UNITED STATES OF AMERICA

DEPARTMENT OF ENERGY

OFFICE OF FOSSIL ENERGY AND CARBON MANAGEMENT

FREEPORT LNG EXPANSION, L.P., FLNG LIQUEFACTION, LLC, FLNG LIQEFACTION 2, LLC, AND FLNG LIQUEFACTION 3, LLC	)	DOCKET NO. 21-98-LNG

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

DOE/FECM ORDER NO. 4961

MARCH 3, 2023

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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
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 10, 2021, Freeport LNG Expansion, L.P., FLNG Liquefaction, LLC, FLNG Liquefaction 2, LLC, and FLNG Liquefaction 3, LLC (collectively, FLEX) 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 additional long-term, multi-contract authorization[3] to export domestically produced liquefied natural gas (LNG) under section 3(a) of the Natural Gas Act (NGA).[4] FLEX is currently authorized to export LNG up to a total combined volume equivalent to 782 billion cubic feet per year (Bcf/yr) of natural gas through December 31, 2050.[5] However, in light of increased liquefaction production capacity at its existing LNG trains, FLEX seeks to amend its authorization to export additional LNG in a volume equivalent to 88 Bcf/yr of natural gas, for a total approved export volume of 870 Bcf/yr.[6] FLEX seeks to export this LNG by vessel from the Freeport LNG Liquefaction Project (Trains 1-3) (the Liquefaction Project or Project), located at the Freeport LNG Terminal on Quintana Island near Freeport, Texas, for a term extending through December 31, 2050.[7] FLEX seeks to export LNG to any country with which the United States does not have 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), 15 U.S.C. § 717b(a).[8]

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[1] Freeport LNG Expansion, L.P., *et al.*, Application for Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, Docket No. 21-98-LNG (Sept. 10, 2021) [hereinafter FLEX 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] The authority to regulate the imports and exports of natural gas, including liquefied natural gas, under section 3 of the NGA (15 U.S.C. § 717b) has been delegated to the Assistant Secretary for FECM in Redelegation Order No. S4-DEL-FE1-2022, issued on June 13, 2022.
[5] *See* FLEX App. at 4; *see also infra* notes 19-21.
[6] *See* FLEX App. at 1, 3.
[7] *Id.* at 1.
[8] 15 U.S.C. § 717b(a); *see* FLEX App. at 1-2. In the FLEX App., FLEX is not seeking to export LNG to FTA countries under NGA section 3(c), 15 U.S.C. § 717b(c). The United States currently has FTAs requiring national

The Federal Energy Regulatory Commission (FERC or Commission) authorized the siting, construction, and operation of the Project in 2014.[9] FLEX began exporting LNG from the Liquefaction Project in 2019, with all three trains in service as of May 2020.[10] On June 29, 2021, FLEX filed an application with the Commission seeking to amend its existing NGA section 3 authorization to increase the total liquefaction production capacity of the Project from 782 to 870 Bcf/yr of natural gas—for an additional 88 Bcf/yr in capacity (Capacity Amendment or Capacity Amendment Project).[11] To satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA),[12] FERC staff prepared an environmental assessment (EA) for the requested Capacity Amendment Project in 2022 (Capacity Amendment Project EA or EA).[13]

In an order issued on July 29, 2022, FERC granted FLEX's Capacity Amendment.[14] FERC concluded that, "[b]ased on [its own] engineering analyses, . . . the liquefaction and storage facilities can accommodate the increase."[15] FERC found that the Capacity Amendment Project would not require any new construction or modifications to the Liquefaction Project,[16] and that "the proposed project would not result in an increase in air emissions for criteria

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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.

[9] *Freeport LNG Dev., L.P., et al.*, Order Granting Authorizations Under Section 3 of the Natural Gas Act, FERC Docket Nos. CP12-509-000 and CP12-29-000, 148 FERC ¶ 61,076, *reh'g & clarification denied*, 149 FERC ¶ 61,119 (2014).

[10] *See* U.S. Dep't of Energy, LNG Monthly, at 37-40 (Feb. 2023), https://www.energy.gov/sites/default/files/2023-02/LNG%20Monthly%20December%202022_0.pdf -

[11] *See Freeport LNG Dev., L.P., et al.*, Application for Limited Amendment to Authorizations Granted Under Section 3 of the Natural Gas Act, FERC Docket No. CP21-470-000 (June 29, 2021); *see also infra* § VII (FERC Proceeding).

[12] 42 U.S.C. § 4321 *et seq*.

[13] Fed. Energy Regulatory Comm'n, *Freeport LNG Capacity Amendment Project Environmental Assessment* (Freeport LNG Development, L.P., *et al.*), Docket No. CP21-470-000 (May 2022) [hereinafter Capacity Amendment Project EA or EA], https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20220512-3032.

[14] *See Freeport LNG Dev., L.P., et al.*, Order Amending Section 3 Authorization, FERC Docket No. CP21-470-000, 180 FERC ¶ 61,055 (2022) [hereinafter FERC Order].

[15] *Id*. at P 12; *see also* Capacity Amendment Project EA at 1 (stating that "[t]he amendment application seeks to align the Freeport LNG Terminal's FERC authorizations with [the] maximum design LNG production capability" previously approved by the Commission).

[16] FERC Order at PP 12 and 26.

pollutants, volatile organic compounds, or hazardous air pollutants as previously analyzed in the 2014 Order's Environmental Impact Statement in excess of the existing permit."[17] FERC authorized FLEX to increase the Project's liquefaction production capacity to 870 Bcf/yr, and ordered that, in all other respects, FLEX's existing authorization for the Liquefaction Project "shall remain in full force and effect."[18]

In this proceeding, FLEX requests DOE authorization to export the additional volume of LNG from the Liquefaction Project, consistent with its maximum LNG production capacity, to non-FTA countries. Currently, in Docket Nos. 10-161-LNG,[19] 11-161-LNG,[20] and 16-108-LNG,[21] FLEX is authorized to export LNG from the Liquefaction Project to non-FTA countries in a total combined volume equivalent to 782 Bcf/yr of natural gas through December 31, 2050.[22] FLEX states that it seeks to export the additional volume of 88 Bcf/yr to non-FTA countries to align its non-FTA export volume with the Project's already FERC-approved LNG production capacity of 870 Bcf/yr.[23] FLEX asks that the term of this authorization extend

[17] *Id*. at P 27.
[18] *Id*. at 13 (Ordering Paras. B-C); *see also id.* at P 21 (order conditioned on FLEX receiving a determination that the LNG facilities are fit for service and that acceptable measures have been put into place to safely return facilities to operation, including operation to increase the maximum output of the facilities following the June 8, 2022 "explosion and associated fire [that] occurred in a pipe rack containing Liquefaction Project piping near the terminal's LNG storage tanks.").
[19] *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), *amended by* DOE/FE Order No. 3282-D (Oct. 21, 2020) (extending export term).
[20] *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), *reh'g denied*, DOE/FE Order No. 3357-C (Dec. 4, 2015), *amended by* DOE/FE Order No. 3357-D (Oct. 21, 2020) (extending export term).
[21] *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), *amended by* DOE/FE Order No. 3957-A (Oct. 21, 2020) (extending export term).
[22] FLEX notes that, in Docket Nos. 10-160-LNG and 12-06-LNG, it is authorized to export LNG from the Liquefaction Project to FTA countries in a volume equivalent to 1,022 Bcf/yr of natural gas. *See* FLEX App. at 5.
[23] *Id.* at 3-4 (describing 2021 FERC Capacity Amendment Project application then-pending at FERC).

through December 31, 2050.[24] FLEX 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.[25]

On October 8, 2021, DOE published a notice of the non-FTA Application in the *Federal Register* (Notice of Application).[26] The Notice of Application called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by December 7, 2021.[27] In response, DOE received a joint "Motion to Intervene and Protest" from Sierra Club and Natural Resources Defense Council (Sierra Club/NRDC),[28] one "Notice of Intervention, Protest and Comment" from Industrial Energy Consumers of America (IECA),[29] one comment in opposition from Center for Biological Diversity (CBD),[30] and one comment in opposition by Matthew Deinhardt.[31] Subsequently, FLEX submitted a response to the filings entitled "Answer in Opposition to Protests and Comments."[32]

DOE has reviewed the non-FTA Application, DOE's economic and environmental studies, the EA prepared by FERC staff, the FERC Order, Sierra Club/NRDC's and IECA's Protests, the comments, FLEX's Answer, and the most recent long-term projections from the

[24] *Id*. at 1, 5.
[25] *Id*. at 2, 5.
[26] Freeport LNG Expansion, L.P., *et al*., Application for Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations; Notice of Application, 86 Fed. Reg. 56,258 (Oct. 8, 2021).
[27] 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).
[28] Sierra Club and Natural Resources Defense Council, Motion to Intervene and Protest, Docket No. 21-98-LNG (Dec. 7, 2021) [hereinafter Sierra Club/NRDC Pleading].
[29] Industrial Energy Consumers of America, Notice of Intervention, Protest and Comment, Docket No. 21-98-LNG (Dec. 7, 2021) [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).
[30] *See* Comment of Center for Biological Diversity, Docket No. 21-98-LNG (Dec. 7, 2021) [hereinafter CBD Comment].
[31] *See* Comment of Matthew Deinhardt, Docket No. 21-98-LNG (Dec. 3, 2021). Although Mr. Deinhardt states that he "want[s] to file a motion to oppose this application" (*id*.), his filing does not meet the requirements for a motion under DOE's regulations (10 C.F.R. §§ 590.103, 590.302, 590.303) and thus will be construed as a comment opposing the Application. *See infra* § VI [hereinafter Deinhardt Comment].
[32] Freeport LNG Expansion, L.P., *et al*., Answer in Opposition to Protests and Comments, Docket No. 21-98-LNG (Dec. 22, 2021) [hereinafter FLEX Answer].

U.S. Energy Information Administration (EIA), among other evidence discussed below. Based on the substantial administrative record, DOE has determined that it has not been shown that FLEX'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 FLEX is already authorized to export LNG from the Liquefaction Project in a volume equivalent to 1,022 Bcf/yr of natural gas to FTA countries, this Order will provide FLEX with the flexibility to allow exports to non-FTA countries consistent with the maximum production capacity authorized by FERC. [33] 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 Application in the volume requested—88 Bcf/yr of natural gas, or 0.24 Bcf per day (Bcf/d)—for a total approved export volume of 870 Bcf/yr.[34] 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 FLEX's FERC authorization for the Liquefaction Project.

DOE has also reviewed FERC's Capacity Amendment Project EA under NEPA. As discussed below, DOE has determined that it is appropriate to supplement FERC's environmental reviews 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.[35]

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

[34] *See infra* §§ IX-XI.

[35] 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), https://www.energy.gov/sites/prod/files/2020/12/f81/10-cfr-1021-ng-tsd-2020-11_0.pdf [hereinafter Technical

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 and incorporates by reference the Capacity Amendment Project EA (DOE/EA-2206) and incorporates by reference other FERC and DOE documents described below.[36]

This Order brings DOE's cumulative total of approved non-FTA exports of LNG from the lower-48 states to 47.29 Bcf/d of natural gas.[37]

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

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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.

[36] *See infra* § VIII.C.1 and Appendix B.

[37] 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. 3643-B (Apr. 15, 2021) (rehearing ongoing). The Alaska volume is not included in the volumes discussed herein, which involve the export of LNG 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.

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.[38] DOE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[39]

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.[40]

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).[41] The 2014 Study assessed how specified scenarios of increased natural gas exports could affect domestic energy markets.

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[38] *See* U.S. Dep't of Energy, Notice of Availability of 2012 LNG Export Study and Request for Comments, 77 Fed. Reg. 73,627 (Dec. 11, 2012), http://energy.gov/sites/prod/files/2013/04/f0/fr_notice_two_part_study.pdf.
[39] *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).
[40] *See* U.S. Dep't of Energy, Office of Fossil Energy, Request for an Update of EIA's January 2012 Study of Liquefied Natural Gas Export Scenarios, https://www.energy.gov/fe/downloads/request-update-eia-s-january-2012-study-liquefied-natural-gas-export-scenarios (May 29, 2014) (memorandum from FE to EIA).
[41] U.S. Energy Info. Admin., *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets* (Oct. 2014), https://www.eia.gov/analysis/requests/fe/pdf/lng.pdf.

