

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

SABINE PASS LIQUEFACTION, LLC

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DOCKET NO. 19-125-LNG

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

DOE/FECM ORDER NO. 4800

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
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, Sabine Pass Liquefaction, LLC (Sabine Pass) 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, Sabine Pass seeks to export an additional quantity of LNG in a volume equivalent to 152.64 billion cubic feet (Bcf) per year (Bcf/yr) of natural gas, for a total approved export volume of 1661.94 Bcf/yr. Sabine Pass seeks to export this LNG by vessel from the Sabine Pass LNG Terminal located in Cameron Parish, Louisiana—specifically, from both the Liquefaction Project (Trains 1-4) and the Liquefaction Expansion Project (Trains 5-6) (collectively, the Project).⁵ Sabine Pass began exporting LNG from the Liquefaction Project in 2016. All six LNG trains are in service, and Sabine Pass is currently the largest operating liquefaction project in the United States.⁶

Also on September 27, 2019, Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P. (collectively, Sabine Pass) filed an application with the Federal Energy Regulatory Commission

¹ *Sabine Pass Liquefaction, LLC*, Application of Sabine Pass Liquefaction, LLC for Long-Term Authorization to Export Liquefied Natural Gas to Free Trade Agreement and Non-Free Trade Agreement Nations, Docket No. 19-125-LNG (Sept. 27, 2019) [hereinafter *Sabine Pass 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 *Sabine Pass App.* at 1-2.

⁶ See U.S. Dep’t of Energy, *LNG Monthly* (Mar. 2022), at 3 (Table 1c), 5 (Table 1f), available at: <https://www.energy.gov/sites/default/files/2022-03/LNG%20Monthly%20January%202022.pdf>; see also *Sabine Pass App.* at 7.

(FERC). Sabine Pass asked FERC to amend its existing NGA section 3 authorizations to increase the total liquefaction production capacity of the Project from 1,509 Bcf/yr to 1,661.94 Bcf/yr of natural gas—for an additional 152.94 Bcf/yr in capacity “uprate” (Uprate 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 Sabine Pass’s Uprate Amendment.¹⁰ FERC observed that this increased LNG production capacity across the Project’s six 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 Project,¹² and “would not increase the levels of any criteria pollutants or greenhouse gas [GHG] emissions above the levels previously analyzed” for the Project’s construction and operation.¹³ On this basis, FERC authorized Sabine Pass to increase the Project’s liquefaction production capacity to 1,661.94 Bcf/yr, and ordered that, in all other

⁷ See *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Order Amending Authorization Under Section 3 of the Natural Gas Act, 177 FERC ¶ 61,030, ¶ 1 (Oct. 21, 2021) [hereinafter FERC Order]; see also *id.* at ¶¶ 3-5 (summarizing FERC’s authorizations issued to Sabine Pass for the construction and operation of the Project); see also *infra* § VII (FERC Proceeding).

⁸ 42 U.S.C. § 4321 *et seq.*

⁹ Federal Energy Regulatory Comm’n, *Sabine Pass Amendment Project Environmental Assessment* (Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.), Docket No. CP19-515-000 (Feb. 2020), available at: <https://www.ferc.gov/sites/default/files/2020-04/CP19-515-EA.pdf> [hereinafter EA].

¹⁰ See FERC Order at ¶¶ 1, 17, and Ordering Para. A.

¹¹ *Id.* at ¶ 6; see also EA at 1 (stating that “[c]onstruction and operation of Trains 1-5 has provided Sabine [Pass] with more accurate knowledge and insight concerning the actual optimized production capacity of the liquefaction trains.”).

¹² FERC Order at ¶¶ 6, 9.

¹³ *Id.* at ¶ 12 n.25.

respects, Sabine Pass’s existing authorizations for the Project “shall remain in full force and effect.”¹⁴

In this proceeding, Sabine Pass requests authorization to export the additional volume of LNG from the 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. 4520-B (as amended),¹⁷ DOE granted the FTA portion of the Application in the requested volume of 152.64 Bcf/yr of natural gas, bringing Sabine Pass’s total FTA export volume to 1,661.94 Bcf/yr under its existing FTA authorizations.¹⁸ The term of this FTA authorization, like all of Sabine Pass’s existing long-term authorizations, extends through December 31, 2050.¹⁹

¹⁴ *Id.* at Ordering Para. B; *see also id.* at ¶¶ 14, 17 (order conditioned on Sabine Pass complying with its stated maximum hourly production rate).

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* Sabine Pass App. at 1-2, 7.

¹⁷ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 4520, Docket No. 19-125-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. 4520-A (Oct. 28, 2020) (extending export term), *further amended by* DOE/FE Order No. 4520-B (Feb. 26, 2021) (granting request for contract consolidation).

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

¹⁹ After Sabine Pass 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 Sabine Pass’s request, DOE amended all of Sabine Pass’s then-existing orders to reflect this term extension. *See Sabine Pass Liquefaction, LLC*, DOE/FE Order Nos. 2833-A, *et al.*, Docket Nos. 10-85-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).

Currently, Sabine Pass holds three DOE orders to export domestically produced LNG to non-FTA countries in a total volume equivalent to 1,509.3 Bcf/yr of natural gas.²⁰ Sabine Pass states that it seeks to export the additional volume of 152.64 Bcf/yr to non-FTA countries to align its non-FTA export volume with the Project's already-approved liquefaction production capacity of 1,661.94 Bcf/yr.²¹ Sabine Pass asks that this authorization commence on the date of first commercial export of the requested volume.²² Sabine Pass 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, Sabine Pass submitted a response to IECA's filing entitled "Answer of Sabine Pass Liquefaction, LLC in Opposition to Deficient Notice of Intervention, Protest, and Comment."²⁷

²⁰ See *infra* at § IV.B (Procedural History) and Appendix A (Table 2, identifying Sabine Pass's non-FTA authorizations); see also Sabine Pass App. at 2 n.3.

²¹ Sabine Pass App. at 2 n.4; see also *id.* at 7-8 (describing its Uprate Amendment application then-pending at FERC).

²² *Id.* at 3-4.

²³ *Id.* at 4.

²⁴ Sabine Pass 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. 65,142 (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. 19-125-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 Sabine Pass Liquefaction, LLC, Answer of Sabine Pass Liquefaction, LLC in Opposition to Deficient Notice of Intervention, Protest, and Comment, Docket No. 19-125-LNG (Jan. 6, 2020) [hereinafter Sabine Pass 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, Sabine Pass'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 Sabine Pass'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 Sabine Pass is already authorized to export LNG from the Project at its maximum liquefaction capacity to FTA countries, this Order will provide Sabine Pass 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—152.64 Bcf/yr of natural gas, or 0.42 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 Sabine Pass's FERC authorizations for the Project.

Additionally, DOE has reviewed FERC's Uprate Amendment EA under NEPA. The EA adopted by reference the two EAs prepared by FERC in 2011 and 2014 for the Sabine Pass Liquefaction and Liquefaction Expansion Projects, respectively.³⁰ As discussed below, DOE has

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

²⁹ *See infra* §§ IX-XI.

³⁰ *See, e.g.*, FERC Order at ¶ 12 & n.25, Ordering Paras. A-B.

determined that it is appropriate to supplement FERC’s environmental review with DOE’s environmental studies, as well as the Marine Transport Technical Support Document (Technical Support Document) prepared by DOE to consider the potential effects associated with transporting natural gas, including LNG, on marine vessels.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-2175) 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. 4799, to Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (collectively, CMI) in a volume equivalent to 108.16 Bcf/yr of natural gas, or 0.3 Bcf/d.³³ The volume approved in this Order and the CMI order—0.42 Bcf/d and 0.3 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-tds-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 *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FECM Order No. 4799, Docket No. 19-124-LNG, Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Mar. 16, 2022).

³⁴ Final non-FTA orders that were later vacated are not included in this total volume. *See infra* § 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 NewERA 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 Sabine Pass’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

Sabine Pass is requesting long-term, multi-contract authorization to export LNG in an additional volume of 152.64 Bcf/yr of natural gas from the Project (Trains 1-6) to non-FTA countries, to align with its capacity uprate approved by FERC.¹²¹ Additional information is set forth below.

A. Description of Applicant

Sabine Pass is a Delaware limited liability company with its principal place of business in Houston, Texas. Sabine Pass is an indirect subsidiary of Cheniere Energy, Inc., a Delaware corporation with its principal place of business in Houston, Texas.¹²²

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 Sabine Pass App. at 3-4; *see also supra* § I.

