S. allies and trading partners. Therefore, we find that authorizing CMI’s requested exports advance the public interest for reasons that are

²⁵⁹ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,267-69 (DOE’s response to comments on natural gas price impacts).

²⁶⁰ 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) available at: <https://www.eia.gov/todayinenergy/detail.php?id=51258>.

²⁶¹ 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, available at: <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), available at: <https://www.eia.gov/todayinenergy/detail.php?id=51358>.

distinct from and additional to the economic benefits identified in the 2018 LNG Export Study and DOE's prior macroeconomic studies.

C. Environmental Issues

In reviewing the potential environmental impacts of CMI's proposal to export 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 Environmental Assessment

DOE has reviewed the administrative record compiled at FERC for the Corpus Christi Liquefaction Project. DOE notes that CMI is subject to 104 environmental conditions for the Liquefaction Project.²⁶² DOE has also reviewed the record compiled in this proceeding, as summarized above.

Additionally, in light of CMI'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 2020.²⁶³ 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."²⁶⁴ We also note 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.²⁶⁵

²⁶² See *supra* at § VII.A, B; see also *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FE Order No. 3638 at 216 (Ordering Para. H) (conditioning non-FTA order on CMI's compliance with all terms and conditions established in FERC's EIS, among other requirements).

²⁶³ See *supra* § II.D.

²⁶⁴ 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)).

²⁶⁵ 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).

Based on this comprehensive review, DOE is issuing a Finding of No Significant Impact (FONSI) as Appendix B to this Order. The FONSI adopts and incorporates by reference the Uprate Amendment EA (DOE/EA-2176). It also incorporates by reference the 2014 EIS for the Corpus Christi Liquefaction Project (DOE/EIS-0493), 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. On the basis of that record, the FONSI determines that granting the non-FTA portion of CMI's Application in a volume of 108.16 Bcf/yr will not have a significant effect on the human environment.

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.²⁶⁶ 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 volume of additional exports requested by CMI to non-FTA nations should be prohibited. A denial of additional exports by CMI under NGA section 3(a) based on the environmental impacts

²⁶⁶ Addendum at 2.

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. Additionally, some companies in the natural gas industry—including CMI’s parent company, Cheniere Energy, Inc., and some of Cheniere’s natural gas suppliers—have begun implementing measures to advance the quantification, monitoring, reporting and verification (or QMRV) of GHG emissions.²⁶⁷

For these reasons, we conclude that the environmental concerns associated with natural gas production from the lower-48 states do not establish that CMI’s requested volume of 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.²⁶⁸ The Court’s conclusions and reasoning guide our review in this proceeding.²⁶⁹

²⁶⁷ See, e.g., PR Newswire, “EQT Partners with Cheniere and Others to Advance GHG Emissions Monitoring Technologies and Protocols” (June 10, 2021), available at: <https://www.prnewswire.com/news-releases/eqt-partners-with-cheniere-and-others-to-advance-ghg-emissions-monitoring-technologies-and-protocols-301310129.html>.

²⁶⁸ *Sierra Club I* at 198-199.

²⁶⁹ *Id.*; see *supra* § II.C.

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) 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.²⁷⁰ 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.²⁷¹

The conclusions of the 2019 Update are consistent with those of the 2014 LCA GHG Report.²⁷² 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.²⁷³ Further, 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.²⁷⁴

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.²⁷⁵ 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

²⁷⁰ See *supra* § II.B.

²⁷¹ DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 85.

²⁷² *Id.*

²⁷³ *Id.*

²⁷⁴ *Id.*

²⁷⁵ *Id.* at 81.

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 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.²⁷⁶ 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.²⁷⁷ Based on the evidence in this proceeding, DOE is unable to conclude that an increase in exports of U.S. LNG associated with CMI’s Application will increase global GHG emissions in a material or predictable way.²⁷⁸

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.²⁷⁹ The Court’s decision in *Sierra Club I* guided DOE’s development of the 2019 Update.

²⁷⁶ *Id.*

²⁷⁷ DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 81.

²⁷⁸ *See id.* at 86.