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).[42]

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).[43] The 2015 Study was a scenario-based assessment of the macroeconomic impact of levels of U.S. LNG exports, sourced from the lower-48 states, under different assumptions including U.S. resource endowment, U.S. natural gas demand, international LNG market dynamics, and other factors. The 2015 Study considered export volumes ranging from 12 to 20 Bcf/d of natural gas, as well as a high resource recovery case examining export volumes up to 28 Bcf/d of natural gas. The analysis covered the time period from 2015 to 2040.

In December 2015, DOE published a Notice of Availability of the 2014 and 2015 Studies in the *Federal Register* and invited public comment on those Studies.[44] DOE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[45]

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[42] 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.

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

[44] 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).

[45] *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).

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.[46] 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.[47] Accordingly, DOE, through its support contractor KeyLogic Systems, Inc., commissioned NERA to conduct the 2018 LNG Export Study. DOE published the 2018 LNG Export Study (or 2018 Study) on its website on June 7, 2018,[48] and concurrently provided notice of the availability of the Study, as discussed below.[49]

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

(i) Included 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) Included 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);[50]
(iii) Examined unconstrained LNG export volumes beyond the levels examined in the previous studies;
(iv) Examined the likelihood of those market-determined LNG export volumes; and

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[46] *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].
[47] 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.
[48] *See* NERA Economic Consulting, *Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports* (June 7, 2018), https://www.energy.gov/sites/prod/files/2018/06/f52/Macroeconomic%20LNG%20Export%20Study%202018.pdf [hereinafter 2018 LNG Export Study or 2018 Study].
[49] *See* 2018 Study Notice.
[50] U.S. Energy Info. Admin., *Annual Energy Outlook 2017* (with projections to 2050) (Jan. 5, 2017), https://www.eia.gov/outlooks/archive/aeo17/ [hereinafter AEO 2017].

(v) Provided macroeconomic projections associated with several of the scenarios lying within the more likely range of exports.[51]

b. Methodology and Scenarios

In its Response to Comments published in the *Federal Register* in December 2018, DOE provided a detailed discussion of the methodology and scenarios used in the 2018 Study, including NERA's Global Natural Gas Model (GNGM) and N$_{ew}$ERA models.[52] The 2018 Study developed 54 scenarios by identifying various assumptions for domestic and international supply and demand conditions to capture a wide range of uncertainty in natural gas markets. The scenarios included 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.[53] The three cases for U.S. natural gas supply derived from AEO 2017 were:

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

ii. High Oil and Gas Resource and Technology (HOGR) case, which provided more optimistic resource development estimates than the Reference case; and

iii. Low Oil and Gas Resource and Technology (LOGR) case, which provided less optimistic resource development estimates than the Reference case.[54]

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

i. AEO 2017's Reference case, which provided a central estimate of U.S. natural gas demand;

[51] *See* 2018 Study Notice, 83 Fed. Reg. at 27,316.
[52] *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].
[53] 2018 Study Response to Comments, 83 Fed. Reg. at 67,256 (stating that the differences in the natural gas production levels across these cases arose 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).
[54] *See id.*

ii. A Robust Economic Growth case, which provided 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 provided a low estimate for U.S. natural gas demand driven by the imposition of a stringent renewables mandate.[55]

International assumptions were 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 examined the likelihood of conditions leading to various export scenarios. This unique feature provided not only quantification of the effects to the U.S. natural gas market and its overall economy under each of the scenarios outlined, but also an assessment of the probability of each of these scenarios, and thus the probability of the natural gas and macroeconomic outcomes associated with each scenario.[56]

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.[57] 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

[55] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,256.
[56] *See id.*
[57] *See id.*

The 54 scenarios in the 2018 Study provided 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 included 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 ranged from $5 to approximately $6.50 per million British thermal unit (MMBtu) in 2040 (in constant 2016 dollars) under Reference case supply assumptions. These central cases have a combined probability of 47%.

- Levels of GDP were 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 led to higher levels of GDP. GDP achieved with the highest level of LNG exports in each group exceeded GDP with the lowest level of LNG exports by $13 to $72 billion in 2040 (in constant 2016 dollars). The increase in GDP associated with higher LNG exports was attributed to investment in the liquefaction process, export revenues, resource income, and additional wealth transfer in the form of tolling or liquefaction charges.[58]

- About 80% of the increase in LNG exports was satisfied by increased U.S. production of natural gas, with positive effects on labor income, output, and profits in the natural gas production sector.

[58] *See* 2018 Study at 67.

- Industry subsectors of the economy that relied heavily on natural gas for energy and as a feedstock continued 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 were welfare-improving for the average U.S. household.[59]

- Even the most extreme scenarios of high LNG exports outside the more likely probability range (exhibiting a combined probability of less than 3%) showed higher overall economic performance in terms of GDP, household income, and consumer welfare than lower export levels associated with the same domestic supply scenarios.[60]

d. DOE Proceeding

On June 12, 2018, DOE published a notice of availability of the 2018 LNG Export Study and a request for comments.[61] The purpose of the notice of availability was "to enter the 2018 LNG Export Study into the administrative record of the 25 pending non-FTA export proceedings [identified in the notice] and to invite comments on the Study for consideration in the pending and future non-FTA application proceedings."[62] 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.[63] Of those, nine comments

[59] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,264, 67,266.
[60] *See id.* at 67,255.
[61] *See* 2018 Study Notice.
[62] *Id.* at 27,315.
[63] The public comments are posted on the DOE website at https://fossil.energy.gov/app/docketindex/docket/index/10.

supported the Study,[64] eight comments opposed the 2018 Study and/or exports of LNG,[65] one comment took no position,[66] and one comment was non-responsive.[67]

DOE summarized and responded to these comments in the Response to Comments document, published on December 28, 2018.[68] 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.[69]

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

e. DOE Conclusions

Based upon the record in the 2018 Study proceeding, DOE determined that the 2018 Study provides substantial support for non-FTA applications within the export volumes considered by the 2018 Study—ranging from 0.1 to 52.8 Bcf/d of natural gas.[70] 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.[71]

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[64] 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.
[65] 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.
[66] Comment of John Young.
[67] Comment of Vincent Burke.
[68] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.
[69] *See id.* at 67,272.
[70] *See id.*
[71] *See id.*

DOE highlighted a number of key findings from the 2018 Study, including that "[i]ncreasing U.S. LNG exports under any given set of assumptions about U.S. natural gas resources and their production leads to only small increases in U.S. natural gas prices;" increased exports will improve the U.S. balance of trade and GDP; "a large share of the increase in LNG exports is supported by an increase in domestic natural gas production;" and "[n]atural gas intensive [industries] continue to grow robustly at higher levels of LNG exports, albeit at slightly lower rates of increase than they would at lower levels."[72]

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.[73] 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.[74]

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."[75] 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.[76]

B. DOE's Environmental Studies

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[72] *Id.* at 67,273 (citations to 2018 LNG Export Study omitted).
[73] U.S. Energy Info. Admin., *Annual Energy Outlook 2018* (with projections to 2050) (Feb. 6, 2018), https://www.eia.gov/outlooks/archive/aeo18/ [hereinafter AEO 2018].
[74] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[75] *Id.* (citing 2018 LNG Export Study at 63 & Appendix F to the Study).
[76] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

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).[77] DOE received public comments on the Draft Addendum, and on August 15, 2014, issued the final Addendum (Addendum) with its response to the public comments contained in Appendix B.[78]

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

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

[77] 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.
[78] 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* https://www.energy.gov/fecm/addendum-environmental-review-documents-concerning-exports-natural-gas-unitedstates.

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).[79] DOE also received public comments on the LCA GHG Report and responded to those comments in prior orders.[80] 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).[81] As with the 2014 Report, the LCA GHG Update compared life cycle GHG emissions of exports of domestically produced LNG to Europe and Asia with alternative fuel sources (such as regional coal and other imported natural gas) for electric power generation in the destination countries. Although core aspects of the analysis—such as the scenarios investigated—were the same as the 2014 Report, the LCA GHG Update contained the following three changes:

- Incorporated NETL's most recent characterization of upstream natural gas production, set forth in NETL's April 2019 report entitled, *Life Cycle Analysis of Natural Gas Extraction and Power Generation* (April 2019 LCA of Natural Gas Extraction and Power Generation);[82]

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[79] 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.

[80] *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).

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

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

- 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 (CH_4) to reflect the current Intergovernmental Panel on Climate Change's Fifth Assessment Report.[83]

In all other respects, the LCA GHG Update was unchanged from the 2014 Report.[84]

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.[85] 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.[86] Additional details are discussed below,[87] and in DOE's Response to Comments on the 2019 Update.

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

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

[83] *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).
[84] *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].
[85] *See id.* at 78, 85.
[86] *See id.* at 86.
[87] *See infra* § VIII.C.3.

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, LP);[88] Sabine Pass Liquefaction, LLC (Sabine Pass); and Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (together, CMI). The D.C. Circuit subsequently denied four of the five petitions for review: one in a published decision issued on August 15, 2017 (*Sierra Club I*),[89] and three in a consolidated, unpublished opinion issued on November 1, 2017 (*Sierra Club II*).[90] 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.[91]

In *Sierra Club I*, the D.C. Circuit concluded that DOE had complied with both NGA section 3(a) and NEPA in issuing the challenged non-FTA authorization to Freeport LNG Expansion, L.P. and its related entities (collectively, Freeport). DOE had granted the Freeport application in 2014 in a volume equivalent to 0.4 Bcf/d of natural gas, finding that Freeport's proposed exports were in the public interest under NGA section 3(a). DOE also considered and disclosed the potential environmental impacts of its decision under NEPA. Sierra Club petitioned for review of the Freeport authorization, arguing that DOE fell short of its obligations under both the NGA and NEPA. The D.C. Circuit rejected Sierra Club's arguments in a unanimous decision.[92]

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[88] *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).
[89] *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*.).
[90] *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).
[91] *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).
[92] *Sierra Club I*, 867 F.3d at 192.

First, the Court rejected Sierra Club's NEPA argument concerning the indirect effects of export-induced natural gas production.[93] 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."[94] In particular, the Court recognized that DOE had described upstream natural gas impacts generally,[95] while affirming DOE's explanation that particularized impacts are highly location-dependent, and could not be attributed to any given export application.[96] 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."[97]

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.[98] 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.[99]

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."[100] In particular, because Sierra Club "repeats the same argument it made to support its NEPA claim—namely, that the Department arbitrarily failed to

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[93] *Id.* at 197-99.
[94] *Id.* at 198.
[95] *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.").
[96] *Id.* at 198-199.
[97] *Id.* at 201.
[98] *Sierra Club I*, 867 F.3d at 201.
[99] *Id.* at 202.
[100] *Id*. at 203.

evaluate foreseeable indirect effects of exports,"[101] 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."[102]

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."[103] 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.[104]

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,[105] DOE is incorporating these studies—as well as the 2019 LCA GHG Update—into the NEPA record in this proceeding.[106]

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.[107]

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[101] *Id.*
[102] *Id.*
[103] *Sierra Club II*, 703 F. App'x at *2.
[104] *Id.*
[105] *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.").
[106] *See infra* § VIII.C and Appendix B (Finding of No Significant Impact).
[107] *See*, *e.g.*, DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 75, 77, 78 n.69; *see also* 2019 Update at 17-18 & Appendix B.3.

Additionally, in 2020, DOE conducted a NEPA rulemaking pertaining to authorizations issued under NGA section 3.[108] 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*.[109]

In that rulemaking, DOE conducted "a detailed review of technical documents regarding potential effects associated with marine transport of LNG."[110] These documents were identified in an accompanying Marine Transport Technical Support Document.[111] 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."[112] In light of FLEX'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.[113]

III. PUBLIC INTEREST STANDARD

Section 3(a) of the NGA sets forth the standard for review for the non-FTA 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 Energy[114]] authorizing it to do so. The [Secretary] shall issue such order upon

[108] *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].
[109] *See id.*; *see also* 10 C.F.R. Part 1021, Subpt. D, App. B, Categorical Exclusion B5.7.
[110] NEPA Implementing Procedures, 85 Fed. Reg. at 78,199.
[111] *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)).
[112] *Id.* at 78,200; *see also id.* at 78,202.
[113] *See infra* § VIII.C.1.
[114] The Secretary's authority was established by section 301 of the Department of Energy Organization Act, 42 U.S.C. § 7151, which transferred jurisdiction over imports and export authorizations from the Federal Power Commission to the Secretary of Energy.