¹²² Sabine Pass App. at 9; *see also* U.S. Dep't of Energy, Notification Regarding Change in Indirect Equity Ownership, Sabine Pass Liquefaction, LLC, Docket Nos. 10-85-LNG, *et al.* (Feb. 4, 2021) (summarizing Sabine Pass's current corporate ownership).

B. Procedural History

Sabine Pass holds several long-term export authorizations from DOE to export LNG from the Project to FTA and non-FTA countries. These existing long-term authorizations, as amended, are as follows:

- DOE/FE Order No. 2833-B, authorizing the export of 803 Bcf/yr from Trains 1-4 to FTA countries;¹²³
- DOE/FE Order No. 2961-E, authorizing the export of 803 Bcf per year from Trains 1-4 to non-FTA countries;¹²⁴
- DOE/FE Order No. 3306-C, authorizing the export of 101 Bcf/yr from Trains 5 and 6 to FTA countries;¹²⁵
- DOE/FE Order No. 3307-C, authorizing the export of 88.3 Bcf/yr from Trains 5 and 6 to FTA countries;¹²⁶
- DOE/FE Order No. 3384-C, authorizing the export of 314 Bcf/yr from Trains 5 and 6 to FTA countries;¹²⁷

¹²³ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 2833, Docket No. 10-85-LNG, Order Granting Long-Term Authorization to Export Liquefied Natural Gas from Sabine Pass LNG Terminal to Free Trade Nations (Sept. 7, 2010), *amended by* DOE/FE Order No. 2833-A (Oct. 28, 2020) (extending export term), *further amended by* DOE/FE Order No. 2833-B (Feb. 26, 2021) (granting request for contract consolidation).

¹²⁴ *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), Errata (Sept. 4, 2012), *reh'g denied* DOE/FE Order No. 2961-B (Jan. 25, 2013), *amended by* DOE/FE Order No. 2961-C (May 4, 2016) (authorizing make-up period), *further amended by* DOE/FE Order No. 2961-D (Oct. 28, 2020) (extending export term), *further amended by* DOE/FE Order No. 2961-E (Feb. 26, 2021) (granting request for contract consolidation).

¹²⁵ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3306, Docket No. 13-30-LNG, Order Granting Authorization to Export Liquefied Natural Gas by Vessel Pursuant to the Long-Term Contract with Total Gas & Power North America, Inc. from the Sabine Pass LNG Terminal to Free Trade Agreement Nations (July 11, 2013), *amended by* DOE/FE Order No. 3306-A (Oct. 31, 2017) (granting request for clarification), *further amended by* DOE/FE Order No. 3306-B (Oct. 28, 2020) (extending export term), *further amended by* DOE/FE Order No. 3306-C (Feb. 26, 2021) (granting request for contract consolidation).

¹²⁶ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3307, Docket No. 13-42-LNG, Order Granting Authorization to Export Liquefied Natural Gas by Vessel Pursuant to the Long-Term Contract with Centrica plc from the Sabine Pass LNG Terminal to Free Trade Agreement Nations (July 12, 2013), *amended by* DOE/FE Order No. 3307-A (Oct. 31, 2017) (granting request for clarification), *further amended by* DOE/FE Order No. 3307-B (Oct. 28, 2020) (extending export term), *further amended by* DOE/FE Order No. 3307-C (Feb. 26, 2021) (granting request for contract consolidation).

¹²⁷ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3384, Docket No. 13-121-LNG, Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Sabine Pass LNG Terminal to Free Trade Agreement Nations (Jan. 22, 2014), *amended by* DOE/FE Order No. 3384-A (Oct. 31, 2017) (granting request for clarification), *further amended by* DOE/FE Order No. 3384-B (Oct. 28, 2020) (extending export term), *further amended by* DOE/FE Order No. 3384-C (Feb. 26, 2021) (granting request for contract consolidation).

- DOE/FE Order No. 3595-B, authorizing the export of 203 Bcf/yr from Trains 1-4 to FTA countries;¹²⁸
- DOE/FE Order No. 3669-D, authorizing the export of 503.3 Bcf/yr from Trains 5 and 6 to non-FTA countries;¹²⁹
- DOE/FE Order No. 3792-C, authorizing the export of 203 Bcf/yr from Trains 1-4 to non-FTA countries;¹³⁰ and
- DOE/FE Order No. 4520-B, authorizing the export of 152.64 Bcf/yr from Trains 1-6 to FTA countries.¹³¹

With this Order, Sabine Pass is authorized to export LNG from Trains 1-6 to FTA and non-FTA countries in a total volume equivalent to 1,661.94 Bcf/yr of natural gas on a non-additive basis.¹³²

Sabine Pass currently holds two short-term orders: (i) DOE/FE Order No. 4545 (Docket No. 20-28-LNG), authorizing exports by vessel of LNG previously imported from foreign sources to FTA and non-FTA countries for a two-year period; and (ii) DOE/FE Order No. 4600 (Docket No. 20-114-LNG), authorizing imports by vessel of LNG from various international

¹²⁸ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3595, Docket No. 14-92-LNG, Order Granting Long-Term Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Sabine Pass LNG Terminal in Cameron Parish, Louisiana, to Free Trade Agreement Nations (Feb. 12, 2015), Errata (Feb. 24, 2015), *amended by* DOE/FE Order No. 3595-A (Oct. 28, 2020) (extending export term), *further amended by* DOE/FE Order No. 3595-B (Feb. 26, 2021) (granting request for contract consolidation).

¹²⁹ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3669, Docket Nos. 13-30-LNG, 13-42-LNG, and 13-121-LNG (Consolidated), 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), *reh'g denied* DOE/FE Order No. 3669-A (May 26, 2016), *amended by* DOE/FE Order No. 3669-B (Oct. 31, 2017) (granting request for clarification), *further amended by* DOE/FE Order No. 3669-C (Oct. 28, 2020) (extending export term), *further amended by* DOE/FE Order No. 3669-D (Feb. 26, 2021) (granting request for contract consolidation).

¹³⁰ *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), *reh'g denied* DOE/Order No. 3792-A (Oct. 20, 2016), *further amended by* DOE/FE Order No. 3792-B (Oct. 28, 2020) (extending export term), *further amended by* DOE/FE Order No. 3792-C (Feb. 26, 2021) (granting request for contract consolidation).

¹³¹ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 4520, Docket No. 19-125-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. 4520-A (Oct. 28, 2020) (extending export term), *further amended by* DOE/FE Order No. 4520-B (Feb. 26, 2021) (granting request for contract consolidation).

¹³² See Sabine Pass App. at 2; *see also* Appendix A (Tables 1 and 2).

sources for a two-year period.¹³³ The volumes authorized under these short-term orders are not additive to the volumes authorized under the long-term orders.

C. Source of Natural Gas

Sabine Pass states that it purchases natural gas to be used as fuel and feedstock for LNG production at the Project from the interstate and intrastate grid at points of interconnection with other pipelines and points of liquidity both upstream and downstream of the Cheniere Creole Trail Pipeline, L.P. system and other systems that interconnect with the Project. As a result, the Project has access to almost any point on the U.S. interstate pipeline system through direct delivery or by displacement.¹³⁴

D. Business Model

Sabine Pass 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. Sabine Pass 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 Project.¹³⁵ According to Sabine Pass, these transactions are not tied to individual LNG trains, sales and purchase agreements, or DOE authorizations.¹³⁶ Rather, the natural gas secured under the transactions will be liquefied for export as required to meet Sabine Pass's commercial commitments.¹³⁷ Sabine Pass states that it will file, or cause to be filed, all long-term contracts either unredacted or under seal with DOE. Sabine Pass also states that it will

¹³³ Because Order No. 4545 expires on June 6, 2022, Sabine Pass has filed an application for a new short-term order authorizing exports of LNG previously imported from foreign sources to FTA and non-FTA countries, to commence on June 7, 2022. That application is pending in Docket No. 22-19-LNG. *See* Sabine Pass Liquefaction, LLC, Application of Sabine Pass Liquefaction, LLC for Blanket Authorization to Export Previously Imported Liquefied Natural Gas, Docket No. 22-19-LNG (Feb. 28, 2022).

¹³⁴ Sabine Pass App. at 8.

¹³⁵ *Id.* at 9.