²⁷⁹ *Sierra Club I*, 867 F.3d at 202 (finding that “Sierra Club’s complaint ‘falls under the category of flyspecking’”) (citation omitted).

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 including 52.8 Bcf/yr 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 have nearly doubled from their historic lows in 2020 to 2021,²⁸⁰ prices are projected to average below \$4.00/MMBtu in 2022, in 2023, and throughout the projection period in AEO 2022 Reference Case in real dollars.²⁸¹ At these levels, current nominal U.S. natural gas prices are 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 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.²⁸²

²⁸⁰ 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)" (Mar. 9, 2022) (viewing annual history), available at: <https://www.eia.gov/dnav/ng/hist/rngwhhdA.htm>. 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).

²⁸¹ *See* March 2022 STEO ("Natural Gas"); *see also* AEO 2022 at 17.

²⁸² *See infra* note 285 (identifying long-term orders vacated to date).

More generally, DOE continues to subscribe to the principle set forth in our 1984 Policy Guidelines²⁸³ that, under most circumstances, the market is the most efficient means of 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.²⁸⁴ 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 the proposed increase in exports of LNG to non-FTA countries facilitated by CMI's capacity uprate will be inconsistent with the public interest.

With the issuance of this Order and Order No. 4800 being issued concurrently to Sabine Pass (*see supra* § I), and the vacatur of previous long-term non-FTA authorizations,²⁸⁵ there are currently 41 final non-FTA authorizations from the lower 48-states in a cumulative volume of exports totaling 46.65 Bcf/d of natural gas, or approximately 17.0 trillion cubic feet per year, as

²⁸³ 1984 Policy Guidelines, 49 Fed. Reg. 6684.

²⁸⁴ 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).

²⁸⁵ DOE has vacated six long-term non-FTA authorizations (none over the objection of the authorization holder) in the following proceedings: *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).

follows:²⁸⁶ Sabine Pass Liquefaction, LLC (2.2 Bcf/d),²⁸⁷ Cameron LNG, LLC (1.7 Bcf/d),²⁸⁸ FLEX I (1.4 Bcf/d),²⁸⁹ FLEX II (0.4 Bcf/d),²⁹⁰ Cove Point LNG, LP (0.77 Bcf/d),²⁹¹ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),²⁹² Sabine Pass Liquefaction, LLC Expansion Project (1.38 Bcf/d),²⁹³ American LNG Marketing LLC (0.008 Bcf/d),²⁹⁴ Bear Head LNG Corporation and Bear Head LNG (USA), LLC (0.81 Bcf/d),²⁹⁵ Pieridae Energy

²⁸⁶ 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 to Export Domestically Produced LNG from the Lower-48 States, at 11 (as of Feb. 23, 2022), available at: <https://www.energy.gov/sites/default/files/2022-01/Summary%20of%20LNG%20Export%20Applications.pdf> (identifying small-scale applications and status).

²⁸⁷ *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).

²⁸⁸ *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).

²⁸⁹ *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).

²⁹⁰ *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).

²⁹¹ *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).

²⁹² *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).

²⁹³ *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).

²⁹⁴ *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).

²⁹⁵ *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).

(USA) Ltd.,²⁹⁶ Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),²⁹⁷ Cameron LNG, LLC Design Increase (0.42 Bcf/d),²⁹⁸ Cameron LNG, LLC Expansion Project (1.41 Bcf/d),²⁹⁹ Lake Charles Exports, LLC (2.0 Bcf/d),³⁰⁰ Lake Charles LNG Export Company, LLC,³⁰¹ Carib Energy (USA), LLC (0.004),³⁰² Magnolia LNG, LLC (1.08 Bcf/d),³⁰³ Southern LNG Company, L.L.C. (0.36 Bcf/d),³⁰⁴ the FLEX Design Increase (0.34 Bcf/d),³⁰⁵ Golden Pass LNG Terminal

²⁹⁶ *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 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).

²⁹⁷ *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).

²⁹⁸ *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).

²⁹⁹ *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).

³⁰⁰ *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).

³⁰¹ *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).

³⁰² *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).

³⁰³ *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).

³⁰⁴ *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).

³⁰⁵ *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).