> 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.[115]

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.[116] 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.[117] Before reaching a final decision, DOE must also comply with NEPA.[118]

Although NGA section 3(a) establishes a broad public interest standard and a presumption favoring export authorizations, the statute does not define "public interest" or identify criteria that must be considered in evaluating the public interest. DOE's prior decisions have looked to certain principles established in its 1984 Policy Guidelines.[119] 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

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[115] 15 U.S.C. § 717b(a).

[116] *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)).

[117] *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) and 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).

[118] *See Sierra Club I*, 867 F.3d at 192.

[119] 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].

> competitively priced basis for the duration of the contract while minimizing regulatory impediments to a freely operating market.[120]

While the Policy Guidelines explicitly discuss only natural gas imports, in 1999 DOE held in Order No. 1473 that the same Policy Guidelines should be applied to natural gas export applications.[121]

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.[122] 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."[123]

Although DOE Delegation Order No. 0204-111 is no longer in effect,[124] 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

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[120] *Id*. at 6685.

[121] *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)).

[122] *See id*. at 13 and n.45.

[123] 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)).

[124] 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).

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

FLEX is requesting long-term, multi-contract authorization to export LNG in an additional volume of 88 Bcf/yr of natural gas from the Liquefaction Project (Trains 1–3) to non-FTA countries, to align with its capacity amendment approved by FERC.[125] Additional information is set forth below.

A. Description of Applicant

For purposes of this proceeding, FLEX is comprised of four entities: Freeport LNG Expansion, L.P. (Freeport Expansion); FLNG Liquefaction, LLC (FLIQ1); FLNG Liquefaction 2, LLC (FLIQ2); and FLNG Liquefaction 3, LLC (FLIQ3). In the Application, FLEX states that Freeport Expansion is a limited partnership and FLIQ1, FLIQ2, and FLIQ3 are each a limited liability company organized under the laws of Delaware.[126] The FLEX entities are authorized to do business in Texas and have a principal place of business in Houston, Texas.[127]

FLEX states that Freeport Expansion is wholly owned by FLEX Holdco, LLC, a Delaware limited liability company, which is wholly owned by Freeport LNG Development, L.P.[128] FLEX further states that the sole managing member of FLIQ1 is FLIQ1 Holdings, LLC, which is 25% owned by a wholly owned subsidiary of JERA Co., Inc. (JERA), which in turn is

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125 FLEX App. at 3-4; *see also supra* § I.
126 *See id.* at 2.
127 *Id*.
128 Freeport LNG Development, L.P., filed a Statement of Change in Control on January 13, 2022, as supplemented on January 27 and March 3, 2022. In the Statement of Change in Control, Freeport LNG Development, L.P. stated that on November 14, 2021, JERA Americas Inc., a wholly-owned subsidiary of JERA, entered into a Securities Purchase Agreement to acquire a 25.7% equity interest in Freeport LNG Development, L.P. through a wholly-owned subsidiary created for the purposes of the transaction (Transaction). Freeport LNG Development, L.P. stated that, following consummation of the Transaction, it is now owned by JERA, Freeport LNG Investment, LLLP, and Osaka Gas. On July 21, 2022, DOE issued Order No. 4850, approving the change in control. *See* Freeport LNG Development, L.P., DOE/FECM Order No. 4850, Docket Nos. 10-160-LNG, *et al.*, Order Approving Change in Control (Jul. 21, 2022).

an equal venture of TEPCO Fuel & Power, Incorporated (TEPCO) and Chubu Electric Power Company, both of which are companies organized and existing under the laws of Japan. FLEX states that the Government of Japan, through its ownership interest in TEPCO, holds an approximately 3.4% indirect economic interest in FLIQ1.[129]

B. Procedural History

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

- DOE/FE Order No. 2913-C, authorizing the export of 511 Bcf/yr from Trains 1-3 to FTA countries through December 31, 2050;[130]
- DOE/FE Order No. 3066-B, authorizing the export of 511 Bcf/yr from Trains 1-3 to FTA countries through December 31, 2050;[131]
- DOE/FE Order No. 3282-D, authorizing the export of 511 Bcf/yr from Trains 1-3 to non-FTA countries through December 31, 2050;[132]
- DOE/FE Order No. 3357-D, authorizing the export of 146 Bcf/yr from Trains 1-3 to non-FTA countries through December 31, 2050;[133] and
- DOE/FE Order No. 3957-A, authorizing the export of 125 Bcf/yr from Trains 1-3 to

[129] *See id.* at 2-3.
[130] *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 Freeport LNG Terminal to Free Trade Nations (Feb. 10, 2011), *amended by* DOE/FE Order No. 2913-A (Feb. 7, 2014) (amending authorization to add FLNG Liquefaction 2, LLC and FLNG Liquefaction 3, LLC as applicants and authorization holders), *further amended by* DOE/FE Order No. 2913-B (June 7, 2017) (extending commencement date for export term), DOE/FE Order No. 2913-C (Oct. 21, 2020) (extending export term).
[131] The volume approved in this Order is based on a wholly separate application and is additive to DOE/FE Order No. 2913-C; s*ee Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 3066, Docket No. 12-06-LNG, Order Granting Long-Term Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Freeport LNG Terminal to Free Trade Agreement Nations (Feb. 10, 2012), *amended by* DOE/FE Order No. 3066-A (Feb. 7, 2014) (amending authorization to add FLNG Liquefaction 2, LLC and FLNG Liquefaction 3, LLC as applicants and authorization holders), *further amended by* DOE/FE Order No. 3066-B (Oct. 21, 2020) (extending export term).
[132] *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), *amended by* DOE/FE Order No. 3282-D (Oct. 21, 2020) (extending export term).
[133] *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), *reh'g denied*, DOE/FE Order No. 3357-C (Dec. 4, 2015), *amended by* DOE/FE Order No. 3357-D (Oct. 21, 2020) (extending export term).

non-FTA countries through December 31, 2050.[134]

Under these authorizations, as amended, the FTA volumes are not additive to the non-FTA volumes.

Additionally, Freeport Expansion and FLNG Liquefaction 4, LLC (FLIQ4) (together, FLEX4), hold an authorization to export domestically produced LNG from an approved expansion of the Liquefaction Project—the proposed Train 4 Project—to non-FTA countries in DOE/FE Order No. 4374, as amended.[135] Under this Order, FLEX4 is authorized an export volume equivalent to 262.8 Bcf/yr of natural gas from the proposed Train 4 Project to be located at the Freeport LNG Terminal.

With this Order, collectively, the FLEX and FLEX4 entities (Freeport LNG Expansion, L.P., FLNG Liquefaction, LLC, FLNG Liquefaction 2, LLC, FLNG Liquefaction 3, LLC, and FLNG Liquefaction 4, LLC) are authorized to export LNG from the Freeport LNG Terminal in a total combined volume equivalent to 1,022.0 Bcf/yr of natural gas to FTA countries and 1,132.8 Bcf/yr of natural gas to non-FTA countries on a non-additive basis.[136]

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[134] *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), *amended by* DOE/FE Order No. 3957-A (Oct. 21, 2020) (extending export term).

[135] *Freeport LNG Expansion, L.P. and FLNG Liquefaction 4, LLC*, 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), *amended by* DOE/FE Order No. 4374-A (Oct. 21, 2020) (extending export term).

[136] Appendix A to this Order provides additional information about these authorizations.

C. Source of Natural Gas

FLEX states that, because of the significant interconnectivity of the U.S. natural gas pipeline system, it will have access to natural gas from nearly any basin or supply source, either through direct delivery or by displacement.[137]

D. Business Model

FLEX 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.[138] FLEX states that it has not yet entered into any long-term export contracts specific to the requested authorization.[139] FLEX further states that it will file, or cause to be filed, all long-term contracts either as unredacted or under seal with DOE once those agreements are executed.[140]

V. APPLICANT'S PUBLIC INTEREST ANALYSIS

A. Overview

FLEX 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. FLEX points to its existing non-FTA authorizations in stating that DOE has already determined that "substantial economic and public benefits … are likely to flow" from U.S. exports of LNG.[141] FLEX maintains that the same rationale supporting DOE's grant of authority in those proceedings applies equally here. FLEX incorporates by reference its record "clearly" demonstrating the public interest benefits of exports in Docket Nos. 10-161-LNG and 11-161-LNG from the Liquefaction Project.[142]

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[137] FLEX App. at 5.
[138] *Id.* at 2, 5.
[139] *Id.* at 5.
[140] *Id.* at 6.
[141] *Id*. at 7.
[142] *Id.*

Additionally, FLEX points to the 1984 DOE *Policy Guidelines*, which state that "[t]he market, not government, should determine the price and other contract terms of imported [and exported] gas," and that "the federal government's primary responsibility … should be to evaluate the need for the gas …."[143] FLEX argues that DOE has stated in previous export authorizations that domestic need for the natural gas to be exported is "the only explicit criterion that must be considered in determining the public interest."[144]

B. Domestic Natural Gas Supply and Demand

FLEX asserts that the domestic supply of natural gas will far exceed market demand for the foreseeable future. Citing projections by EIA, FLEX states that "[b]oth short and long term EIA projections make clear that domestic natural gas resources are abundantly available to meet projected future domestic needs," including its proposed export volume.[145]

Citing EIA's September 2021 *Short-Term Energy Outlook* (STEO), FLEX states that U.S. natural gas production in 2022 will be 2.7 Bcf/d higher than in the second half of 2021, while U.S. consumption of natural gas between 2021 and 2022 is expected to remain flat.[146] FLEX asserts that a similar trend of production outpacing demand will continue in the long-term. According to FLEX, EIA concluded in their *Annual Energy Outlook 2021* (AEO 2021) that "[c]ontinuing record-high domestic energy production supports natural gas exports..."[147]

C. U.S. and Global Energy Policy

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[143] FLEX App. at 8 (citing DOE, *New Policy Guidelines and Delegation Orders from Secretary of Energy to Economic Regulatory Administration and Federal Energy Regulatory Commission Relating to the Regulation of Imported Natural Gas*, 49 Fed. Reg. 6684, 6685 (Feb. 22, 1984)).
[144] *Id.* (citing *Phillips Alaska* at 14).
[145] *Id.*
[146] *Id.* (citing U.S. Energy Info. Admin., *September 2021 Short-Term Energy Outlook*, at 3 (Sep. 8, 2021), https://www.eia.gov/outlooks/steo/archives/sep21.pdf).
[147] *Id.* at 9 (citing U.S. Energy Info. Admin., *Annual Energy Outlook 2021*, at 3 (with projections to 2050) (Feb. 3, 2021), https://www.eia.gov/outlooks/archive/aeo21/ [hereinafter AEO 2021]).

FLEX states that natural gas exports are consistent with U.S. policy initiatives and global energy priorities. FLEX contends that the Application supports the statements made by U.S. Secretary of Energy Jennifer Granholm's policy goals that "U.S. LNG exports can have an important role to play in reducing international consumption of fuels that have greater contribution to greenhouse gas emissions."[148] FLEX also points out that DOE has considered the ability of LNG exports to diversify global LNG supplies, thus providing environmental benefits to its allies.[149]

VI. CURRENT PROCEEDING BEFORE DOE

In response to the Notice of Application published in the *Federal Register* on October 8, 2021, DOE received two timely-filed motions to intervene and protests from Sierra Club/NRDC and IECA, in opposition to FLEX's Application. DOE also received two timely-filed comments from CBD and Matthew Deinhardt, each opposing FLEX's requested non-FTA authorization. On December 22, 2021, FLEX filed an Answer in Opposition to Protests and Comments (Answer), opposing both Sierra Club/NRDC and IECA's motions to intervene and protests, and CBD's and Mr. Deinhardt's comments. The Protest, Comments, and FLEX's Answer are summarized below.[150]

A. Motion to Intervene and Protest from Sierra Club/NRDC

On December 7, 2021, Sierra Club/NRDC submitted their joint "Motion to Intervene and Protest" opposing FLEX's Application.[151] Sierra Club/NRDC state that their interests are based on the impact the proposed additional exports will have on each of their organization's members

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[148] *Id*. at 9.
[149] *See* FLEX App. at 11-12.
[150] Following the close of the comment period, DOE also received two comments in opposition and 24 comments in support of the authorization. Because these comments were received after the close of the comment period, they were not considered in this proceeding.
[151] Sierra Club/NRDC Pleading at 1.

and missions.[152] Sierra Club/NRDC state that Sierra Club has 6,057 members residing in the Dallas-Fort Worth ozone non-attainment area and 23,334 members in Texas overall, while NRDC has 9,600 members in Texas that are similarly affected.[153]