¹³⁶ *Id.*

¹³⁷ *Id.*

comply with all DOE requirements for both exporters and agents, as set forth in recent DOE orders.¹³⁸

V. APPLICANT’S PUBLIC INTEREST ANALYSIS

A. Overview

Sabine Pass 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. Sabine Pass points to its existing non-FTA authorizations in stating that DOE already has determined that “substantial economic and public benefits ... are likely to follow” from exports of LNG.¹³⁹ Sabine Pass maintains that the same rationale supporting DOE’s grant of authority in those proceedings applies equally here. Sabine Pass incorporates by reference its “substantial” record demonstrating the public interest benefits of exports in Docket Nos. 10-111-LNG, 13-30-LNG, 13-42-LNG, 13-121-LNG, and 15-63-LNG.¹⁴⁰

Additionally, Sabine Pass includes an Appendix to the Application, entitled “Further Discussion of the Projected Need for the Natural Gas to be Exported.”¹⁴¹ In the Appendix, Sabine Pass 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.¹⁴²

B. Domestic Natural Gas Supply and Demand

Sabine Pass maintains that domestic natural gas production has increased rapidly due to technological innovations, such that “potential supplies ... far exceed market need for the

¹³⁸ *Id.* at 4, 9-10.

¹³⁹ *Id.* at 6.

¹⁴⁰ Sabine Pass App. at 6-7.

¹⁴¹ *See* Sabine Pass App. at Appendix A.

¹⁴² *See* Sabine Pass App., Appendix A, at 1.

foreseeable future.”¹⁴³ Sabine Pass 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 trillion cubic feet (Tcf). Citing the U.S. Energy Information Administration’s (EIA) *Annual Energy Outlook 2019* (AEO 2019), Sabine Pass 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.”¹⁴⁴ Sabine Pass 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.¹⁴⁵

Turning to demand for natural gas, Sabine Pass argues that production is outpacing domestic consumption. Citing the AEO 2019 Reference Case, Sabine Pass 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.¹⁴⁶ Sabine Pass also projects limited demand expansion through 2050 based on a sector-by-sector analysis drawn from AEO 2019.¹⁴⁷

Pointing to the supply-demand balance, Sabine Pass contends that there is little, if any, domestic need for the natural gas proposed for export. For this reason, Sabine Pass 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.”¹⁴⁸

¹⁴³ *Id.* at 2.

¹⁴⁴ *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]).

¹⁴⁵ *See id.*

¹⁴⁶ *See id.*

¹⁴⁷ *See id.* at 4-5.

¹⁴⁸ Sabine Pass App., Appendix A, at 5.

C. Impact on Domestic Natural Gas Prices

Sabine Pass states that its requested authorization is supported by economic projections of the impact on domestic natural gas markets resulting from LNG exports.¹⁴⁹ Citing DOE's 2018 LNG Export Study (discussed *supra* § II.A.3), Sabine Pass maintains that, because U.S. natural gas supply is projected to outpace demand, the impact on domestic prices from LNG exports should be "insignificant."¹⁵⁰ Sabine Pass adds that, with rising LNG exports, U.S. consumer well-being increases and total economic activity expands.¹⁵¹

VI. CURRENT PROCEEDING BEFORE DOE

In response to the Notice of Application, DOE received one filing from IECA opposing Sabine Pass's requested non-FTA authorization. Sabine Pass 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.¹⁵² 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.¹⁵³ IECA challenges Sabine Pass's proposed increase in exports and DOE's approval of LNG exports generally as contrary to the public interest.

¹⁴⁹ *See id.*

¹⁵⁰ *Id.* at 6.

¹⁵¹ *Id.* (citing DOE's 2018 Study Response to Comments).

¹⁵² *See* IECA Pleading at 11.

¹⁵³ *See id.* at 1.

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.¹⁵⁴ IECA argues that the 1984 Policy Guidelines were drafted to address natural gas imports, which—at that time—were in the public interest because they reduced risks for domestic consumers and manufacturers. IECA argues that “[t]he reverse is true for LNG exports” because they allegedly increase consumer prices of natural gas and reliability risks.¹⁵⁵ 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.¹⁵⁶

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.¹⁵⁷ IECA maintains that these statutory purposes are frustrated by LNG exports because the exports will tend to reduce domestic supplies and increase domestic prices.¹⁵⁸

In addressing the phrase “public interest,” IECA cites then-U.S. Attorney General William Barr’s summary of the “The Special Counsel’s Report,” submitted to Congress on March 24, 2019.¹⁵⁹ 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*.”¹⁶⁰ In IECA’s view, “LNG exports exploit U.S. consumers when low domestic prices rise due to high global LNG demand.”¹⁶¹

¹⁵⁴ See *id.* at 8.

¹⁵⁵ *Id.* at 9.

¹⁵⁶ See *id.* at 8-9 (citing U.S. Government Accountability Office, “Federal Approval Process for Liquefied Natural Gas Exports” (Sept. 2014)).

¹⁵⁷ See *id.* at 9 (citing *NAACP v. Fed Power Comm’n*, 425 U.S. 662, 669-70 (1976)).

¹⁵⁸ See IECA Pleading at 9.

¹⁵⁹ IECA Pleading at 9 (citing Attorney General Barr, The Special Counsel’s Report (Mar. 24, 2019)).

¹⁶⁰ *Id.* (emphasis in original).

¹⁶¹ *Id.*

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.”¹⁶² IECA asserts that “LNG export volumes decrease available pipeline capacity for the domestic market because the exported natural gas is going offshore to supply other countries, not U.S. consumers.”¹⁶³ 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.¹⁶⁴ 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.¹⁶⁵ 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.¹⁶⁶

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”¹⁶⁷ 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.¹⁶⁸ 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

¹⁶² *Id.* at 2.

¹⁶³ *Id.* (emphasis removed).

¹⁶⁴ *Id.* at 6 (stating that, by the end of 2019, LNG exports will reduce pipeline capacity by nearly 10 Bcf/d).

¹⁶⁵ See IECA Pleading at 4, 5-6.

¹⁶⁶ *Id.* at 2-3 (citation omitted).

¹⁶⁷ *Id.* at 2.

¹⁶⁸ *Id.*

manufacturing.”¹⁶⁹ 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.¹⁷⁰

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.¹⁷¹

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.¹⁷² 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.¹⁷³ 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.¹⁷⁴

B. Answer of Sabine Pass

In its Answer to IECA’s pleading filed on January 6, 2020, Sabine Pass asks DOE to deny IECA’s intervention request and to reject IECA’s protest and comments.¹⁷⁵

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

¹⁷¹ IECA Pleading at 7-8.

¹⁷² *Id.* at 7, 10-11.

¹⁷³ *Id.* at 4-5.

¹⁷⁴ *See id.*

¹⁷⁵ Sabine Pass Liquefaction, LLC, Answer of Sabine Pass Liquefaction, LLC in Opposition to Deficient Notice of Intervention, Protest, and Comment, Docket No. 19-125-LNG (Jan. 6, 2020) [hereinafter Sabine Pass Answer].

First, Sabine Pass 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.¹⁷⁶ Sabine Pass states that IECA’s only reference to the Application is in the first paragraph of IECA’s filing.¹⁷⁷ According to Sabine Pass, IECA provides no issues of policy, fact, or law specific to Sabine Pass’s requested exports, and instead makes “boilerplate, cookie-cutter arguments” that “cannot be properly addressed in this proceeding.”¹⁷⁸

Next, Sabine Pass asserts that “IECA makes numerous critiques of DOE/FE’s handling of export applications generally,” which Sabine Pass states are not persuasive or particular to this proceeding.¹⁷⁹ In addressing IECA’s arguments concerning inadequate pipeline capacity, Sabine Pass 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.”¹⁸⁰

Sabine Pass further emphasizes that “DOE/FE has no role in the construction, approval and oversight of the interstate pipeline network.”¹⁸¹ 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 the Federal Energy Regulatory Commission (FERC), not DOE/FE.”¹⁸² According to Sabine Pass,

¹⁷⁶ *Id.* at 1, 3.

¹⁷⁷ *Id.* at 4 (citing IECA Pleading at 1).

¹⁷⁸ *Id.* at 3 & n.5 (noting that “IECA submitted identical filings in three other [LNG export] proceedings on the same day”), 4.

¹⁷⁹ *Id.* at 5.

¹⁸⁰ *Id.* at 5-6.

¹⁸¹ Sabine Pass Answer at 7.