LLC (2.21 Bcf/d),³⁰⁶ Delfin LNG LLC (1.8 Bcf/d),³⁰⁷ the Lake Charles LNG Export Company, LLC Design Increase (0.33 Bcf/d),³⁰⁸ the Lake Charles Exports, LLC Design Increase,³⁰⁹ Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),³¹⁰ Mexico Pacific Limited LLC (1.7 Bcf/d),³¹¹ Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),³¹² ECA Liquefaction, S. de R.L. de C.V. (Mid-Scale Project) (0.44 Bcf/d),³¹³ Energía Costa Azul, S. de R.L. de C.V. (Large-Scale Project) (1.3 Bcf/d),³¹⁴ Port Arthur LNG, LLC (1.91 Bcf/d),³¹⁵ Driftwood LNG LLC (3.88 Bcf/d),³¹⁶ FLEX4

³⁰⁶ *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).

³⁰⁷ *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).

³⁰⁸ *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).

³⁰⁹ *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).

³¹⁰ *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).

³¹¹ *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).

³¹² *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 (March 5, 2019).

³¹³ *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.).

³¹⁴ *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).

³¹⁵ *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).

³¹⁶ *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).

(0.72 Bcf/d),³¹⁷ Gulf LNG Liquefaction Company, LLC (1.53 Bcf/d),³¹⁸ Eagle LNG Partners Jacksonville LLC (0.14 Bcf/d),³¹⁹ Venture Global Plaquemines LNG, LLC (3.40 Bcf/d),³²⁰ Texas LNG Brownsville LLC (0.56 Bcf/d),³²¹ Corpus Christi Liquefaction Stage III, LLC (1.59 Bcf/d),³²² Rio Grande LNG, LLC (3.61 Bcf/d),³²³ Jordan Cove Energy Project L.P. (1.08 Bcf/d),³²⁴ Epsilon LNG LLC (1.083 Bcf/d),³²⁵ Sabine Pass Liquefaction, LLC (0.42 Bcf/d),³²⁶ and this Order.

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 Terminal.³²⁷ Additionally, the volumes authorized for export in the *Bear Head* and *Pieridae US*

³¹⁷ *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).

³¹⁸ *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).

³¹⁹ *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).

³²⁰ *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).

³²¹ *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).

³²² *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).

³²³ *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).

³²⁴ *Jordan Cove Energy Project L.P.*, DOE/FE Order No. 3413-A, Docket No. 12-32-LNG, Final Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (July 6, 2020).

³²⁵ *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).

³²⁶ *Sabine Pass Liquefaction, LLC*, DOE/FECM Order No. 4800, Docket No. 19-125-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Mar. 16, 2022).

³²⁷ *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.

orders are not additive; together, they are limited to the capacity of the Maritimes Northeast Pipeline at the U.S.-Canadian border.³²⁸

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.³²⁹ DOE further notes that, with this Order and Order No. 4800 being issued concurrently to Sabine Pass, the amount of U.S. LNG export capacity that is operating or under construction totals 16.26 Bcf/d of natural gas across eight large-scale export projects in the lower-48 states.³³⁰

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 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

³²⁸ See *Bear Head LNG Corporation and Bear Head LNG (USA)*, DOE/FE Order No. 3770, at 178-79.

³²⁹ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (citing 2018 LNG Export Study at 63 & Appendix F to the Study).

³³⁰ See U.S. Energy Info. Admin., *U.S. Liquefaction Capacity* (Dec. 8, 2021), available at: <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 an additional 0.72 Bcf/d with this Order and Order No. 4800 issued to Sabine Pass).

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 CMI's Application, subject to the Terms and Conditions and Ordering Paragraphs set forth below.

X. TERMS AND CONDITIONS

To ensure that the authorization issued by this Order is not inconsistent with the public interest, DOE has attached the following Terms and Conditions to the authorization. CMI must abide by each Term and Condition or face appropriate sanction.

A. Term of the Authorization

Consistent with DOE's practice and with CMI's final non-FTA authorization issued to date, DOE will grant CMI's authorization for a term to commence on the date of first commercial export and to extend through December 31, 2050.