Sierra Club/NRDC state that the proposed FLEX exports will harm their members by increasing natural gas production and associated air pollution, including emissions of greenhouse gases and ozone precursors. Additionally, Sierra Club/NRDC state that increasing export volumes will increase shipping traffic beyond levels that would otherwise occur.[154] Sierra Club/NRDC argue additional shipping will increase air pollution, including carbon monoxide and nitrogen oxides, and harm wildlife that each organization's members enjoy viewing, including the "threatened giant manta ray, threatened oceanic whitetip shark, and endangered Rice's whale."[155] Specifically, Sierra Club/NRDC state that "[p]roposals, such as this one, that encourage long-term use of carbon-intensive fossil fuels will increase and prolong greenhouse gas emissions, increasing the severity of climate change and thus of these harms."[156]

Sierra Club/NRDC contend that FLEX's Application is not in the public interest and "should be denied or in the alternative, heavily conditioned."[157] Sierra Club/NRDC assert that FLEX's proposed LNG export increase is not supported by adequate environmental and economic analysis, as is required to satisfy the NGA and NEPA. Sierra Club/NRDC state that "recent [domestic natural gas price] trends call into question the continuing validity of the analyses DOE has relied upon in approving prior export applications, and DOE cannot approve FLEX's application without revisiting these analyses."[158] Sierra Club/NRDC assert that "exports

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[152] *Id*. at 2.
[153] *Id*. at 3.
[154] *Id*. at 3.
[155] *Id*. at 3-4.
[156] *Id*. at 5.
[157] Sierra Club/NRDC Pleading at 1-2.
[158] *Id*. at 2.

are increasingly linking domestic gas prices to prices in the global market [and] [t]hese [price] increases harm American households and energy intensive industry."[159] Additionally, Sierra Club/NRDC state that their members everywhere will be affected by increased energy prices, including natural gas and electricity prices resulting from the proposed exports.[160]

Sierra Club/NRDC further argue that NEPA and the NGA require DOE to consider FLEX's proposed export increase in the context of environmental impacts occurring across the entire LNG lifecycle, and for DOE to consider such impacts in its public interest determination.[161] According to Sierra Club/NRDC, FLEX's proposed export expansion cannot qualify for categorical exclusion as the DOE 2020 categorical exclusion was adopted unlawfully and is invalid.[162] Therefore, Sierra Club/NRDC assert that "DOE must revisit its deeply flawed analysis of the climate impacts of LNG exports" and reject FLEX's request that this project may be categorically excluded from NEPA review.[163]

Additionally, Sierra Club/NRDC maintain that DOE's prior life cycle analyses do not demonstrate that the greenhouse gas emissions caused by FLEX's proposed export expansion are consistent with the public interest.[164] Sierra Club/NRDC contend that natural gas production emits larger amounts of methane than DOE's prior analyses have assumed.[165] Therefore, Sierra Club/NRDC argue that DOE must revisit its prior life cycle analyses for a longer-term analysis on the environmental impacts of expanded LNG exports specifically on domestic emissions, in

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[159] *Id.* at 6.
[160] *Id.* at 3.
[161] *Id.* at 10.
[162] *Id*. at 12-13.
[163] Sierra Club/NRDC Pleading at 10.
[164] *See id.* at 21.
[165] *Id.*

addition to reasonable forecasting on global impacts, and whether increasing LNG exports will help or hinder achievement of the United States' climate goals.[166]

In conclusion, Sierra Club/NRDC contend that the United States and nations around the world have set ambitious goals for reducing greenhouse gas emissions and that FLEX's expanded LNG exports cannot be reconciled with those goals and, therefore, should be denied.[167]

B. Notice of Intervention, Protest and Comment" from Industrial Energy Consumers of America

On December 7, 2021, IECA submitted its "Notice of Intervention, Protest and Comment," which DOE is construing as a motion to intervene and protest.[168] IECA states that it is a nonpartisan association of leading manufacturing companies with $1.1 trillion in annual sales and more than 1.8 million employees. 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.[169] IECA challenges FLEX's proposed increase in exports and DOE's approval of LNG exports generally as contrary to the public interest.

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.[170] IECA maintains that these statutory purposes are frustrated by LNG exports because the exports will tend to reduce domestic supplies and increase domestic prices.[171] In IECA's view, "[a]ssuring U.S. natural gas and

[166] *Id.* at 18-19.
[167] *Id.* at 22.
[168] *See* IECA Pleading at 1.
[169] *See id.* at 1.
[170] *Id.* at 9 (citing *NAACP v. Fed. Power Comm'n*, 425 U.S. 662, 669-70 (1976)).
[171] *Id.*

electricity reliability is DOE's number one responsibility," and "[e]xisting cumulative LNG approval volumes already jeopardize both natural gas and electricity reliability."[172]

IECA argues that a year over year increase in LNG exports has significantly increased natural gas, electricity, and natural gas feedstock prices.[173] IECA argues that "[i]f there were no LNG exports, the U.S. would have sufficient supply and prices would not have been impacted."[174] IECA further claims that "DOE LNG export policy and approvals have never put U.S. reliability, consumers, the economy, and national security as a priority."[175] Therefore, IECA argues, DOE should change its policy "to one that places the U.S. economy first and exports second," and "adopt one that would only allow surplus natural gas to be exported."[176]

According to IECA, high volumes of LNG exports harm the entire domestic manufacturing industry and there are many more manufacturing jobs at risk due to LNG exports than the number of jobs likely to be created in the oil and gas industry if LNG exports are allowed.[177] IECA claims that "[w]hen we export natural gas, we are lowering the cost of natural gas to our manufacturing competitors in other countries and increasing our domestic costs," which "makes it harder for us to compete, invest capital, and create high paying middle-class jobs."[178] According to IECA, the global competitiveness of the manufacturing sector is dependent upon low-cost natural gas, feedstock, and natural gas-fired power generation.[179] IECA states that the U.S. manufacturing sector contributes $2.2 trillion in GDP and provides 12.5 million high paying jobs. IECA compares the manufacturing sector to the oil and gas

[172] *Id.* at 1.
[173] *Id.* at 8.
[174] IECA Pleading at 8.
[175] *Id.* at 4.
[176] *Id.*
[177] *See id.* at 5.
[178] *See id.* at 9.
[179] *Id.* at 2, 7.

industry, which (according to IECA) employs “less than one million and that number has decreased in recent years.”[180] 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 manufacturing assets and jobs at risk.[181] More broadly, IECA argues that only a handful of exporting companies benefit from LNG exports.[182]

IECA further contends that DOE should not approve more LNG export volumes in light of a serious ongoing problem of inadequate natural gas pipeline capacity today and going forward, as significant LNG export capacity comes online. IECA contends that firm access pipeline arrangements by LNG exporters have “locked-up” pipeline capacity and reduce available pipeline capacity for domestic consumers, particularly during peak seasonal winter demand.[183] IECA asserts that “[i]f a manufacturer wants to build a new facility, it may not have sufficient pipeline capacity.”[184] 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. IECA also argues that “[p]otential new FERC regulatory changes to pipeline permitting and certain anti-fossil energy states and activists, could make it harder and more time-consuming to build or expand needed interstate pipelines and take-away pipeline capacity”[185] to meet demand.

Addressing natural gas prices, IECA asserts that the “policy of the U.S. should be to export LNG volumes at levels where domestic pricing is not determined by global demand.”[186] IECA maintains that DOE has failed to consider the fact that state-owned enterprises (SOEs) and

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[180] IECA Pleading at 5.
[181] *Id. See also id.* at 7.
[182] *Id.* at 2.
[183] *Id.* at 3.
[184] *Id.*
[185] *Id.*
[186] *See* IECA Pleading at 8-9.

foreign government-controlled utilities in importing nations have the capacity to purchase U.S. LNG in great volumes during high demand periods in the United States without regard to price (due to the market power of the SOEs and their use of automatic cost pass-through provisions), thereby driving up natural gas prices for U.S. consumers.[187] IECA states that DOE has failed to consider the fact that LNG exports will mean that the price paid by domestic consumers in the United States will be connected to the higher price of natural gas paid in global markets, thereby driving up the price of natural gas and electricity for U.S. consumers and manufacturers. As an example, IECA cites increases in Australia's domestic prices of natural gas.[188] IECA further points to increased U.S. crude oil prices, which it states are connected to the global market price.

Finally, IECA argues that DOE's LNG export studies lack "objectivity and integrity" because the study results are not reproducible.[189]

C. Comment of CBD

In a filing submitted to DOE on December 7, 2021, CBD states that it "supports and incorporates by reference the Sierra Club and Natural Resources Defense Council's protest."[190] Additionally, CBD expresses general concern about DOE's categorical exclusion rule and that it should not be applied to LNG exports or the Applicant's proposed exports.[191] CBD further argues that "[e]ach LNG export decision should involve a thorough, science-based review that discloses the project's true environmental impacts, including the greenhouse gas emission-related climate impacts and marine species impacts."[192]

D. Comment of Matthew Deinhardt

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[187] *Id.* at 2-3.
[188] *Id.* at 9.
[189] *Id.* at 12-13.
[190] *See* CBD Comment at 1.
[191] *Id.* at 1-2.
[192] *Id.* at 2.

Mr. Deinhardt submitted a filing on December 6, 2021, which DOE is construing as a comment opposing the Application.[193] First, Mr. Deinhardt questions the impacts associated with FLEX's proposed exports. He argues that there is a lack of "appropriate impact studies conducted by a neutral party appointed by the DOE that indicate[s] the long term impact to the domestic energy market this [LNG exports] will create" generally or specifically on the state of Texas.[194] Mr. Deinhardt also states that "our country is in the transition from fossil fuels to green energy, which is going to create supply and price problems already."[195]

Next, Mr. Deinhardt cites a lack of "profit statement" provided in the Application "that indicate what they will make on the deal" which, he contends, is necessary to weigh "the impacts to the environment from the manufacturing of LNG at Freeport, Texas."[196]

E. Answer of FLEX

On December 22, 2021, FLEX filed its consolidated Answer in opposition to the Motion to Intervene and Protest filed by Sierra Club/NRDC, the Notice of Intervention, Protest and Comment filed by IECA, and the comment in opposition filed by the CBD (collectively, the Protests).[197] FLEX urges DOE to reject the arguments presented in the Protests because they are without merit and do not bear on FLEX's Application.[198] FLEX further points out that CBD and Mr. Deinhardt "failed to serve a copy of [their filings] on FLEX or its Counsel" as required by 10 C.F.R. § 590.304(d) and the *Federal Register* in these proceedings.[199]

At the outset, FLEX states that the requested increase in LNG production "reflects a relatively small increase in total exports at an operational facility and involves no new

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[193] *See* Deinhardt Comment at 1.
[194] *See id.*
[195] *Id.*
[196] *Id.*
[197] FLEX Answer, Docket No. 21-98-LNG (Dec. 22, 2021).
[198] *Id.* at 5.
[199] *Id.* at 1 n.2. *See also id*. at 2 n.4.

construction, nor any impact to existing environmental permits, nor additional authorization for ship calls."[200] FLEX further adds that "LNG exports have a myriad of benefits to the local, state and national economy, in addition to balance of trade benefits, international relations benefits and climate benefits."[201]

FLEX contends that the Protests articulated only generalized arguments that do not directly relate to the Application and, thus, are not sufficient to warrant intervention. For example, FLEX states that Sierra Club/NRDC's arguments on anticipating doubling of energy prices "driven largely by increased demand for LNG exports" during the winter of 2021-22 has no applicability to FLEX's Application as it is "impossible" for the Application to impact wholesale gas prices in a winter prior to its approval.[202] FLEX further states that it is "unreasonable to suggest that LNG exports are the sole cause of the recent increase in domestic natural gas prices" and that the "global market volatility caused by the COVID-19 pandemic is not reflective of actual supply and demand, nor is it a reasonable projection of future prices or market activity."[203]

FLEX counters Sierra Club/NRDC's argument that "producers are not responding to increased exports, resulting in higher prices,"[204] by noting that the EIA has predicted that production will continue to outpace demand in EIA's Annual Energy Outlook 2021 and that natural gas production is predicted to establish a new monthly record high by the end of 2022.[205] FLEX contends that IECA "makes a number of arguments regarding the adequacy of domestic natural gas supplies and the potential price impact of increased LNG exports."[206] FLEX states

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[200] *Id.* at 5.
[201] *Id.*
[202] *Id.* at 5-6.
[203] FLEX Answer at 6.
[204] *Id.* at 7.
[205] *Id.* at 7-8.
[206] *Id.* at 8.