¹⁸² *Id.*

FERC recognizes that allocation of pipeline capacity is market driven, and fuel-use neutral. For this reason, Sabine Pass 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.”¹⁸³

Finally, Sabine Pass argues that IECA’s other concerns, even if deemed applicable to this proceeding, are not persuasive and have already been considered and rejected by DOE in prior proceedings. Sabine Pass 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.¹⁸⁴ Sabine Pass also states that, with respect to price impacts, DOE has directly refuted IECA’s claims in other export proceedings.¹⁸⁵

Addressing IECA’s arguments concerning domestic natural gas supply and prices, Sabine Pass 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.¹⁸⁶ More broadly, Sabine Pass 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.”¹⁸⁷

Additionally, in seeking to rebut IECA’s objection to DOE’s use of the 1984 Policy Guidelines, Sabine Pass 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.”¹⁸⁸ For these and other reasons set forth in the Answer, Sabine Pass argues that DOE should reject IECA’s arguments that its requested non-FTA exports are not in the public interest.

¹⁸³ *Id.* at 7.

¹⁸⁴ *Id.* at 6.

¹⁸⁵ *Id.* (citations omitted).

¹⁸⁶ *Id.* at 7-8; *see also* Sabine Pass App., Appendix A, at 3.

¹⁸⁷ Sabine Pass Answer at 6.

¹⁸⁸ *Id.* at 8 (citations omitted).

VII. FERC PROCEEDING

A. FERC's Environmental Review

On September 27, 2019, Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P. (collectively, Sabine Pass) filed the application at FERC requesting the Uprate Amendment to increase the Project's total liquefaction capacity.¹⁸⁹ FERC assigned Docket No. CP19-515-000 to Sabine Pass's application. FERC staff issued a Notice of Application on October 9, 2019.¹⁹⁰ The application was unopposed.¹⁹¹

On February 28, 2020, in compliance with NEPA, FERC staff issued the environmental assessment (EA) for the Uprate Amendment (Uprate Amendment EA or EA).¹⁹² In the EA, FERC staff adopted by reference the 2011 and 2014 EAs for the Project.¹⁹³ Because the requested Uprate Amendment did not involve construction of new facilities, the analysis in the EA was limited to the "proposed maintenance and production process modifications."¹⁹⁴

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 endangered species; geologic resources and soils; noise; and state or national parks, forests, recreation areas, or refuge areas.¹⁹⁵

¹⁸⁹ See *supra* § I; see also *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Application for Limited Amendment to Authorizations Granted under Section 3 of the Natural Gas Act, FERC Docket No. CP19-515-000 (Sept. 27, 2019).

¹⁹⁰ *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Notice of Application, FERC Docket No. CP19-515-000, 84 Fed. Reg. 55,307 (Oct. 16, 2019); see also FERC Order at ¶ 7.

¹⁹¹ See FERC Order at ¶ 7.

¹⁹² Federal Energy Regulatory Comm'n, *Sabine Pass Amendment Project Environmental Assessment* (Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.), Docket No. CP19-515-000 (Feb. 2020), available at: <https://www.ferc.gov/sites/default/files/2020-04/CP19-515-EA.pdf> [hereinafter EA]; see also FERC Order at ¶ 12.

¹⁹³ See FERC Order at ¶ 12; see also EA at 3.

¹⁹⁴ FERC Order at ¶ 12; EA at 2-3.

¹⁹⁵ FERC Order at ¶ 12; EA at 3.

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.¹⁹⁶ FERC staff noted that the Project’s air permit “already encompasses 8760 hours/year of availability and a conservative amount of maintenance hours.”¹⁹⁷ FERC staff also noted that “the Amendment would not result in additional [LNG] vessel transits” beyond those previously authorized for the Project.¹⁹⁸

In assessing safety and reliability, FERC staff evaluated the proposed process design modifications and considered the highest production rate scenario provided by Sabine Pass.¹⁹⁹ FERC staff used this maximum hourly production rate to determine any safety and reliability impacts on process and mechanical design, among other areas.²⁰⁰

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.²⁰¹ The EA concluded that, “if Sabine [Pass] 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.”²⁰² FERC received no comments on the EA.²⁰³

¹⁹⁶ See FERC Order at ¶ 12 & n.25 (citing EA at 3).

¹⁹⁷ EA at 3.

¹⁹⁸ *Id.* at 4.

¹⁹⁹ See FERC Order at ¶ 14.

²⁰⁰ *Id.*

²⁰¹ See EA at 2.

²⁰² *Id.* at 5; see also FERC Order at ¶ 15.

²⁰³ FERC Order at ¶ 15.

B. FERC's Order Granting the Uprate Amendment

On October 21, 2021, FERC issued its Order amending Sabine Pass's existing NGA section 3 authorizations to increase the approved liquefaction production capacity of the Project from 1,509 Bcf/yr to 1,661.94 Bcf/yr.²⁰⁴

First, FERC reviewed Sabine Pass's procedural history for the Project. As relevant here, FERC summarized its existing NGA section 3 orders authorizing Sabine Pass to construct and operate the Liquefaction Project (Trains 1-4)²⁰⁵ and the Liquefaction Expansion Project (Trains 5-6),²⁰⁶ respectively.

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.²⁰⁷ For this reason, FERC stated that "it is appropriate for the ultimate authorization to reflect the maximum or peak capacity at optimal conditions."²⁰⁸

Addressing Sabine Pass's application, FERC found that the Project could accommodate the requested uprate in liquefaction capacity without requiring any modification of the Project facilities, while at the same time increasing the efficiency of the Project's liquefaction process.²⁰⁹

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.²¹⁰ FERC noted, for example, that the increased liquefaction capacity would not require any ground-disturbing activities, would

²⁰⁴ *Id.* at ¶¶ 1, 17.

²⁰⁵ *Id.* at ¶ 4 (citing *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Order Granting Section 3 Authorization, 139 FERC ¶ 61,039 (Apr. 16, 2012), *reh'g denied*, 140 FERC ¶ 61,076 (July 26, 2012)). At Sabine Pass's request, FERC amended this order twice. *Id.*

²⁰⁶ *Id.* at ¶ 5 (citing *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Order Granting Authorization Under Section 3 of the Natural Gas Act and Issuing Certificate, 151 FERC ¶ 61,012 (Apr. 6, 2015); *reh'g denied*, 151 FERC ¶ 61,253 (June 23, 2015)).

²⁰⁷ *Id.* at ¶ 9.

²⁰⁸ *Id.*

²⁰⁹ FERC Order at ¶ 9 & n.19; *see also id.* at ¶ 6.

²¹⁰ *Id.* at ¶ 12 (citing EA at 3-5).

not cause impacts to landowners or terrestrial environmental resources, and “would not increase the levels of any criteria pollutants or greenhouse gas emissions above the levels” previously analyzed in the 2011 and 2014 EAs.²¹¹ FERC also relied on evidence that the Uprate Amendment would not increase the annual number of LNG tanker visits previously approved for the Project by the U.S. Coast Guard, and noted that the Project complies with federal safety standards set by the Pipeline and Hazardous Materials Safety Administration (PHMSA).²¹²

Based on the analysis in the EA, FERC concluded that, if Sabine Pass operates the 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 authorizations for the Project, FERC’s approval “would not constitute a major federal action significantly affecting the quality of the human environment.”²¹³ Subject to those conditions, FERC found that the Uprate Amendment was not inconsistent with the public interest under NGA section 3.²¹⁴ FERC also ordered that, in all other respects, Sabine Pass’s existing NGA section 3 authorizations—including the environmental conditions set forth in those orders—“shall remain in full force and effect.”²¹⁵

VIII. DISCUSSION AND CONCLUSIONS

In reviewing the non-FTA portion of Sabine Pass’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:

²¹¹ *Id.* at ¶¶ 12-13 & n.25.

²¹² *Id.* at ¶¶ 6, 11 (stating that any modification of the Project facilities would require further review by PHMSA).

²¹³ *Id.* at ¶ 16.

²¹⁴ *Id.* at ¶ 17.

²¹⁵ FERC Order at Ordering Para. B; *see supra* notes 205-06 (FERC’s authorization orders for the Project).

- Sabine Pass’s Application, IECA’s motion to intervene and protest in opposition to the Application, and Sabine Pass’s Answer;
- FERC’s Uprate Amendment EA and October 21, 2021 Order, which adopt by reference FERC’s 2011 and 2014 EAs and existing NGA section 3 authorizations for the 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

Sabine Pass opposes the motion to intervene filed by IECA. Sabine Pass contends that IECA has articulated only generalized arguments that do not relate to the Application and, thus, are not sufficient to warrant intervention.²¹⁶

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. Sabine Pass 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.²¹⁷

²¹⁶ See Sabine Pass Answer at 1, 4.

²¹⁷ See *infra* § XI.M.