B. Transfer, Assignment, or Change in Control

DOE's natural gas regulations prohibit authorization holders from transferring or assigning authorizations to import or export natural gas without specific authorization by the Assistant Secretary for Fossil Energy and Carbon Management.³³¹ DOE has found that this requirement applies to any change of control of the authorization holder. This condition was deemed necessary to ensure that DOE will be given an adequate opportunity to assess the public interest impacts of such a transfer or change.

³³¹ 10 C.F.R. § 590.405.

DOE construes a change in control to mean a change, directly or indirectly, of the power to direct the management or policies of an entity whether such power is exercised through one or more intermediary companies or pursuant to an agreement, written or oral, and whether such power is established through ownership or voting of securities, or common directors, officers, or stockholders, or voting trusts, holding trusts, or debt holdings, or contract, or any other direct or indirect means.³³² A rebuttable presumption that control exists will arise from the ownership or the power to vote, directly or indirectly, 10% or more of the voting securities of such entity.³³³

C. Agency Rights

CMI requests authorization to export LNG on its own behalf and as agent for other entities that hold title to the LNG at the time of export, pursuant to long-term contracts. DOE previously has determined that, in LNG export orders in which Agency Rights have been granted, DOE shall require registration materials filed for, or by, a LNG title-holder (Registrant) to include the same company identification information and long-term contract information of the Registrant as if the Registrant had filed an application to export LNG on its own behalf.³³⁴

To ensure that the public interest is served, this authorization shall be conditioned to require that where CMI proposes to export LNG as agent for other entities that hold title to the LNG, respectively (Registrants), it must register those entities with DOE in accordance with the procedures and requirements described herein.

³³² 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, 65,542 (Nov. 5, 2014).

³³³ See *id.*

³³⁴ See, e.g., *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 to Non-Free Trade Agreement Nations, at 128-29 (July 15, 2016); *Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 2913, Docket No. 10-160-LNG, Order Granting Long-Term Authorization to Export Liquefied Natural Gas from the Freeport LNG Terminal to Free Trade Agreement Nations, at 7-8 (Feb. 10, 2011).

D. Contract Provisions for the Sale or Transfer of LNG

DOE will require that CMI file or cause to be filed with DOE any relevant long-term commercial agreements pursuant to which CMI exports LNG as agent for a Registrant. DOE finds that the submission of all such agreements or contracts within 30 days of their execution using the procedures described below will be consistent with the “to the extent practicable” requirement of section 590.202(b).³³⁵

In addition, DOE finds that section 590.202(c) of DOE’s regulations³³⁶ requires that CMI file, or cause to be filed, all long-term contracts associated with the long-term supply of natural gas to the Liquefaction Project, whether signed by CMI or the Registrant, within 30 days of their execution.

DOE recognizes that some information in CMI’s or a Registrant’s long-term commercial agreements associated with the export of LNG, and/or long-term contracts associated with the long-term supply of natural gas to the Liquefaction Project, may be commercially sensitive. DOE therefore will provide CMI the option to file or cause to be filed either unredacted contracts, or in the alternative: (A) CMI may file, or cause to be filed, long-term contracts under seal, but it also will file either: (i) a copy of each long-term contract with commercially sensitive information redacted, or (ii) a summary of all major provisions of the contract(s) including, but not limited to, the parties to each contract, contract term, quantity, any take or pay or equivalent provisions/conditions, destination, re-sale provisions, and other relevant provisions; and (B) the filing must demonstrate why the redacted or non-disclosed information should be exempted from public disclosure.

³³⁵ 10 C.F.R. § 590.202(b).

³³⁶ *Id.* § 590.202(c).

To ensure that DOE destination and reporting requirements included in the Order are conveyed to subsequent title holders, DOE will include as a condition of this authorization that future contracts for the sale or transfer of LNG exported pursuant to the Order shall include an acknowledgement of these requirements.

E. Export Quantity

This Order grants CMI's Application, in the full volume of LNG requested for export to non-FTA countries, equivalent to 108.16 Bcf/yr of natural gas.