despite IECA's contention "IECA is well aware, the existing approved volume of exports is not equivalent to the actual volume of exports," and "the reality is that not all projects can or will get funded and contracted."[207] Addressing the Protests' arguments concerning domestic natural gas supply, reliability, and prices, FLEX states that "U.S. LNG exports are a small fraction of total U.S. natural gas production."[208] Citing EIA's AEO 2021 and the December 2021 STEO, FLEX notes that future domestic natural gas supply will continue to outpace demand in the near term and through 2050, and thus support U.S. LNG export levels.[209] Additionally, FLEX disagrees with IECA's statement that "[n]o one can forecast energy supply and demand for a 30-year period," noting that DOE and EIA have been conducting and publishing long-term forecasts for years. [210]

Next, FLEX argues that none of the Protests' generalized objections to the validity of DOE's macroeconomic studies and its application to export approval proceedings are particularized to the instant proceeding.[211] First, FLEX counters Sierra Club/NRDC's claim that the current surge in gas prices calls DOE's prior macroeconomic analysis into question by arguing that it is not reasonable to treat the global pandemic market response and pricing as undermining years of modelling and study.[212] Then FLEX asserts that "IECA makes the incorrect assertion that the DOE-commissioned studies were deficient because they failed to consider available pipeline capacity."[213] FLEX states that "this collateral attack on DOE's studies is wholly inappropriate for this proceeding, as no additional [natural gas] pipeline

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207 *Id*. at 9.
208 *Id.*
209 FLEX Answer at 7-10 (citing AEO 2021; also citing U.S. Energy Info. Admin., *December 2021 Short-Term Energy Outlook* (Dec. 7, 2021), https://www.eia.gov/outlooks/steo/archives/dec21.pdf).
210 *Id.* at 11.
211 *Id. at* 11-12.
212 *Id*.
213 *Id*. at 12.

capacity is proposed or required in conjunction with FLEX's request to DOE, nor its request to increase production capacity at FERC."[214] FLEX further emphasizes that "DOE/FECM has no jurisdiction over the siting, construction or operation of interstate pipelines."[215]

In addressing IECA's arguments asserting that "LNG exporters have locked-up firm pipeline capacity" and that "DOE has an obligation to know whether there is adequate pipeline capacity to deliver previously approved LNG exports before new applications are considered," FLEX maintains that LNG exporters have not "locked up" all the firm pipeline capacity, and "pipelines in the U.S. are generally amenable to expanding their facilities to serve new customers if there is adequate demand – such as in the case of a new manufacturing facility."[216] FLEX further adds that "because exports to Non-FTA Nations are not authorized until after FERC approval is issued for the underlying facilities that support such export volumes, DOE export authorizations generally are not issued for facilities that do not have a direct pipeline interconnect sufficient to transport the requested export quantity."[217] Regarding IECA's assertion that DOE's macroeconomic analysis does not comply with the Data Quality Act, FLEX notes that the non-FTA application review is not the appropriate venue for those claims, and more importantly, that those arguments have already been reviewed and dismissed by DOE.[218]

FLEX next argues that objections to DOE's use of prior GHG life cycle analyses and categorical exclusion applied to LNG exports, raised by Sierra Club, NRDC, and CBD, have already been considered and rejected by DOE in prior proceedings.[219] FLEX further asserts that the contention that "the environmental impacts of FLEX's proposed export increase also weigh

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[214] *Id*.
[215] FLEX Answer at 12.
[216] *Id.* at 13.
[217] *Id*.
[218] *Id.* at 13-14.
[219] *Id*. at 14-16.

against the public interest" is misleading.[220] FLEX states that the proposed increase in liquefaction capacity does not entail the construction of new facilities, or the modification of previously authorized facilities. FLEX adds that "[w]hile additional feed gas will be supplied to the Liquefaction Project as a result of the increase, the Liquefaction Project can achieve the requested LNG production level while remaining within the previously-permitted levels for air emissions and other regulatory requirements."[221] FLEX further states that "[n]o additional ship calls beyond those currently authorized for the facility will be required in connection with the increased export capacity, and no anticipated increase in noise is associated with the request."[222]

Finally, FLEX argues that IECA's appeal that "only surplus natural gas should be allowed for export" essentially requests DOE to "erect trade barriers in favor of the U.S. manufacturing industry, and actively inhibit one industry to create an unsubstantiated benefit for another," which would be in direct contravention of DOE's long-standing policy to foster a competitive marketplace."[223] More broadly, FLEX contends that it is not DOE's role "to interfere with legal business transactions that are permissible under U.S. law with active trading partners and allies, or engage in policies that actively protect one U.S. industry to the detriment of another."[224]

For these and other reasons set forth in the Answer, FLEX argues that DOE should reject the Protests and the Deinhardt Comment[225] that its requested non-FTA LNG exports are not in the public interest.

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[220] *Id.* at 16-17.
[221] FLEX Answer at 17.
[222] *Id.*
[223] *Id.* at 18-19.
[224] *Id.*
[225] FLEX does not respond to any of the arguments raised in the Deinhardt Comment. Rather, in FLEX Answer note 4, FLEX states that Deinhardt's comment raised alleged deficiencies that are not requirements for an export application, and he failed to serve a copy of his comment on FLEX or its counsel, as required by 10 C.F.R. § 590.304(d).

VII. FERC PROCEEDING

A. FERC's Environmental Review

On June 29, 2021, FLEX filed an application with FERC requesting a capacity amendment to increase the total liquefaction capacity of the Liquefaction Project.[226] FERC assigned Docket No. CP21-470-000 to FLEX's application. FERC staff published a Notice of Application on July 21, 2021.[227] The application received one protest from the Sierra Club.[228]

On May 12, 2022, in compliance with NEPA, FERC staff issued the environmental assessment (EA) for the Capacity Amendment Project (Capacity Amendment Project EA or EA).[229] Referencing the 2014 EIS and 2016 EA for the Liquefaction Project, FERC staff noted that the requested Capacity Amendment Project did not involve construction of new facilities or the modification of previously authorized facilities and, therefore, would not affect the following resources: ground water, springs, or aquifers; wetlands or waterbodies; surface water, water intakes, or sources water protection areas; cultural resources; forested lands, and vegetation; residential or commercial areas; fish or wildlife, including federally threatened and/or endangered species; geologic resources and soils; noise; and state or national parks, forests, recreation areas, or refuge areas.[230]

The Capacity Amendment Project EA also addressed air quality, climate change, environmental justice, cumulative impacts, and reliability and safety. In assessing air quality, FERC staff cited a data response provided by FLEX that explained the requested production

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[226] *See supra* § I; *see also Freeport LNG Development, L.P., et al.*, Application of Freeport LNG Development, L.P., *et al*., for Limited Amendment to Authorizations Granted under Section 3 of the Natural Gas Act, FERC Docket No. CP21-470-000 (June 29, 2021).
[227] Fed. Energy Regulatory Comm'n, Freeport LNG Development, L.P., *et.al*.; Notice of Application and Establishing Intervention Deadline, FERC Docket No. CP21-470-000, 86 Fed. Reg. 38,474 (Jul. 21, 2021); *see also* FERC Order at P 9.
[228] *See* FERC Order at P 9.
[229] *See id.* at P 23; *see also supra* note 13.
[230] EA at 3-4.

capacity increase would not result in an increase in air emissions of criteria pollutants, volatile organic compounds, and hazardous air pollutants beyond levels previously analyzed in the 2014 EIS and authorized in FLEX's existing permit.[231] The EA also addressed a comment from Sierra Club requesting a Clean Air Act General Conformity Determination, determining that one was not required.[232]

In addressing potential climate change impacts, FERC staff noted that to date, it had "not identified a methodology to attribute discrete, quantifiable, physical effects on the environment resulting from the Project's incremental contribution to GHGs."[233] FERC staff further noted that the EA does not characterize the Project's GHG emissions "as significant or insignificant because the Commission is conducting a generic proceeding to determine whether and how the Commission will conduct significance determinations going forward."[234] In quantifying incremental emissions from the proposed capacity amendment, the EA observed that "[t]here would be no construction emissions and only about 31,185 metric tons per year increase of CO_2 emissions due to increased pass-through GHG emissions in the acid gas removal units."[235] To provide context for the Project's projected emissions, the EA provided estimates of the Project's operational emissions of CO_2, compared to 2020 emissions in the United States, stating that they could "potentially increase GHG emissions by 0.0006 percent based on the national 2020 Inventory,"[236] and, compared to emissions in Texas, "could potentially increase state emissions by 0.005 percent."[237] To provide a monetization of potential climate change effects, the EA

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[231] *Id.* at 4.
[232] *Id.* 4-5.
[233] *Id.* at 8.
[234] *Id.*; *see also* FERC Order at P 26 & n.37.
[235] EA at 7.
[236] *Id.* at 8 (citing U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020 at ES-9 (Table ES-2) (2022) (accessed April 2022)).
[237] *Id.* at 8 & n.23.

provided a range of estimates of the social cost of incremental greenhouse gas emissions – from $7.9 million to $45.1 million, in 2020 dollars, with the 95th percentile of the social cost for a three percent discount rate yielding a cost of $90.5 million dollars.[238]

Addressing environmental justice, the EA noted that the proposed capacity amendment would have no incremental impacts in most resource areas, but that "impacts on environmental justice communities associated with increases in GHGs may occur and would be cumulative and global in nature."[239] The EA also observed that, "[w]hile single climate impacts can be manageable for certain communities, the impacts of compounded extreme events (such as simultaneous heat and drought, or flooding associated with high precipitation on top of saturated soils) may exacerbate preexisting environmental justice community vulnerabilities and contribute to a cumulative adverse impact on environmental justice communities…."[240]

The EA also addressed cumulative impacts, stating that "the potential cumulative impacts associated with the Project are limited to any operational impacts of the Project facilities combined with the impacts of other proposed developments occurring within the vicinity of the Project,"[241] and noting that neither Freeport LNG nor FERC staff had identified activities either ongoing or reasonably foreseeable that could have impacts in the area of the Project. The EA noted that "[t]he changes described as the basis for increased production capacity would not increase the levels of any criteria pollutants, volatile organic compounds, or hazardous air pollutants above what was authorized by the terminal's air permit issued by the Texas Commission on Environmental Quality."[242]

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[238] *Id.* at 9 & nn.27,28,29,30.
[239] *Id.* at 10.
[240] *Id.*
[241] EA at 11.
[242] *Id.*

In assessing reliability and safety, FERC staff noted that regulatory oversight, hazards, and engineering designs remain largely unchanged from those analyzed in previous reviews related to the facility.[243] The EA noted that there would be no additional LNG vessel transits beyond those already authorized by the USCG,[244] and that the Pipeline and Hazardous Materials Safety Administration informed FERC that the project complies with siting requirements.[245] FERC's analysis determined that increasing permitted capacity by the requested amount "would not require any construction and would be in compliance with applicable LNG design and other FERC regulatory requirements."[246] FERC staff determined that "[b]ased on our technical review of the engineering information provided, we conclude that the existing facility designs and layers of safeguards would be sufficient to mitigate the potential for an incident that could impact the safety of the public."[247]

Based on the analysis presented in the EA, FERC staff concluded that, "if [FLEX] operates the proposed facilities in accordance with its application and supplements, approval of the [Capacity Amendment] Project would not constitute a major federal action significantly affecting the quality of the human environment."[248]

FERC received one comment from the U.S. Environmental Protection Agency (EPA) on the Capacity Amendment Project EA regarding tribal consultation and potential environmental justice impacts.[249]

B. FERC's Order Granting the Capacity Amendment Project

[243] *Id.*
[244] *Id*. at 12.
[245] *Id.*
[246] *Id.*
[247] EA at 13. *See also* FERC Order at P 31.
[248] EA at 14. *See also* FERC Order at P 31.
[249] FERC Order at P 25.