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.”²¹⁸ IECA asserts, among other arguments, that DOE may not rely on the 1984 Policy Guidelines in evaluating the public interest in this proceeding, as those Guidelines were promulgated for natural gas imports rather than exports.²¹⁹ 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.²²⁰

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.²²¹ 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.²²² 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.”²²³

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

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

²¹⁹ See IECA Pleading at 8-9.

²²⁰ *Id.* (citing report by then-U.S. Attorney General William Barr).

²²¹ 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).

²²² *Sierra Club v. U.S. Dep’t of Energy*, 867 F.3d 189, 203 (D.C. Cir. 2017) (citation omitted) [hereinafter *Sierra Club I*].

²²³ 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)).

review of an application to export U.S. LNG has generally focused on: (i) the domestic need for the natural gas proposed to be exported, (ii) whether the proposed exports pose a threat to the security of domestic natural gas supplies, (iii) whether the arrangement is consistent with DOE’s policy of promoting market competition, and (iv) any other factors bearing on the public interest, as determined by DOE.²²⁴ 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.²²⁵ Furthermore, the D.C. Circuit has recognized DOE’s approach to evaluating the public interest,²²⁶ including its consideration of numerous factors, and upheld DOE’s decision-making under this statutory and regulatory framework.²²⁷

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 Sabine Pass’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.²²⁸ 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

²²⁴ See *supra* § III.

²²⁵ See *Phillips Alaska Natural Gas Corp., et al.*, DOE/FE Order No. 1473, Docket No. 96-99-LNG, Order Extending Authorization to Export Liquefied Natural Gas from Alaska, at 14 (Apr. 2, 1999); see also *supra* § III.

²²⁶ *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.”).

²²⁷ See, *e.g.*, *id.* at 193-94, 202-03.

²²⁸ See *supra* § II.A.3.

domestically produced LNG.²²⁹ 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.²³⁰ 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 within this upper volume. With today’s authorizations for Sabine Pass and CMI, 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.²³¹

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, 2022.²³² 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)²³³ 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

²²⁹ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,272.

²³⁰ *Id.* at 67,273.

²³¹ 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. 4799 issued to CMI).

²³² 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.

²³³ 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 without the CPP, the AEO 2022 Reference case projects increases in domestic natural gas production—well in excess of what is required to meet projected increases in domestic consumption. For example, for the year 2050, the AEO 2022 Reference case anticipates 7.1% more natural gas production, and less than 1% growth in natural gas consumption in the lower-48 states, than the AEO 2017 Reference case without the CPP. Under the AEO 2022 Reference case, EIA projects that, by 2050, “approximately 25% more natural gas will be produced than consumed in the United States.”²³⁴ 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, considering 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, 2022.²³⁵ 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.²³⁶

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 Sabine Pass’s proposed increase in exports will not be inconsistent with the public interest.

²³⁴ See AEO 2022 at 26.

²³⁵ 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].

²³⁶ See *id.* at 2-3 (“Natural Gas”).

3. Sabine Pass'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 Sabine Pass's authorization under NGA section 3(a).

First, IECA has not explained how its broader concerns about LNG exports pertain to Sabine Pass's request for an incremental export volume made possible due to enhancements in the 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 consumers.²³⁷ The Sabine Pass LNG Terminal, however, is connected to the affiliated Cheniere Creole Trail Pipeline and the Kinder Morgan Louisiana Pipeline.²³⁸ The Project thus has access to multiple interstate and intrastate pipelines with multiple interconnection points, both upstream and downstream of these pipeline systems.²³⁹ 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.²⁴⁰

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.²⁴¹ EIA observed that "[m]ost of [this] additional capacity is intended to serve growing LNG export

²³⁷ See IECA Pleading at 2-6.

²³⁸ See Sabine Pass App. at 8; see also *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Order Granting Authorization Under Section 3 of the Natural Gas Act and Issuing Certificate, 151 FERC ¶ 61,012, at ¶ 3 (Apr. 6, 2015).

²³⁹ Sabine Pass App. at 8.

²⁴⁰ See U.S. Energy Info. Admin., *Today in Energy* (Feb. 24, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=51398> (showing a map of the "U.S. South Central natural gas infrastructure and new pipelines (2021)," which includes the location of the Sabine Pass LNG Terminal in Louisiana).

²⁴¹ See *id.*

demand, primarily by better connecting other interstate pipelines with LNG export terminals.”²⁴² Accordingly, we find that the existing natural gas pipeline system has more than enough capacity to support the requested export volume—152.64 Bcf/yr, or 0.42 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.²⁴³ We agree with Sabine Pass that IECA’s generalized arguments concerning the permitting and regulation of interstate pipelines are beyond the scope of this proceeding and are properly raised with FERC, not DOE.²⁴⁴ To the extent these arguments are relevant to this proceeding, they do not overcome the statutory presumption favoring export authorization.²⁴⁵

Second, Sabine Pass 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. 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.²⁴⁶ 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.²⁴⁷ Indeed, the 2018 Study consistently shows macroeconomic benefits to the U.S. economy across the range of scenarios,

²⁴² *Id.*

²⁴³ 15 U.S.C. § 717f.

²⁴⁴ *See Sabine Pass Answer at 7; see also IECA’s Pleading at 4 & n.4, 6 (acknowledging FERC’s role in approving and regulating interstate natural gas pipelines).*

²⁴⁵ *See supra* § III.

²⁴⁶ *See, e.g.,* 2018 Study Response to Comments, 83 Fed. Reg. at 67,262; *supra* at § VIII.B.2.

²⁴⁷ *See, e.g.,* 2018 Study Response to Comments, 83 Fed. Reg. at 67,262.

as well as positive annual growth across the energy intensive sectors of the economy.²⁴⁸ 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.²⁴⁹ Further, households will receive labor income when they work and income from the capital and resources they own from natural gas-related activities, providing U.S. consumers with additional income to spend on goods and services.²⁵⁰ 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.²⁵¹

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,²⁵² 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).²⁵³ 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.”²⁵⁴ On this basis, the Court held that DOE had “adequately addressed” concerns regarding distributional impacts.²⁵⁵

²⁴⁸ See *id.* at 67,268-69 (citing 2018 LNG Export Study at 67, 70).

²⁴⁹ See *id.* at 67,266 (citing 2018 LNG Export Study at 64).

²⁵⁰ See *id.* at 67,259 (citing 2018 LNG Export Study at 65).

²⁵¹ See IECA Pleading at 2, 4.

²⁵² *Id.* at 7.

²⁵³ See *Sierra Club II*, 703 F. App’x. at *3 (discussed *supra* § II.C).

²⁵⁴ *Id.* (internal quotations omitted and alteration in original).

²⁵⁵ *Id.*

Likewise, in this proceeding, IECA has not provided an analysis of the distributional consequences of authorizing LNG exports at the household level. Given the evidence of broad net macroeconomic benefits and absent stronger record evidence on the alleged distributional consequences, we cannot say that increased LNG exports are inconsistent with the public interest on these grounds.

Fourth, over the term of the authorization, the proposed exports will improve the United States' ties with its allies and trade partners and make a positive contribution to the United States' trade balance. Other benefits of this international trade are discussed below. For these reasons, we find that Sabine Pass'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."²⁵⁶ 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.²⁵⁷

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 Sabine Pass's Application over the authorization term without negative economic impacts, including domestic price impacts (discussed below).

²⁵⁶ 2018 Study Response to Comments, 83 Fed. Reg. at 67,259.

²⁵⁷ *Id.*

4. Price Impacts

IECA alleges that higher volumes of LNG exports, including Sabine Pass’s proposed exports, will lead to large increases in domestic prices of natural gas.²⁵⁸ 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 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. 4799 being issued concurrently to CMI). 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[.]”²⁵⁹

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.”²⁶⁰ 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.”²⁶¹ 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.”²⁶²

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

²⁵⁸ IECA Pleading at 2, 4-6, 7-8.

²⁵⁹ 2018 Study Response to Comments, 83 Fed. Reg. at 67,258 (citing 2018 LNG Export Study at 55).

²⁶⁰ IECA Pleading at 11.

²⁶¹ 2018 Study Response to Comments, 83 Fed. Reg. at 67,268 (emphasis added).

²⁶² *Id.*

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.”²⁶³ For the year 2050, the AEO 2022 Reference case projects an average Henry Hub natural gas price that is lower than the AEO 2017 Reference case without the CPP by 43%. Table 1 below shows these comparisons. 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

²⁶³ AEO 2022 at 30.