F. Combined FTA and Non-FTA Export Authorization Volumes

With this Order, CMI now holds FTA and non-FTA export authorizations for the entire liquefaction capacity of the Liquefaction Project at the Corpus Christi LNG Terminal, as approved by FERC (875.16 Bcf/yr). Accordingly, the volume of LNG authorized in this Order is additive to the existing long-term non-FTA export order for the Liquefaction Project held by CMI (Order No. 3638-B), but it is not additive to the volumes authorized in CMI's long-term FTA orders (Order Nos. 3164-B and 4519-A).

Additionally, the volume authorized in this Order is additive to the existing long-term non-FTA export order held by CCL Stage III for the Stage 3 LNG Project located at the Corpus Christi LNG Terminal (Order No. 4490-A), but it is not additive to the volume authorized in CCL Stage III's long-term FTA order (Order No. 4277-A).

Together, the volumes authorized in CMI's non-FTA orders (totaling 875.16 Bcf/yr) and CCL Stage III's non-FTA order (582.14 Bcf/yr) total 1,457.3 Bcf/yr in exports from the Corpus Christi LNG Terminal to non-FTA countries.³³⁷

³³⁷ See *infra* Appendix A (Tables 1 and 2).

XI. ORDER

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

A. Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (collectively, CMI) are jointly authorized to export domestically produced LNG by vessel from the Corpus Christi Liquefaction Project (Trains 1-3), located at the existing Corpus Christi LNG Terminal in San Patricio and Nueces Counties, Texas. The volume authorized in this Order is equivalent to 108.16 Bcf/yr of natural gas for a term to commence on the date of first commercial export and to extend through December 31, 2050. CMI is authorized to export this 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.³³⁸

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. CMI 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. CMI shall ensure compliance with all terms and conditions established by FERC in the orders for the Corpus Christi Liquefaction Project (FERC Dockets CP12-507-000 and CP19-514-000). This includes the 104 environmental conditions adopted in FERC's December 30,

³³⁸ 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, 86 Fed. Reg. 2243 (Jan. 12, 2021).

2014 order (based on the 2014 EIS)³³⁹ and the conditions set forth in the October 21, 2021 FERC Order (based on the 2020 Uprate Amendment EA). Additionally, this authorization is conditioned on CMI's on-going compliance with any other preventative and mitigative measures at the Liquefaction Project imposed by federal or state agencies.

E. (i) CMI 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 Liquefaction Project 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 above.

(ii) CMI 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 Liquefaction Project. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described above.

F. CMI 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 CMI with all information necessary to permit CMI 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

³³⁹ *Corpus Christi Liquefaction, LLC, et al.*, Order Granting Authorization Under Section 3 of the Natural Gas Act and Issuing Certificates, 149 FERC ¶ 61,283 (Dec. 30, 2014).

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 E 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).

G. CMI, or others for whom CMI 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. 4799, issued March 16, 2022, in Docket No. 19-124-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 Cheniere Marketing, LLC and Corpus Christi Liquefaction, 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 Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC are made aware of all such actual destination countries.

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

I. CMI shall file with the Office of Regulation, Analysis, and Engagement, on a semi-annual basis, written reports describing the status of the long-term contracts associated with the long-term export of LNG and any long-term supply contracts. The reports shall be filed on or by April 1 and October 1 of each year, and shall include information on the operation of the Liquefaction Project.

J. With respect to any change in control of the authorization holder, CMI must comply with DOE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.³⁴⁰

K. Monthly Reports: With respect to the exports authorized by this Order, CMI 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)

L. 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>.

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

Issued in Washington, D.C., on March 16, 2022.

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

³⁴⁰ See 79 Fed. Reg. at 65,541-42.

APPENDIX A: LONG-TERM EXPORT AUTHORIZATIONS
FOR THE CORPUS CHRISTI LNG TERMINAL

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

Docket No.	Order No. (as Amended)	Date Originally Issued	Authorization Holder(s)	LNG Facilities at the Terminal	Volume (Bcf/yr)	Term/Type
12-99-LNG	3164-B	Oct. 16, 2012, as amended	Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (collectively, CMI)	Liquefaction Project	767	Export term through Dec. 31, 2050, multi-contract
18-78-LNG	4277-A	Nov. 9, 2018, as amended	Corpus Christi Liquefaction Stage III, LLC	Stage 3 LNG Project	582.14	Export term through Dec. 31, 2050, multi-contract
19-124-LNG	4519-A	Apr. 14, 2020, as amended	CMI	Liquefaction Project	108.16	Export term through Dec. 31, 2050, multi-contract
Total FTA Volume					1457.3	