On July 29, 2022, FERC issued its Order amending FLEX's existing NGA section 3 authorization to increase the approved liquefaction production capacity of the Liquefaction Project from 782 Bcf/yr to 870 Bcf/yr.[250]

In its Order, FERC first reviewed FLEX's procedural history for the Liquefaction Project. As relevant here, FERC summarized its existing NGA section 3 order authorizing FLEX to construct and operate the Liquefaction Project.[251]

Turning to the requested Capacity Amendment, FERC observed that "it is appropriate for LNG export authorizations to reflect the maximum or peak capacity at optimal conditions, as such level represents the actual potential production of LNG."[252] For this reason, FERC found that "Freeport LNG's amendment application and related filings contain adequate support to justify the proposed 88 Bcf/y increase to the maximum authorized LNG production capacity at the Liquefaction Project."[253] Addressing FLEX's application, FERC found that "[b]ased on the Commission's engineering analyses, we conclude that the liquefaction and storage facilities can accommodate the increase" without requiring any modification of the Liquefaction Project facilities.[254]

Next, FERC addressed Sierra Club's comments in response to the Notice of Application, and EPA's comment on the EA. Regarding Sierra's Club's comments, FERC explained that its

[250] FERC Order at P 2 and 13.
[251] *Id.* at P 4 and n.4 (citing *Freeport LNG Dev. L.P.* Order Granting Authorizations Under Section 3 of the Natural Gas Act, 148 FERC ¶ 61,076 (2014 Order), *order denying reh'g*, 149 FERC ¶ 61,119 (2014)). In 2004, the Commission authorized Freeport's LNG terminal for the importation of LNG. *Freeport LNG Dev. L.P.*, 107 FERC ¶ 61,278, *order on reh'g*, 108 FERC ¶ 61,253 (2004). Subsequently, the Commission authorized various amendments to the import facility. *Freeport LNG Dev. L.P.*, 112 FERC ¶ 61,194 (2005) (order authorizing Freeport LNG to increase the diameter of its send-out pipeline); *Freeport LNG Dev. L.P.*, 116 FERC ¶ 61,290 (2006) (order authorizing expansion of the LNG terminal and an increase in its send-out capacity from 1.5 Bcf per day to 4.0 Bcf per day)).
[252] *Id.* at P 5.
[253] *Id*.
[254] *Id.*

requests for the Commission to prepare an environmental review and a Clean Air Act General Conformity determination, and to analyze the increase in emissions, were addressed in the Air Quality and Climate Change sections of the EA.[255] Regarding the EPA's comment on tribal consultation and environmental justice impacts, FERC stated that the EA indicated that no consultation with Tribal governments would be necessary because there would be no new construction emissions, only limited operational emissions, and no localized air quality impacts.[256] In addition, FERC noted that the EA "identified no localized impacts to environmental justice communities."[257] Regarding EPA's additional comments, FERC stated that air quality impacts were addressed in the EA, and that, as indicated in the EA, no emissions in excess of the General Conformity Applicability thresholds would occur.[258]

Finally, FERC noted that after the issuance of the Capacity Amendment Project EA, an explosion and associated fire occurred at the Liquefaction Project on June 8, 2022, which remained under investigation.[259] FERC acknowledged that FERC Staff "conclude[d] that the existing facility designs and layers of safeguards would be sufficient to mitigate the potential for an incident that could impact the safety of the public."[260] FERC stated that pursuant to Environmental Condition 2 and consistent with its authorization, the Director of the Office of Energy Projects (OEP) "has the authority to take all steps necessary to ensure the protection of life, health, property, and the environment during project operation."[261] The Commission stated that it would require the "implementation of any measures it finds necessary to assure safe operation of the Liquefaction Project as determined by the Director of OEP following the root

[255] *Id.* at P 24.
[256] FERC Order at PP 25-26.
[257] *Id.* at P 30 and n.42.
[258] *Id.* at P 27.
[259] *Id.* at P 31.
[260] *Id.*
[261] *Id.*

cause investigation of the explosion and fire."[262] For these reasons, FERC found there would be no additional safety risks assessments beyond those analyzed in the EA to supplement the EA.[263]

Based on the analysis in the EA, FERC concluded that, if the Liquefaction Project's process design modifications are operated in accordance with FLEX's application and supplements, and comply with the environmental and engineering conditions imposed in FERC's existing authorization for the Liquefaction Project, FERC's approval "would not constitute a major federal action significantly affecting the quality of the human environment."[264] Subject to those conditions, FERC found that the Capacity Amendment Project was not inconsistent with the public interest under NGA section 3.[265] FERC also ordered that, in all other respects, FLEX's existing NGA section 3 authorization—including the environmental conditions set forth in that order—"shall remain in full force and effect."[266]

VIII. DISCUSSION AND CONCLUSIONS

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

- FLEX's Application, Sierra Club/NRDC and IECA's motions to intervene and protest in opposition to the Application, the comment in opposition filed by CBD, the comment in opposition filed by Mr. Deinhardt, and FLEX's Answer;
- FERC's Capacity Amendment Project EA and July 29, 2022 Order;

[262] FERC Order at P 31*; see also, Freeport LNG Development L.P.*, 148 FERC ¶ 61,076 at Appendix A, Condition 2.
[263] *Id.*at P 31. DOE takes administrative notice that on February 21, 2023, FERC authorized the return to full commercial service of two liquefaction trains at the Liquefaction Project. According to FLEX, liquefaction operations have resumed, and LNG production and ship loading from the Project began on February 11, 2023. *See Freeport LNG Restart Press Release,* Freeport LNG Newsroom (Feb. 21, 2023), https://www.newsrouter.com/Newsrouter_uploads/77_New/news_release.asp?intRelease_ID=9759&intAcc_ID=77.
[264] *Id.*
[265] *Id.* at P 12.
[266] *Id.* at Ordering Para. C; *see supra* note 252 (FERC's authorization orders for the Liquefaction Project).

- FERC's 2014 EIS
- FERC's 2016 EA
- 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

FLEX opposes the motion to intervene filed by Sierra Club/NRDC, the notice of intervention filed by IECA, and the filed comments in opposition by CBD and Mr. Deinhardt. FLEX contends that the arguments raised in the Protests are misleading, do not relate directly to the Application and thus should be disregarded.[267]

First, FLEX opposes the CBD and Deinhardt comments on procedural grounds, stating that CBD and Mr. Deinhardt "failed to serve a copy of their Comments in Opposition on FLEX or its Counsel" as required by 10 C.F.R. § 590.304(d).[268] As required by 10 C.F.R. § 590.205 DOE published the Notice of Application in the Federal Register for persons to file protests, comments, or a motion to intervene or notice of intervention.[269] Contrary to FLEX's assertion, CBD and Mr. Deinhardt were not required to serve their comments on FLEX or its Counsel because they were not a party to the proceeding, nor did they file a protest. Rather, DOE finds

[267] FLEX Answer at 5.
[268] 10 CFR. § 590.304(d): Protests shall be served on the applicant and all parties by the person filing the protest… *See also* 10 C.F.R. § 590.107(a): An applicant, any other party to a proceeding, or a person filing a protest shall serve a copy of all documents filed with FE upon all parties unless otherwise provided in this part…
[269] *See supra* note 26.

that both CBD and Mr. Deinhardt filed comments in accordance with DOE's regulations at 10 C.F.R. § 590.107. Therefore, DOE disagrees with FLEX's contention that the comments should be dismissed.

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 Sierra Club/NRDC, IECA and their members. In addition, Sierra Club/NRDC and IECA raise issues that are relevant to the public interest. FLEX was afforded an opportunity to respond to Sierra Club/NRDC's and IECA's motions pursuant to 10 C.F.R. § 590.304(f), and it did so. Accordingly, we grant Sierra Club/NRDC's and IECA's motions to intervene.[270]

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."[271] Sierra Club/NRDC and IECA assert, among other arguments, that the "Natural Gas Act's '[principal] aim[s]' are 'encouraging the orderly development of plentiful supplies of natural gas at reasonable prices and protecting consumers against exploitation at the hands of natural companies.'"[272] Sierra Club/NRDC and IECA assert that if LNG exports threaten the plentiful supply of natural gas at reasonable prices, they cannot be in the public interest within the meaning of the NGA. 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.[273]

[270] *See infra* § XI.M.
[271] 15 U.S.C. § 717b(a); *supra* § III.
[272] *See* Sierra Club/NRDC Pleading at 10; *see also* IECA Pleading at 9.
[273] *See* IECA Pleading at 10.

DOE previously reviewed and rejected these arguments made by Sierra Club/NRDC and IECA.[274] 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.[275] 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.'"[276]

FLEX asserts that the domestic need for natural gas is the only explicit criterion DOE must evaluate.[277] However, in dozens of LNG export proceedings to date, DOE has reasonably exercised its discretion by considering a range of relevant factors in evaluating the public interest.[278] DOE's review of an application to export U.S. LNG has generally focused on: (i) the domestic need for the natural gas proposed to be exported, (ii) whether the proposed exports pose a threat to the security of domestic natural gas supplies, (iii) whether the arrangement is consistent with DOE's policy of promoting market competition, and (iv) any other factors bearing on the public interest, as determined by DOE.[279] 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.[280] Furthermore, the D.C. Circuit has recognized DOE's approach to

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[274] *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).
[275] *Sierra Club I*, 867 F.3d at 203 (citation omitted).
[276] *See*, *e.g.*, *FCC v. WNCN Listeners Guild*, *et al.*, 450 U.S. 582, 593 (1981) (quoting *FCC v. Pottsville Broad. Co.*, 309 U.S. 134, 138 (1940)).
[277] FLEX App. at 8 (citing *Phillips Alaska* at 14).
[278] *See supra* § III.; *see also*, *infra* § VIII.E (identifying long-term orders authorized to date).
[279] *See supra* § III.
[280] *See Phillips Alaska Natural Gas Corp.*, *et al*., DOE/FE Order No. 1473, Docket No. 96-99-LNG, Order Extending Authorization to Export Liquefied Natural Gas from Alaska (Apr. 2, 1999), at 14; *see also supra* § III.

evaluating the public interest,[281] including its consideration of numerous factors, and upheld DOE's decision-making under this statutory and regulatory framework.[282]

For these reasons and those previously stated, we reject Sierra Club/NRDC's and IECA's arguments that DOE should not rely on the 1984 Policy Guidelines—and DOE's long-standing regulatory framework—in reviewing FLEX'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.[283] DOE analyzed this material in its Response to Comments, published in the *Federal Register* on December 28, 2018. Based on the 2018 LNG Export Study, DOE concluded that the United States will experience net economic benefits from the issuance of authorizations to export domestically produced LNG.[284] 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.[285] As noted herein, DOE's cumulative volume of approved non-FTA exports from the lower-48 states as of today—47.29 Bcf/d of natural gas—is within this upper volume. With this authorization for FLEX, the cumulative total of U.S. and Mexico LNG export capacity, using U.S.-sourced natural gas, that is currently operating or under construction totals 20.77 Bcf/d.[286]

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[281] *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.").
[282] *See*, *e.g.*, *id.* at 193-94, 202-03.
[283] *See supra* § II.A.3.
[284] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,272.
[285] *See id.* at 67,273.
[286] This 20.77 Bcf/d volume representing export capacity approved to non-FTA countries currently operating or under construction is comprised of:
(i) 0.24 Bcf/d issued to Freeport LNG Expansion, L.P., *et al.* in this Order;
(ii) 20.09 Bcf/d of non-FTA volumes under construction or operating in the United States at the end of 2022 (*see* U.S. Energy Info. Admin., U.S. Liquefaction Capacity (Dec. 29, 2022),

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.[287] 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)[288] shows net LNG exports of 12.5 Bcf/d of natural gas in 2050, compared with the AEO 2022 Reference case that shows net LNG exports of 15.9 Bcf/d in 2050.

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

https://www.eia.gov/naturalgas/U.S.liquefactioncapacity.xlsx, calculated by adding Column N in "Existing & Under Construction" worksheet); and

(iii) 0.44 Bcf/d in U.S.-sourced natural gas to be re-exported in the form of LNG by ECA Liquefaction, S. de R.L. de C.V. from the ECA Mid-Scale Project Phase 1, under construction in Mexico (*see* Docket No. 18-144-LNG).

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

[288] 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 (CPP). 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.

consumed in the United States."[289] Based on these projections, the AEO 2022 Reference case is even more supportive of exports than the AEO 2017 Reference case without the CPP.

Additionally, in light of the recent attention on energy prices brought into focus by the market recovery from the coronavirus 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 February 7, 2023.[290] The STEO projects that the total domestic production of natural gas in the United States is expected to rise from an average of 98.1 Bcf/d in 2022 to 100.3 Bcf/d in 2023, surpassing pre-Covid-19 pandemic production levels.[291]

Finally, IECA argues that the 2018 LNG Export Study, as well as DOE's prior economic studies, "lack credibility" and do not comply with the Data Quality Act.[292] We note that, on March 20, 2019, months before IECA filed its pleading in this proceeding on December 7, 2019, DOE notified IECA that it was denying its formal request for correction of the 2018 LNG Export Study under the Data Quality Act.[293] DOE therefore finds that these arguments have been previously addressed and rejected. Additionally, we incorporate DOE's responses to IECA's arguments concerning the Data Quality Act into this proceeding.[294]

For these reasons, we reaffirm that the 2018 LNG Export Study is fundamentally sound. The 2018 Study, as well as the AEO 2022 and February 2023 STEO, support our finding that

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[289] *See* AEO 2022 at 26.