Henry Hub Spot Price (\$/MMBtu) (Note 1)	\$6.27 (2021\$)	\$3.59 (2021\$)
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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.²⁶⁴

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.²⁶⁵ By authorizing additional exports to non-FTA countries, including to U.S. allies in Europe and elsewhere, this Order will enable Sabine Pass to help mitigate the acute and immediate energy security concern.²⁶⁶ More generally, to the

²⁶⁴ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,267-69 (DOE’s response to comments on natural gas price impacts).

²⁶⁵ 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, 2002) available at: <https://www.eia.gov/todayinenergy/detail.php?id=51258>.

²⁶⁶ 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, 2002), available at: <https://www.eia.gov/todayinenergy/detail.php?id=51358>.

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 Sabine Pass’s requested exports advance the public interest for reasons that are distinct from and additional to the economic benefits identified in the 2018 LNG Export Study and DOE’s prior macroeconomic studies.

C. Environmental Issues

In reviewing the potential environmental impacts of Sabine Pass’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 records compiled at FERC for Trains 1-4 of the Liquefaction Project and Trains 5-6 of the Liquefaction Expansion Project. DOE notes that Sabine Pass is subject to 55 environmental conditions for the Liquefaction Project and 65 environmental conditions for the Liquefaction Expansion Project.²⁶⁷ DOE has also reviewed the record compiled in this proceeding, as summarized above.

Additionally, in light of Sabine Pass’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 2020.²⁶⁸ On the basis of the Technical Support Document, DOE concluded that “the transport of natural gas by marine vessels ... normally does

²⁶⁷ See *supra* at § VII.A, B; see also *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 2961-A at 29 (Ordering Para. B) (conditioning non-FTA order on Sabine Pass’s compliance with all terms and conditions established in FERC’s 2011 EA, among other requirements); *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3669 at 223 (Ordering Para. H) (conditioning non-FTA order on Sabine Pass’s compliance with all terms and conditions established in FERC’s 2014 EA, among other requirements).

²⁶⁸ See *supra* § II.D.

not pose the potential for significant environmental impacts.”²⁶⁹ 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.²⁷⁰

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-2175). It also incorporates by reference the 2011 EA (DOE/EA-1845), the 2014 EA (DOE/EA-2036), 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 Sabine Pass’s Application in a volume of 152.64 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.²⁷¹ 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.

²⁶⁹ 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)).

²⁷⁰ 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).

²⁷¹ Addendum at 2.

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

DOE believes the public interest is also served by addressing these environmental concerns through federal, state, or local regulation. We note that environmental regulators have imposed requirements on natural gas production and transportation to balance benefits and burdens, and have continued to update these regulations as technological practices and scientific understanding evolve. Additionally, some companies in the natural gas industry—including Sabine Pass’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.²⁷²

For these reasons, we conclude that the environmental concerns associated with natural gas production from the lower-48 states do not establish that Sabine Pass’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

²⁷² 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>.

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.²⁷³ The Court’s conclusions and reasoning guide our review in this proceeding.²⁷⁴

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.²⁷⁵ 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.²⁷⁶

The conclusions of the 2019 Update are consistent with those of the 2014 LCA GHG Report.²⁷⁷ 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.²⁷⁸ 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.²⁷⁹

²⁷³ *Sierra Club I*, 867 F.3d at 198-199.

²⁷⁴ *Id.*; *see supra* § II.C.

²⁷⁵ *See supra* § II.B.

²⁷⁶ DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 85.

²⁷⁷ *Id.*

²⁷⁸ *Id.*

²⁷⁹ *Id.*

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.²⁸⁰ Recognizing there is a global market for LNG, exports of U.S. LNG will affect the global price of LNG which, in turn, will affect energy systems in numerous countries. DOE further acknowledges that regional coal and imported natural gas are not the only fuels with which U.S.-exported LNG will compete. U.S. LNG exports may also compete 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.²⁸¹ 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.²⁸² Based on the evidence in this proceeding, DOE is unable to conclude that an increase in exports of U.S. LNG associated with Sabine Pass’s Application will increase global GHG emissions in a material or predictable way.²⁸³

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

²⁸⁰ *Id.* at 81.

²⁸¹ *Id.*

²⁸² DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 81.

²⁸³ *See id.* at 86.

U.S. LNG to emissions of coal or other sources of natural gas.²⁸⁴ The Court’s decision in *Sierra Club I* guided DOE’s development of the 2019 Update.

D. Other Considerations

The conclusion of the 2018 LNG Export Study is that the United States will experience net economic benefits from the export of domestically produced LNG in volumes up to and 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 2021,²⁸⁵ 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.²⁸⁶ 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

²⁸⁴ *Sierra Club I*, 867 F.3d at 202 (finding that “Sierra Club’s complaint ‘falls under the category of flyspecking’”) (citation omitted).

²⁸⁵ 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).

²⁸⁶ See March 2022 STEO (“Natural Gas”); see also AEO 2022 at 17.

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.²⁸⁷

More generally, DOE continues to subscribe to the principle set forth in our 1984 Policy Guidelines²⁸⁸ 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.²⁸⁹ 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 Sabine Pass's capacity uprate will be inconsistent with the public interest.

With the issuance of this Order and Order No. 4799 being issued concurrently to CMI (*see supra* § I), and the vacatur of previous long-term non-FTA authorizations,²⁹⁰ there are

²⁸⁷ *See infra* note 290 (identifying long-term orders vacated to date).

²⁸⁸ 1984 Policy Guidelines, 49 Fed. Reg. 6684.

²⁸⁹ 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).

²⁹⁰ 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).

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 follows:²⁹¹ Sabine Pass Liquefaction, LLC (2.2 Bcf/d),²⁹² Cameron LNG, LLC (1.7 Bcf/d),²⁹³ FLEX I (1.4 Bcf/d),²⁹⁴ FLEX II (0.4 Bcf/d),²⁹⁵ Cove Point LNG, LP (0.77 Bcf/d),²⁹⁶ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),²⁹⁷ Sabine Pass Liquefaction, LLC Expansion Project (1.38 Bcf/d),²⁹⁸ American LNG Marketing LLC (0.008 Bcf/d),²⁹⁹ Bear

²⁹¹ 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/fecm/articles/summary-lng-export-applications-lower-48-states> (identifying small-scale applications and status).

²⁹² *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).

²⁹³ *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).

²⁹⁴ *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).

²⁹⁵ *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).

²⁹⁶ *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).

²⁹⁷ *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).

²⁹⁸ *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).

²⁹⁹ *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).

Head LNG Corporation and Bear Head LNG (USA), LLC (0.81 Bcf/d),³⁰⁰ Pieridae Energy (USA) Ltd.,³⁰¹ Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),³⁰² Cameron LNG, LLC Design Increase (0.42 Bcf/d),³⁰³ Cameron LNG, LLC Expansion Project (1.41 Bcf/d),³⁰⁴ Lake Charles Exports, LLC (2.0 Bcf/d),³⁰⁵ Lake Charles LNG Export Company, LLC,³⁰⁶ Carib Energy (USA), LLC (0.004),³⁰⁷ Magnolia LNG, LLC (1.08 Bcf/d),³⁰⁸ Southern LNG Company, L.L.C. (0.36 Bcf/d),³⁰⁹ the FLEX Design Increase (0.34 Bcf/d),³¹⁰ Golden Pass LNG Terminal

³⁰⁰ *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).

³⁰¹ *Pieridae Energy (USA) Ltd.*, DOE/FE Order No. 3768, Docket No. 14-179-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export U.S.-Sourced Natural Gas by Pipeline to Canada for Liquefaction and Re-Export in the Form of Liquefied Natural Gas to Non-Free Trade Agreement Countries (Feb. 5, 2016).

³⁰² *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).

³⁰³ *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).

³⁰⁴ *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).

³⁰⁵ *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).

³⁰⁶ *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).

³⁰⁷ *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).

³⁰⁸ *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).

³⁰⁹ *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).

³¹⁰ *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),³¹¹ Delfin LNG LLC (1.8 Bcf/d),³¹² the Lake Charles LNG Export Company, LLC Design Increase (0.33 Bcf/d),³¹³ the Lake Charles Exports, LLC Design Increase,³¹⁴ Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),³¹⁵ Mexico Pacific Limited LLC (1.7 Bcf/d),³¹⁶ Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),³¹⁷ ECA Liquefaction, S. de R.L. de C.V. (Mid-Scale Project) (0.44 Bcf/d),³¹⁸ Energía Costa Azul, S. de R.L. de C.V. (Large-Scale Project) (1.3 Bcf/d),³¹⁹ Port Arthur LNG, LLC (1.91 Bcf/d),³²⁰ Driftwood LNG LLC (3.88 Bcf/d),³²¹ FLEX4

³¹¹ *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).