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

Docket No.	Order No. (as Amended)	Date Issued	Authorization Holder(s)	LNG Facilities at the Terminal	Volume (Bcf/yr)	Term/Type
12-97-LNG	3638-B	May 12, 2015, as amended	CMI	Liquefaction Project	767	Export term through Dec. 31, 2050, multi-contract
18-78-LNG	4490-A	Feb. 10, 2020, as amended	Corpus Christi Liquefaction Stage III, LLC	Stage 3 LNG Project	582.14	Export term through Dec. 31, 2050, multi-contract
19-124-LNG	4799	Mar. 16, 2022	CMI	Liquefaction Project	108.16	Export term through Dec. 31, 2050, multi-contract
Total Non-FTA Volume					1457.3	

APPENDIX B: FINDING OF NO SIGNIFICANT IMPACT

FINDING OF NO SIGNIFICANT IMPACT FOR THE APPLICATION OF CHENIERE MARKETING, LLC AND CORPUS CHRISTI LIQUEFACTION, LLC TO EXPORT LIQUEFIED NATURAL GAS FROM THE CORPUS CHRISTI LIQUEFACTION PROJECT TO NON-FREE TRADE AGREEMENT NATIONS

AGENCY: U.S. Department of Energy, Office of Fossil Energy and Carbon Management

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: Previously, under section 3 of the Natural Gas Act (NGA),³⁴¹ the Federal Energy Regulatory Commission (FERC) authorized Corpus Christi Liquefaction, LLC (CCL) to site, construct, and operate the Corpus Christi LNG Terminal (Trains 1-3) (Liquefaction Project) in San Patricio and Nueces Counties, Texas.³⁴² Under this FERC order, CCL was authorized to operate the Liquefaction Project with a liquefaction production capacity of 15 million metric tons per annum (mtpa) of liquefied natural gas (LNG), equivalent to 767 billion cubic feet per year (Bcf/yr) of natural gas.

In an application filed with FERC on September 27, 2019, CCL asked FERC to amend its existing NGA section 3 authorization to increase the total liquefaction production capacity of the Liquefaction Project from 767 Bcf/yr to 875.16 Bcf/yr of natural gas—for an additional 108.16 Bcf/yr in capacity “uprate” (Uprate Amendment).³⁴³ Pursuant to the regulations of the Council on Environmental Quality (CEQ), FERC prepared an environmental assessment (Uprate Amendment EA or EA) that analyzed the potential environmental impacts associated with this requested increase in the Project’s liquefaction production capacity.³⁴⁴ Cheniere Marketing, LLC (Cheniere Marketing) and CCL (collectively with Cheniere Marketing, CMI) filed a related application with the U.S. Department of Energy (DOE) requesting authority to export domestically produced LNG to non-free trade agreement countries.

SUPPLEMENTARY INFORMATION: CCL filed the Uprate Amendment application in Docket No. CP19-514-000 under NGA section 3 and the procedures of Part 153 of FERC’s regulations.³⁴⁵ In the FERC proceeding, CCL stated that its requested increase in LNG production capacity (108.16 Bcf/yr) will be achieved through modifications to maintenance and production processes made possible by enhancements during the Liquefaction Project’s final design, construction, and initial operation. This requested increase will not require additional

³⁴¹ 15 U.S.C. § 717b.

³⁴² See *Corpus Christi Liquefaction, LLC and Cheniere Corpus Christi Pipeline, L.P.*, Order Granting Authorization Under Section 3 of the Natural Gas Act and Issuing Certificates, 149 FERC ¶ 61,283 (December 30, 2014).

³⁴³ See *Corpus Christi Liquefaction, LLC*, Application of Corpus Christi Liquefaction, LLC, for Limited Amendment to Authorizations Granted under Section 3 of the Natural Gas Act, FERC Docket No. CP19-514-000 (Sept. 27, 2019) [hereinafter FERC App.].