[290] U.S. Energy Info. Admin., *Short-Term Energy Outlook* (Feb. 7, 2023), https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf [hereinafter February 2023 STEO].

[291] *See id*. at 37 ("Table 5a").

[292] IECA Pleading at 8, 10.

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

[294] *See id.*

FLEX's proposed increase in non-FTA exports—in a volume of 88 Bcf/yr of natural gas—will not be inconsistent with the public interest.

3. FLEX's Application

Upon review of the Application and the Protests' 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 FLEX's authorization under NGA section 3(a).

First, the Protests have not explained how their broader concerns about LNG exports pertain to FLEX's request for an increased export volume made possible under upper limit normal operations of the three liquefaction trains at the Liquefaction Project. IECA asserts generally that increased exports of U.S. LNG will take pipeline capacity away from U.S. manufacturers and consumers.[295] Under NGA section 7, FERC has exclusive authority over the construction and operation of interstate natural gas pipelines and related facilities.[296] We agree with FLEX 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.[297]

To the extent these arguments are relevant to this proceeding, they do not overcome the statutory presumption favoring export authorization.[298] The Liquefaction Project has access to multiple basins or supply sources due to multiple U.S. natural gas pipeline interconnection points.[299] IECA has not demonstrated that there are regular or longstanding pipeline constraints

[295] *See* IECA Pleading at 3.
[296] 15 U.S.C. § 717f.
[297] *See* FLEX Answer at 12-13; *see also* IECA Pleading at 3.
[298] *See supra* § III.
[299] *See* FLEX App. at 5.

within the Gulf Coast, or "South Central," region that could be impacted by the requested authorization.[300]

DOE takes administrative notice that, of the new interstate natural gas pipeline capacity added in 2022 totaling 5.04 Bcf/d across all U.S. regions, approximately two-thirds, or 3.31 Bcf/d, was added to transport natural gas into and within the South Central region.[301] Most of this additional capacity is expected to serve growing LNG export demand, primarily by better connecting other interstate pipelines with LNG export terminals."[302] Additionally, EIA's analysis indicates an additional five new pipeline projects—four newly announced projects and one project under construction—that "together would increase takeaway capacity out of the Permian Basin by a combined [additional] 4.18 [] Bcf/d over the next two years" in the same region.[303] Therefore, even if this argument was properly raised in this proceeding, we find that the existing and the projected natural gas pipeline system has more than enough capacity to support the requested export volume—88 Bcf/yr, or 0.24 Bcf/d, of natural gas.

Second, FLEX points to DOE's 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.[304] We agree. Specifically, we find that the 2018 Study, AEO 2022, and February 2023 STEO project robust domestic supply conditions that are more than adequate to satisfy both domestic needs and exports of LNG, including those

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[300] *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 Freeport LNG Terminal in Texas).
[301] *See* U.S. Energy Info. Admin., Natural Gas Pipeline Projects Tracker (Jan. 31, 2023), https://www.eia.gov/naturalgas/pipelines/EIA-NaturalGasPipelineProjects.xlsx.
[302] *See* U.S. Energy Info. Admin., *Today in Energy* (Feb. 24, 2022).
[303] *See* U.S. Energy Info. Admin., *Today in Energy* (Aug. 4, 2022), https://www.eia.gov/todayinenergy/detail.php?id=53319.
[304] *See* FLEX App. at 7-9; *see also* FLEX Answer at 7-10.

proposed in the Application.[305] We therefore reject Protesters' claims 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.[306] Indeed, the 2018 Study consistently shows macroeconomic benefits to the U.S. economy across the range of scenarios, as well as positive annual growth across the energy intensive sectors of the economy.[307] 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.[308] 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.[309] For these reasons, the record does not support the Protests' 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 the Protests' 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.[310]

In response to the Protests' concerns about the costs of LNG exports falling on American citizens and manufacturers such that U.S. consumers will be "worse off" or "damage[d]" by the export of LNG,[311] we note that in *Sierra Club II*, the D.C. Circuit rejected Sierra Club's

[305] *See, e.g.*, 2018 Study Response to Comments, 83 Fed. Reg. at 67,262; *supra* at § VIII.B.2.
[306] *See, e.g.,* 2018 Study Response to Comments, 83 Fed. Reg. at 67,262.
[307] *See id.* at 67,268-69 (citing 2018 LNG Export Study at 67, 70).
[308] *See id*. at 67,266 (citing 2018 LNG Export Study at 64).
[309] *See id*. at 67,259 (citing 2018 LNG Export Study at 73).
[310] *See* IECA Pleading at 4-5; *see also* Sierra Club/NRDC Pleading at 7-8.
[311] Sierra Club/NRDC Pleading at 8; *see also* IECA Pleading at 2, 4, 14.

argument that DOE "erred by failing to consider distributional impacts" when evaluating the public interest under NGA section 3(a).[312] 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."[313] On this basis, the Court held that DOE had "adequately addressed" concerns regarding distributional impacts.[314] Likewise, in this proceeding, the Protests have not provided an analysis of the distributional consequences of authorizing LNG exports at the household level. Given the evidence of broad net macroeconomic benefits[315] 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 FLEX's requested additional non-FTA export volume is 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 the Protests' concerns. 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."[316] The 2018 Study also shows that energy intensive industries will

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[312] *See Sierra Club II*, 703 F. App'x. at *3 (discussed *supra* § II.C).
[313] *Id.* (internal quotations omitted and alteration in original).
[314] *Id*.
[315] *See, e.g.,* 2018 Study Response to Comments, 83 Fed. Reg. at 67,259-69; *see also* 2018 LNG Export Study at 65-76.
[316] 2018 Study Response to Comments, 83 Fed. Reg. at 67,259.

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.[317]

Accordingly, based on the 2018 Study and the most recent data in AEO 2022 and February 2023 STEO, DOE finds that the market will be capable of sustaining the additional level of non-FTA exports requested in FLEX's Application over the authorization term without negative economic impacts, including domestic price impacts (discussed below).

4. Price Impacts

The Protests allege that higher volumes of LNG exports, including FLEX's proposed exports, will lead to large increases in domestic prices of natural gas.[318] We disagree. As discussed above, the 2018 LNG Export Study projects the economic impacts of LNG exports in a range of scenarios, including scenarios that exceed the cumulative volume of approved non-FTA exports from the lower-48 states to date (equivalent to a total of 47.29 Bcf/d of natural gas with the issuance of this Order). 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[.]"[319]

We further note Sierra Club/NRDC's assertion that "exports are increasingly linking domestic gas prices to prices in the global market."[320] 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."[321] DOE added that "[t]his result is

[317] *Id*.
[318] Sierra Club/NRDC Pleading at 2, 6*; see also* IECA Pleading at 8.
[319] 2018 Study Response to Comments, 83 Fed. Reg. at 67,258 (citing 2018 LNG Export Study at 55).
[320] *See* Sierra Club/NRDC Pleading at 6.
[321] 2018 Study Response to Comments, 83 Fed. Reg. at 67,268 (emphasis added).

consistent with the 2015 Study's analysis of the linkages between U.S. and global natural gas prices, as DOE/FE previously discussed."[322]

DOE has analyzed price projections in AEO 2022 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study. The AEO 2022 Reference case projects market conditions in the lower-48 states that include higher production and demand for natural gas coupled with lower prices. Specifically, the AEO 2022 Reference case projects that, "[d]espite LNG export growth and increased domestic demand for natural gas … the Henry Hub price will remain below $4/MMBtu [in real dollars] throughout the projection period in most cases."[323] 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 February 2023 STEO (discussed supra § VIII.B.2) projects Henry Hub prices averaging near $4/MMBtu for 2023 and 2024.

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

322 *Id.*
323 AEO 2022 at 30.

<u>Net</u> Exports by Pipeline (Bcf/d)	3.4	6.9
<u>Net</u> LNG Exports (Bcf/d)	12.5	15.9
LNG Exports – Total (Bcf/d)	12.7	16.1
Henry Hub Spot Price ($/MMBtu) (Note 1)	$6.27 (2021$)	$3.59 (2021$)

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

For these reasons, and as explained in DOE's Response to Comments on the 2018 Study, we find that arguments concerning domestic price increases are not supported by the record evidence.[324]

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 countries under section 3(a) of the NGA. The foreign policy and trade impacts to the United States of such 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 last year's 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 until recently.[325] By authorizing additional

[324] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,267-69 (DOE's response to comments on natural gas price impacts).
[325] According to EIA data, natural gas imports delivered by pipeline into Europe provided most imported volumes into Europe, with imports sourced from Russia pre-2022 comprising the largest share. *See* U.S. Energy Info. Admin., *Today in Energy* (Feb. 11, 2022), https://www.eia.gov/todayinenergy/detail.php?id=51258; *see also* U.S. Energy Info. Admin., *Today in Energy* (Aug. 9, 2022), https://www.eia.gov/todayinenergy/detail.php?id=53379.

exports to non-FTA countries, including to U.S. allies, this Order will enable FLEX to help mitigate any acute and immediate energy security concerns.[326] This is especially true given that FLEX's request for additional export volumes will be applied to its Liquefaction Project (Trains 1-3), which is currently operational and can utilize the additional volume in the near-term. More generally, to the extent U.S. exports diversify global LNG supplies and increase the volumes of LNG available globally, these exports will improve energy security for many U.S. allies and trading partners.[327] Therefore, we find that authorizing FLEX's requested exports will advance the public interest for reasons that are distinct from and additional to the economic benefits identified in the 2018 LNG Export Study and DOE's prior macroeconomic studies.

C. Environmental Issues

In reviewing the potential environmental impacts of FLEX's proposal to export additional volumes of LNG to non-FTA countries, 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. Environmental Documents

DOE has reviewed the administrative record compiled at FERC for Trains 1-3 of the Liquefaction Project. DOE notes that FLEX is subject to 83 environmental conditions for the

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[326] We note that Europe has been the primary destination of U.S. LNG in recent months. In July 2022, for example, more than half of all United States LNG exports went to Europe. *See* U.S. Dep't of Energy, LNG Monthly (Sept. 2022), https://www.energy.gov/sites/default/files/2022-09/LNG%20Monthly%20July%202022.pdf; *see also* U.S. Energy Info. Admin., *Today in Energy* (Dec. 27, 2022), https://www.eia.gov/todayinenergy/detail.php?id=55025. We expect that relatively high LNG demand in Asia and Europe will support continued U.S. LNG exports. *See, e.g.,* U.S. Energy Info. Admin., Today in Energy (Apr. 20, 2022), https://www.energy.gov/sites/default/files/2022-12/LNG%20Monthly%20October%202022.pdf.

[327] We note that, to date, 23.2% of U.S. LNG exports have gone to countries with which the U.S. has a free trade agreement, and 76.8% have gone to countries with which the U.S. does not have a free trade agreement. *See* U.S. Dep't of Energy, LNG Monthly (Feb. 2023), Table 1e, pg. 4 (https://www.energy.gov/sites/default/files/2023-02/LNG%20Monthly%20December%202022.pdf).

Liquefaction Project.[328] DOE has also reviewed the record compiled in this proceeding, as summarized above.

Additionally, in light of FLEX'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.[329] On the basis of the Technical Support Document, DOE concluded that "the transport of natural gas by marine vessels … normally does not pose the potential for significant environmental impacts."[330] 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.[331]

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 Capacity Amendment Project EA (DOE/EA-2206). It also incorporates by reference the 2014 EIS (DOE/EIS-0487), 2016 EA (DOE/EA-2055)), 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 FLEX's non-FTA Application in a volume of 88 Bcf/yr will not have a significant effect on the human environment.

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[328] *See supra* § VII.A, B; *see also Freeport LNG Development, L.P., et al.*, DOE/FE Order No. 3957 at 48 (Ordering Para. H) (conditioning non-FTA order on FLEX's compliance with all terms and conditions established in FERC's EIS, among other requirements); *see also Freeport LNG Development, L.P., et al.*, Order Granting Authorizations Under Section 3 of the Natural Gas Act, 148 FERC ¶ 61,076 (2014); DOE/FE Order No. 3357-B at 3-5 (on October 3, 2014, after an independent review, DOE adopted FERC's final EIS for the FLEX Liquefaction Project (DOE/EIS-0487)).