³¹² *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).

³¹³ *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).

³¹⁴ *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).

³¹⁵ *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).

³¹⁶ *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).

³¹⁷ *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).

³¹⁸ *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.).

³¹⁹ *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).

³²⁰ *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).

³²¹ *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),³²² Gulf LNG Liquefaction Company, LLC (1.53 Bcf/d),³²³ Eagle LNG Partners Jacksonville LLC (0.14 Bcf/d),³²⁴ Venture Global Plaquemines LNG, LLC (3.40 Bcf/d),³²⁵ Texas LNG Brownsville LLC (0.56 Bcf/d),³²⁶ Corpus Christi Liquefaction Stage III, LLC (1.59 Bcf/d),³²⁷ Rio Grande LNG, LLC (3.61 Bcf/d),³²⁸ Jordan Cove Energy Project L.P. (1.08 Bcf/d),³²⁹ Epsilon LNG LLC (1.083 Bcf/d),³³⁰ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (0.3 Bcf/d),³³¹ 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.³³² Additionally, the volumes authorized for export in the *Bear Head* and *Pieridae US*

³²² *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).

³²³ *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).

³²⁴ *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).

³²⁵ *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).

³²⁶ *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).

³²⁷ *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).

³²⁸ *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).

³²⁹ *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).

³³⁰ *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).

³³¹ *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FECM Order No. 4799, Docket No. 19-124-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Mar. 16, 2022).

³³² *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.³³³

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.³³⁴ DOE further notes that, with this Order and Order No. 4799 being issued concurrently to CMI, 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.³³⁵

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

³³³ See *Bear Head LNG Corporation and Bear Head LNG (USA)*, DOE/FE Order No. 3770, at 178-79.

³³⁴ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (citing 2018 LNG Export Study at 63 & Appendix F to the Study).

³³⁵ 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. 4799 issued to CMI).

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 Sabine Pass'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. Sabine Pass must abide by each Term and Condition or face appropriate sanction.

A. Term of the Authorization

Consistent with DOE's practice and with Sabine Pass's final non-FTA authorizations issued to date, DOE will grant Sabine Pass'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.³³⁶ 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.

³³⁶ 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.³³⁷ 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.³³⁸

C. Agency Rights

Sabine Pass 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.³³⁹

To ensure that the public interest is served, this authorization shall be conditioned to require that where Sabine Pass 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.

³³⁷ 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).

³³⁸ See *id.*

³³⁹ 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 Sabine Pass file or cause to be filed with DOE any relevant long-term commercial agreements pursuant to which Sabine Pass 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).³⁴⁰

In addition, DOE finds that section 590.202(c) of DOE’s regulations³⁴¹ requires that Sabine Pass file, or cause to be filed, all long-term contracts associated with the long-term supply of natural gas to the Project, whether signed by Sabine Pass or the Registrant, within 30 days of their execution.

DOE recognizes that some information in Sabine Pass’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 Project, may be commercially sensitive. DOE therefore will provide Sabine Pass the option to file or cause to be filed either unredacted contracts, or in the alternative: (A) Sabine Pass 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.

³⁴⁰ 10 C.F.R. § 590.202(b).

³⁴¹ *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 Sabine Pass's Application, in the full volume of LNG requested for export to non-FTA countries, equivalent to 152.64 Bcf/yr of natural gas.

F. Combined FTA and Non-FTA Export Authorization Volumes

With this Order, Sabine Pass now holds FTA and non-FTA export authorizations for the entire liquefaction capacity of the Liquefaction and Liquefaction Expansion Projects as approved by FERC (1,661.94 Bcf/yr). Accordingly, the volume of LNG authorized for export in this Order is additive to the existing long-term non-FTA export orders for the Project held by Sabine Pass (Order Nos. 2961-E, 3669-D, and 3792-C), but it is not additive to the volumes authorized in Sabine Pass's long-term FTA orders (Order Nos. 2833-B, 3306-C, 3307-C, 3384-C, 3595-B, and 4520-B).³⁴²

XI. ORDER

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

A. Sabine Pass Liquefaction, LLC (Sabine Pass) is authorized to export domestically produced LNG by vessel from the Sabine Pass Liquefaction Project (Trains 1-4) and the Liquefaction Expansion Project (Trains 5-6) (collectively, the Project) at the Sabine Pass LNG Terminal, located in Cameron Parish, Louisiana. The volume authorized in this Order is equivalent to 152.64 Bcf/yr of natural gas for a term to commence on the date of first

³⁴² See *infra* Appendix A (Tables 1 and 2).

commercial export and to extend through December 31, 2050. Sabine Pass 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.³⁴³

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. Sabine Pass 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. Sabine Pass shall ensure compliance with all terms and conditions established by FERC in the orders for the Sabine Pass Liquefaction and Liquefaction Expansion Projects (FERC Dockets CP11-72-000, CP13-552-000, CP19-515-000). This includes the 55 environmental conditions adopted in FERC's April 16, 2012 order (based on the 2011 EA),³⁴⁴ the 65 environmental conditions adopted in FERC's April 6, 2015 order (based on the 2014 EA),³⁴⁵ 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 Sabine Pass's on-

³⁴³ 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).

³⁴⁴ *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Order Granting Section 3 Authorization, 139 FERC ¶ 61,039 (Apr. 16, 2012), *reh'g denied*, 140 FERC ¶ 61,076 (July 26, 2012).

³⁴⁵ *Sabine Pass Liquefaction Expansion, LLC, Sabine Pass Liquefaction, LLC, and Sabine Pass LNG, L.P.*, Order Granting Authorization Under Section 3 of the Natural Gas Act and Issuing Certificate, 151 FERC ¶ 61,012 (Apr. 6, 2015), *reh'g denied*, 151 FERC ¶ 61,253 (June 23, 2015).

going compliance with any other preventative and mitigative measures at the Project imposed by federal or state agencies.

E. (i) Sabine Pass 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 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) Sabine Pass 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 Project. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described above.

F. Sabine Pass 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 Sabine Pass with all information necessary to permit Sabine Pass to register that person or entity with DOE, including: (1) the Registrant's agreement to comply with this Order and all applicable requirements of DOE's regulations at 10 C.F.R. Part 590, including but not limited to destination restrictions; (2) the exact legal name of the Registrant, state/location of incorporation/registration, primary place of doing business, and the Registrant's ownership structure, including the ultimate parent entity if the Registrant is a subsidiary or affiliate of another entity; (3) the name, title, mailing address, e-mail address, and telephone number of a corporate officer or employee of the Registrant to

whom inquiries may be directed; and (4) within 30 days of execution, a copy of any long-term contracts not previously filed with DOE, described in Ordering Paragraph 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. Sabine Pass, or others for whom Sabine Pass 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. 4800, issued March 16, 2022, in Docket No. 19-125-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 Sabine Pass 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 Sabine Pass Liquefaction, LLC is made aware of all such actual destination countries.

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

I. Sabine Pass 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 Project.

J. With respect to any change in control of the authorization holder, Sabine Pass must comply with DOE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.³⁴⁶

K. Monthly Reports: With respect to the exports authorized by this Order, Sabine Pass 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

³⁴⁶ See 79 Fed. Reg. at 65,541-42.

**APPENDIX A: LONG-TERM EXPORT AUTHORIZATIONS ISSUED TO
SABINE PASS LIQUEFACTION, LLC FOR THE SABINE PASS LNG TERMINAL**

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

Docket No.	Order No.	Date Issued	Trains³⁴⁷	Volume (Bcf/yr)	Term/Type
10-85-LNG	2833-B	Sept. 7, 2010, as amended	1-4	803.0	Export term through Dec. 31, 2050, multi-contract
13-30-LNG	3306-C	July 11, 2013, as amended	5-6	101.0	Export term through Dec. 31, 2050, multi-contract
13-42-LNG	3307-C	July 12, 2013, as amended	5-6	88.3	Export term through Dec. 31, 2050, multi-contract
13-121-LNG	3384-C	Jan. 22, 2014, as amended	5-6	314.0	Export term through Dec. 31, 2050, multi-contract
14-92-LNG	3595-B	Feb. 12, 2015, as amended	1-4	203.0	Export term through Dec. 31, 2050, multi-contract
19-125-LNG	4520-B	Apr. 14, 2020, as amended	1-6	152.64	Export term through Dec. 31, 2050, multi-contract
Total FTA Volume				1,661.94	

³⁴⁷ In both Table 1 and 2, Trains 1-4 refer to the Sabine Pass Liquefaction Project. Trains 5-6 refer to the Sabine Pass Liquefaction Expansion Project.