³⁴⁴ Federal Energy Regulatory Comm’n, *Corpus Christi Liquefaction Amendment Project Environmental Assessment* (Corpus Christ Liquefaction, LLC), Docket No. CP19-514-000 (Feb. 2020), available at: <https://www.ferc.gov/sites/default/files/2020-04/CP19-514-EA.pdf> [hereinafter EA].

³⁴⁵ See FERC App.

construction of facilities beyond those previously approved by FERC for the Liquefaction Project.

On September 27, 2019, CMI filed an Application with DOE's Office of Fossil Energy and Carbon Management (formerly the Office of Fossil Energy)³⁴⁶ in Docket No. 19-124-LNG.³⁴⁷ CMI seeks authorization to export domestically produced LNG from the Liquefaction Project in a volume equivalent to 108.16 Bcf/yr of natural gas (0.3 Bcf per day). In the portion of the Application at issue, CMI requests authorization to export this LNG to any country with which the United States has not entered into a free trade agreement (FTA) requiring national treatment for trade in natural gas, and with which trade is not prohibited by U.S. law or policy (non-FTA countries), pursuant to NGA section 3(a).³⁴⁸

Currently, CMI is authorized by DOE to export domestically produced LNG from the Liquefaction Project to non-FTA countries in a volume equivalent to 767 Bcf/yr of natural gas.³⁴⁹ As relevant here, CMI seeks authorization to export the additional volume of 108.16 Bcf/yr to non-FTA countries to align its non-FTA export volume with CMI's then-requested liquefaction production capacity of 875.16 Bcf/yr.³⁵⁰

FERC prepared an EA for CCL's Uprate Amendment application, *Corpus Christi Liquefaction Amendment Project Environmental Assessment*. The Uprate Amendment EA adopted by reference the final EIS prepared by FERC 2014 for the Corpus Christi Liquefaction Project. FERC placed the Uprate Amendment EA in the public record in February 2020 and finalized it in its Order Amending Authorization Under Section 3 of the Natural Gas Act, issued on October 21, 2021 (FERC Order).³⁵¹

In the FERC Order, FERC granted CCL's Uprate Amendment application, authorizing a maximum LNG production capacity for the Liquefaction Project of 875.16 Bcf/yr of natural gas as conditioned in the FERC Order. FERC required that, in all other respects, CCL's existing NGA section 3 authorization (including the environmental conditions imposed in that order) remain in full force and effect.³⁵²

Previously, on August 15, 2014, DOE published the *Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States* (Addendum).³⁵³ DOE prepared the Addendum to be responsive to the public and to provide the best information

³⁴⁶ The Office of Fossil Energy changed its name to the Office of Fossil Energy and Carbon Management on July 4, 2021.

³⁴⁷ *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, Application of Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC for Long-Term Authorization to Export Liquefied Natural Gas to Free Trade Agreement and Non-Free Trade Agreement Nations, Docket No. 19-124-LNG (Sept. 27, 2019) [hereinafter CMI App.].

³⁴⁸ 15 U.S.C. § 717b(a).

³⁴⁹ See CMI App. at 2 n.3.

³⁵⁰ See *id.* at 2 n.4.

³⁵¹ *Corpus Christi Liquefaction, LLC*, Order Amending Authorization Under Section 3 of the Natural Gas Act, 177 FERC ¶ 61,029, ¶ 1 (Oct. 21, 2021) [hereinafter FERC Order].

³⁵² *Id.* at Ordering Para. B.

³⁵³ 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).

available on a subject that had been raised by commenters in LNG export application dockets. The Addendum addresses unconventional natural gas production in the nation as a whole. It does not attempt to identify or characterize the incremental environmental impacts that would result from LNG exports to non-FTA countries.³⁵⁴

Also in 2014, DOE published a report entitled, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States* (2014 LCA GHG Report or 2014 Report).³⁵⁵ The 2014 LCA GHG Report calculated the life cycle (LCA) greenhouse gas (GHG) emissions for LNG made from natural gas sourced from the lower-48 states and exported to markets in Europe and Asia. DOE commissioned this life cycle analysis to inform its review of non-FTA applications, as part of its broader effort to evaluate different environmental aspects of the LNG production and export chain. The LCA GHG Report 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.