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

Docket No.	Order No.	Date Issued	Trains	Volume (Bcf/yr)	Term/Type
10-111-LNG	2961-E	Aug. 7, 2012, as amended	1-4	803.0	Export term through Dec. 31, 2050, multi-contract
13-30-LNG 13-42-LNG 13-121-LNG	3669-D	June 26, 2015, as amended	5-6	503.3	Export term through Dec. 31, 2050, multi-contract
15-63-LNG	3792-C	Mar. 11, 2016, as amended	1-4	203.0	Export term through Dec. 31, 2050, multi-contract
19-125-LNG	4800	Mar. 16, 2022	1-6	152.64	Export term through Dec. 31, 2050, multi-contract
Total Non-FTA Volume				1,661.94	

APPENDIX B: FINDING OF NO SIGNIFICANT IMPACT

FINDING OF NO SIGNIFICANT IMPACT FOR THE APPLICATION OF SABINE PASS LIQUEFACTION, LLC TO EXPORT LIQUEFIED NATURAL GAS FROM THE SABINE PASS LNG TERMINAL 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),³⁴⁸ the Federal Energy Regulatory Commission (FERC) authorized Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P. (collectively, Sabine Pass) to site, construct, and operate the Sabine Pass LNG Terminal located in Cameron Parish, Louisiana—both the Liquefaction Project (Trains 1-4)³⁴⁹ and the Liquefaction Expansion Project (Trains 5-6)³⁵⁰ (collectively, the Project). Under these FERC orders, Sabine Pass was authorized to operate the Project with a total liquefaction production capacity of 1,509 billion cubic feet per year (Bcf/yr) of natural gas.

In an application filed with FERC on September 27, 2019, Sabine Pass asked FERC to amend its existing NGA section 3 authorizations to increase the total liquefaction production capacity of the Project from 1,509 Bcf/yr to 1,661.94 Bcf/yr of natural gas—for an additional 152.94 Bcf/yr in capacity “uprate” (Uprate Amendment).³⁵¹ 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.³⁵² Sabine Pass Liquefaction, LLC 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: Sabine Pass filed the Uprate Amendment application in FERC Docket No. CP19-515-000 under NGA section 3 and the procedures of Part 153 of FERC’s regulations.³⁵³ In the FERC proceeding, Sabine Pass stated that its requested increase in liquefied natural gas (LNG) production capacity (152.94 Bcf/yr) will be achieved through modifications to maintenance and production processes made possible by enhancements during the Project’s final design, construction, and initial operation. This requested increase will not

³⁴⁸ 15 U.S.C. § 717b.

³⁴⁹ See *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Order Granting Section 3 Authorization, 139 FERC ¶ 61,039 (Apr. 16, 2012), *reh’g denied*, 140 FERC ¶ 61,076 (July 26, 2012). At Sabine Pass’s request, FERC subsequently amended this order.

³⁵⁰ See *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Order Granting Authorization Under Section 3 of the Natural Gas Act and Issuing Certificate, 151 FERC ¶ 61,012 (Apr. 6, 2015), *reh’g denied*, 151 FERC ¶ 61,253 (June 23, 2015).

³⁵¹ See *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Application for Limited Amendment to Authorizations Granted under Section 3 of the Natural Gas Act, FERC Docket No. CP19-515-000 (Sept. 27, 2019) [hereinafter FERC App.].

³⁵² Federal Energy Regulatory Comm’n, *Sabine Pass Amendment Project Environmental Assessment* (Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.), Docket No. CP19-515-000 (Feb. 2020), available at: <https://www.ferc.gov/sites/default/files/2020-04/CP19-515-EA.pdf> [hereinafter EA].

³⁵³ See FERC App.

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

On September 27, 2019, Sabine Pass Liquefaction, LLC (Sabine Pass) filed an Application with DOE's Office of Fossil Energy and Carbon Management (formerly the Office of Fossil Energy)³⁵⁴ in Docket No. 19-125-LNG.³⁵⁵ Sabine Pass seeks authorization to export domestically produced LNG from the Project in a volume equivalent to 152.64 Bcf/yr of natural gas (0.42 Bcf per day). In the portion of the Application at issue, Sabine Pass 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).³⁵⁶

Currently, Sabine Pass holds three DOE orders to export domestically produced LNG to non-FTA countries in a total volume equivalent to 1,509.3 Bcf/yr of natural gas.³⁵⁷ As relevant here, Sabine Pass seeks authorization to export the additional volume of 152.64 Bcf/yr to non-FTA countries to align its non-FTA export volume with Sabine Pass's then-requested liquefaction production capacity of 1,661.94 Bcf/yr.³⁵⁸

FERC prepared an EA for Sabine Pass's Uprate Amendment application, *Sabine Pass Amendment Project Environmental Assessment*. The Uprate Amendment EA adopted by reference the two EAs prepared by FERC in 2011 and 2014 for the Sabine Pass Liquefaction and Liquefaction Expansion Projects, respectively. 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).³⁵⁹

In the FERC Order, FERC granted Sabine Pass's Uprate Amendment application, authorizing a maximum LNG production capacity for the Project of 1,661.94 Bcf/yr of natural gas as conditioned in the FERC Order. FERC required that, in all other respects, Sabine Pass's existing NGA section 3 authorizations (including the environmental conditions imposed in those orders) remain in full force and effect.³⁶⁰

Previously, on August 15, 2014, DOE published the *Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States (Addendum)*.³⁶¹ DOE prepared the Addendum to be responsive to the public and to provide the best information

³⁵⁴ The Office of Fossil Energy changed its name to the Office of Fossil Energy and Carbon Management on July 4, 2021.

³⁵⁵ *Sabine Pass Liquefaction, LLC*, Application of Sabine Pass Liquefaction, LLC for Long-Term Authorization to Export Liquefied Natural Gas to Free Trade Agreement Nations and Non-Free Trade Agreement Nations, Docket No. 19-125-LNG (Sept. 27, 2019) [hereinafter Sabine Pass App.].

³⁵⁶ 15 U.S.C. § 717b(a).

³⁵⁷ See Sabine Pass App. at 2 n.3.

³⁵⁸ See *id.* at 2 n.4.

³⁵⁹ *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, Order Amending Authorization Under Section 3 of the Natural Gas Act, 177 FERC ¶ 61,030, ¶ 1 (Oct. 21, 2021) [hereinafter FERC Order].

³⁶⁰ *Id.* at Ordering Para. B.

³⁶¹ 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.³⁶²

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).³⁶³ 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).³⁶⁴ 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.”³⁶⁵ 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.”³⁶⁶

Additionally, as part of a NEPA rulemaking finalized on December 4, 2020,³⁶⁷ DOE conducted a detailed review of technical documents regarding potential effects associated with marine transport of LNG.³⁶⁸ These documents were identified in an accompanying Marine Transport Technical Support Document (Technical Support Document).³⁶⁹ 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

³⁶² 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).

³⁶³ 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).

³⁶⁴ 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>.

³⁶⁵ 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).

³⁶⁶ *Id.*

³⁶⁷ See U.S. Dep’t of Energy, *National Environmental Policy Act Implementing Procedures, Final Rule*; 85 Fed. Reg. 78,197 (Dec. 4, 2020).

³⁶⁸ *Id.* at 78,199.

³⁶⁹ 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.”³⁷⁰

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-2175) 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.³⁷¹ 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 endangered species; geologic resources and soils; noise; and state or national parks, forests, recreation areas, or refuge areas. The EA also analyzed air quality and safety.³⁷²

The EA concluded, and FERC agreed, that, “if Sabine [Pass] operates the proposed facilities in accordance with its application and supplements, approval of the Application would not constitute a major federal action significantly affecting the quality of the human environment.”³⁷³

DETERMINATION: On the basis of the EA for the Uprate Amendment (DOE/EA-2175), the prior EAs for the Project (2011 EA (DOE/EA-1845) and 2014 EA (DOE/EA-2036)), 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 Sabine Pass’s Application to export LNG from the Sabine Pass LNG Terminal in this Order (DOE/FECM Order No. 4800) 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/sabine-pass-liquefaction-llc-fe-dkt-no-19-125-lng>. The EA and FONSI will also be available at: <https://energy.gov/nepa/doeea-2175-sabine-pass-amendment-project>.

³⁷⁰ *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.

³⁷¹ *See* EA at 3; FERC Order at ¶ 12.

³⁷² *See id.*

³⁷³ EA at 5; *see also* FERC Order at ¶ 15.