In 2019, DOE published 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).³⁵⁶ The conclusions of the 2019 Update were consistent with those of the 2014 LCA GHG Report—that, “[w]hile acknowledging uncertainty, 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.”³⁵⁷ Further, “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.”³⁵⁸

Additionally, as part of a NEPA rulemaking finalized on December 4, 2020,³⁵⁹ DOE conducted a detailed review of technical documents regarding potential effects associated with marine transport of LNG.³⁶⁰ These documents were identified in an accompanying Marine Transport Technical Support Document (Technical Support Document).³⁶¹ 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

³⁵⁴ See *Sierra Club v. U.S. Dep’t of Energy*, 867 F.3d 189, 198-99 (D.C. Cir. 2017) [*Sierra Club I*] (upholding DOE’s conclusion that, without knowing where local production of the incremental natural gas would occur, the corresponding environmental impacts are not reasonably foreseeable under NEPA).

³⁵⁵ 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).

³⁵⁶ 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), available at: <https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf>.

³⁵⁷ 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, 85 (Jan. 2, 2020).

³⁵⁸ *Id.*

³⁵⁹ See U.S. Dep’t of Energy, *National Environmental Policy Act Implementing Procedures*, Final Rule; 85 Fed. Reg. 78,197 (Dec. 4, 2020).

³⁶⁰ *Id.* at 78,199.

³⁶¹ 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)).

methods and safety standards normally does not pose the potential for significant environmental impacts.”³⁶²

The purpose and need for DOE’s action is to comply with section 3(a) of the NGA, which requires DOE to issue an order granting an application for authority to export natural gas to non-FTA countries unless, after opportunity for hearing, it finds that the proposed export will not be consistent with the public interest. DOE’s decision to grant or deny a requested non-FTA export authorization is based on a public interest review of the proposed exports, which includes completing the environmental review required by NEPA.

ADOPTION: Discussion and analyses related to the potential impacts of a grant of the Uprate Amendment application are contained within the EA prepared by FERC—which is adopted herein (DOE/EA-2176) and incorporated by reference—as well as in the FERC Order. The analysis in the EA was limited to the proposed maintenance and production process modifications, since the Uprate Amendment application did not require construction of new facilities.³⁶³ The EA found that the Uprate Amendment would not affect the following resources: ground water, springs, or aquifers; wetlands or waterbodies; surface water, water intakes, or source water protection areas; cultural resources, forested lands and vegetation; residential or commercial areas; fish or wildlife, including federally threatened and/or endangered species; geologic resources; soils; noise; and state or national parks, forests, recreation areas, or refuge areas. The EA also analyzed air quality, and reliability and safety.³⁶⁴

The EA concluded, and FERC agreed, that, “if [CCL] operates the proposed facilities in accordance with its application and supplements, approval of the Amendment would not constitute a major federal action significantly affecting the quality of the human environment.”³⁶⁵

DETERMINATION: On the basis of the EA for the Uprate Amendment (DOE/EA-2176), the prior EIS for the Liquefaction Project (DOE/EIS-0493), the FERC Order, the Addendum, the 2014 LCA GHG Report and 2019 Update, and the Technical Support Document, DOE has determined that granting the non-FTA portion of CMI’s Application to export LNG from the Liquefaction Project in this Order (DOE/FECM Order No. 4799) will not have a significant effect on the human environment. The preparation of an environmental impact statement, therefore, is not required, and DOE is issuing this Finding of No Significant Impact.

This FONSI will be available on the DOE website at:

<https://www.energy.gov/fecm/articles/cheniere-marketing-llc-and-corpus-christi-liquefaction-llc-fe-dkt-no-19-124-lng>. The EA and FONSI will also be available at:
<https://energy.gov/nepa/doeea-2176-corpus-christi-liquefaction-amendment-project>.

³⁶² *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.

³⁶³ *See* EA at 2, 4; FERC Order at ¶ 10.

³⁶⁴ *See id.*

³⁶⁵ EA at 4; *see also* FERC Order at ¶ 14.