[329] *See supra* § II.D.

[330] NEPA Implementing Procedures, 85 Fed. Reg. 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)).

[331] *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).

2. Environmental Impacts Associated with Induced Production of Natural Gas

The current rapid development of natural gas resources in the United States will likely continue, with or without the export of natural gas to non-FTA nations.[332] Nevertheless, a decision by DOE to authorize exports to non-FTA nations could accelerate that development by some increment. As discussed above, the Addendum reviewed the academic and technical literature covering the most significant issues associated with unconventional natural gas production, including impacts to water resources, air quality, GHG emissions, induced seismicity, and land use.

The Addendum shows that there are potential environmental issues associated with unconventional natural gas production that need to be carefully managed, especially with respect to emissions of volatile organic compounds and methane, and the potential for groundwater contamination. These environmental concerns do not lead us to conclude, however, that the volume of additional exports requested by FLEX to non-FTA nations should be prohibited. A denial of these exports under NGA section 3(a) based on the environmental impacts associated with induced production would be too blunt an instrument to address these environmental concerns efficiently. Moreover, such a finding would cause the United States to forego entirely the economic and international benefits discussed herein.

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

[332] Addendum at 2.

emission limits,[333] with those pipelines that do not meet regulatory limits subject to a waste emissions charge established in the Inflation Reduction Act of 2022.[334]

For these reasons, we conclude that the environmental concerns associated with natural gas production from the lower-48 states do not establish that FLEX's requested authorization is inconsistent with the public interest.

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

The Protests, 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.[335] 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.[336]

The conclusions of the 2019 Update are consistent with those of the 2014 LCA GHG Report.[337] 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 a per-unit of energy consumed basis for power

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[333] *See* Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 86 Fed. Reg. 63,110 (Nov. 15, 2021).
[334] Pub. L. No. 117-169, § 60113 (2022).
[335] *See supra* § II.B.
[336] DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 85.
[337] *Id.*

production.[338] Furthermore, to the extent U.S. LNG exports are preferred over other forms of imported natural gas, they are likely to have only a small impact on global GHG emissions.[339]

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.[340] Recognizing that 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. DOE has previously acknowledged the challenges associated with modeling the net change that a specific amount of U.S. LNG exports would have on global GHG emissions.[341] Therefore, based on the evidence in this proceeding, DOE is unable to conclude that an increase in exports of U.S. LNG associated with FLEX's Application will increase global GHG emissions in a material or predictable way.[342]

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

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[338] *Id.*
[339] *Id.*
[340] *Id.* at 81.
[341] *Id.*
[342] DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 86.

U.S. LNG to emissions of coal or other sources of natural gas.[343] 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/d of natural gas. Nonetheless, DOE's decision in this Order is not premised on an uncritical acceptance of that Study. Certain public comments received on the 2018 Study identify significant uncertainties and even potential negative impacts from LNG exports. The economic impacts of higher natural gas prices and potential increases in natural gas price volatility are two of the factors that we view most seriously.

DOE notes that, although Henry Hub natural gas prices in 2022 nearly doubled from their historic lows in 2020 to 2021 and periodically exceeded $7.00/MMBtu,[344] prices are projected to average near $4.00/MMBtu for 2023 and below $4.00/MMBtu throughout the projection period in AEO 2022 Reference Case in real dollars.[345] At these levels, nominal U.S. natural gas prices are expected to average at levels lower than, or in line with, domestic natural gas prices beginning in approximately 2009, even without the historical prices being adjusted for inflation. Yet, DOE also has taken into account factors that could mitigate these impacts, such as current market trends showing that domestic supply is expected to continue exceeding domestic consumption for the foreseeable future and data indicating that the natural gas industry would

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[343] *Sierra Club I*, 867 F.3d at 202 (finding that "Sierra Club's complaint 'falls under the category of flyspecking'") (citation omitted).

[344] 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. 1, 2023) (viewing annual history), https://www.eia.gov/dnav/ng/hist/rngwhhdA.htm. Certain same-month year-on-year differences in 2020 and 2021 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).

[345] *See* AEO 2022 at 17, 30; *see also* February 2023 STEO.

increase natural gas supply in response to increasing export demand.[346] Further, we note continuing uncertainty that all or even most of the proposed LNG export projects will ever be realized because of the time, difficulty, and expense of commercializing, financing, and constructing LNG export terminals, as well as the uncertainties and competition inherent in the global market for LNG.[347]

More generally, DOE continues to subscribe to the principle set forth in our 1984 Policy Guidelines[348] 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.[349] 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 FLEX's proposed increase in LNG exports for delivery to non-FTA countries will be inconsistent with the public interest.

In deciding whether to grant a final non-FTA export authorization, DOE also considers the cumulative impacts of the total volume of all non-FTA export authorizations. With the

[346] *See supra* § VIII.B.4 (Table 1).
[347] *See infra* § VIII.E (identifying long-term orders vacated to date).
[348] 1984 Policy Guidelines, 49 Fed. Reg. 6684.
[349] 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).

issuance of this Order and the vacatur of previous long-term non-FTA authorizations,[350] there are currently 41 final non-FTA authorizations from the lower 48-states in a cumulative volume of exports totaling 47.29 Bcf/d of natural gas, or approximately 17.3 trillion cubic feet per year, as follows:[351] Sabine Pass Liquefaction, LLC (2.2 Bcf/d),[352] Cameron LNG, LLC (1.7 Bcf/d),[353] FLEX I (1.4 Bcf/d),[354] FLEX II (0.4 Bcf/d),[355] Cove Point LNG, LP (0.77 Bcf/d),[356] Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),[357] Sabine Pass Liquefaction,

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[350] To date, DOE has vacated eight long-term non-FTA authorizations (none over the objection of the authorization holder) in the following proceedings: *Bear Head Energy Inc.* (formerly *Bear Head LNG Corp.) and Bear Head LNG (USA)*, Docket No. 15-33-LNG (Jan. 20, 2023); *Jordan Cove Energy Project L.P.*, Docket No. 12-32-LNG (Apr. 22, 2022); *Air Flow North America Corp.*, Docket No. 14-206-LNG (Dec. 30, 2021); *Emera CNG, LLC*, Docket No. 13-157- CNG (Oct. 20, 2021); *Annova LNG Common Infrastructure, LLC*, Docket No. 19-34-LNG (Apr. 23, 2021); *Floridian Natural Gas Storage Co., LLC*, Docket No. 15-38-LNG (Oct. 22, 2020); *Carib Energy (USA) LLC*, Docket No. 11-141-LNG (Nov. 17, 2020); *Flint Hills Resources, LP*, Docket No. 15-168-LNG (Feb. 5, 2019).

[351] Any number discrepancies are due to rounding. Additionally, this cumulative volume of non-FTA exports from the lower-48 states does not include export volumes granted pursuant to DOE's regulations for small-scale exports of natural gas. *See* 10 C.F.R. §§ 590.102(p), 208(a); U.S. Dep't of Energy, Office of Fossil Energy and Carbon Management, Long Term Applications Received by DOE to Export Domestically Produced LNG, CNG, CGL from the Lower-48 States, at 12 (as of Dec. 16, 2022), https://www.energy.gov/sites/default/files/2022-01/Summary%20of%20LNG%20Export%20Applications.pdf (identifying small-scale applications and status).

[352] *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).

[353] *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).

[354] *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).

[355] *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).

[356] *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).

[357] *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).

LLC Expansion Project (1.38 Bcf/d),[358] American LNG Marketing LLC (0.008 Bcf/d),[359] Pieridae Energy (USA) Ltd. (0.80 Bcf/d),[360] Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),[361] Cameron LNG, LLC Design Increase (0.42 Bcf/d),[362] Cameron LNG, LLC Expansion Project (1.41 Bcf/d),[363] Lake Charles Exports, LLC (2.0 Bcf/d),[364] Lake Charles LNG Export Company, LLC,[365] Carib Energy (USA), LLC (0.004),[366] Magnolia LNG, LLC (1.23 Bcf/d),[367] Southern LNG Company, L.L.C. (0.36 Bcf/d),[368] the FLEX Design Increase (0.34

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[358] *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).

[359] *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).

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

[361] *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).

[362] *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).

[363] *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).

[364] *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).

[365] *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).

[366] *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).

[367] *Magnolia LNG, LLC*, DOE/FE Order No. 3909, Docket No. 13-132-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Magnolia LNG Terminal to be Constructed in Lake Charles, Louisiana, to Non-Free Trade Agreement Nations (Nov. 30, 2016), *reh'g denied,* Order No. 3909-A (Apr. 2, 2018), *amended by* Order No. 3909-B (Dec. 10, 2020) (extending export term), *further amended by* DOE/FECM Order No. 3909-C (Apr. 27, 2022) (increasing export volume).

[368] *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).

Bcf/d),[369] Golden Pass LNG Terminal LLC (2.57 Bcf/d),[370] Delfin LNG LLC (1.8 Bcf/d),[371] the Lake Charles LNG Export Company, LLC Design Increase (0.33 Bcf/d),[372] the Lake Charles Exports, LLC Design Increase,[373] Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),[374] Mexico Pacific Limited LLC (1.7 Bcf/d),[375] Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),[376] ECA Liquefaction, S. de R.L. de C.V. (Mid-Scale Project) (0.44 Bcf/d),[377] Energía Costa Azul,

[369] *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).

[370] *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) (transferring authorization from Golden Pass Products LLC to Golden Pass LNG Terminal LLC), *further amended by* DOE/FECM Order No. 3978-E (Apr. 27, 2022) (increasing export volume).

[371] *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).

[372] *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).

[373] *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).

[374] *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).

[375] *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).

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

[377] *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.).

S. de R.L. de C.V. (Large-Scale Project) (1.74 Bcf/d),[378] Port Arthur LNG, LLC (1.91 Bcf/d),[379] Driftwood LNG LLC (3.88 Bcf/d),[380] FLEX4 (0.72 Bcf/d),[381] Gulf LNG Liquefaction Company, LLC (1.53 Bcf/d),[382] Eagle LNG Partners Jacksonville LLC (0.14 Bcf/d),[383] Venture Global Plaquemines LNG, LLC (3.40 Bcf/d),[384] Texas LNG Brownsville LLC (0.56 Bcf/d),[385] Corpus Christi Liquefaction Stage III, LLC (1.59 Bcf/d),[386] Rio Grande LNG, LLC (3.61 Bcf/d),[387] Epcilon LNG LLC (1.083 Bcf/d),[388] Cheniere Marketing, LLC and Corpus Christi Liquefaction,

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[378] *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), *amended by* DOE/FE 4365-A (Dec. 10, 2020), *further amended by* DOE/FECM Order No. 4365-B (Dec. 20, 2022) (increasing export volume).

[379] *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).

[380] *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).

[381] *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).

[382] *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).

[383] *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).

[384] *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).

[385] *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).

[386] *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).

[387] *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).

[388] *Epcilon 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).

LLC (0.3 Bcf/d),[389] Sabine Pass Liquefaction, LLC (0.42 Bcf/d),[390] Vista Pacifico LNG, S.A.P.I. de C.V. (Mid-Scale Project) (0.55 Bcf/d),[391] 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.[392]

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 inconsistent with the public interest.[393] DOE further notes that, with this Order being issued to FLEX, to date, the cumulative total of U.S. and Mexico LNG export capacity that is operating or under construction across 10 mid- or large-scale export projects is 20.77 Bcf/d of natural gas.[394]

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[389] *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).

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

[391] *Vista Pacifico LNG, S.A.P.I. de C.V.*, DOE/FECM Order No. 4929, Docket No. 20-153-LNG, 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 Nations (Dec. 20, 2022).

[392] *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.

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

[394] This 20.77 Bcf/d volume representing export capacity approved to non-FTA countries currently operating or under construction is comprised of:

(i) 0.24 Bcf/d issued to Freeport LNG Expansion, L.P., *et al.* in this Order;

(ii) 20.09 Bcf/d of non-FTA volumes under construction or operating in the United States at the end of 2022 (*see* U.S. Energy Info. Admin., U.S. Liquefaction Capacity (Dec. 29, 2022), https://www.eia.gov/naturalgas/U.S.liquefactioncapacity.xlsx, calculated by adding Column N in "Existing & Under Construction" worksheet); and

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 phenomenon 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 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 FLEX's non-FTA 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. FLEX must abide by each Term and Condition or face appropriate sanction.

(iii) 0.44 Bcf/d in U.S.-sourced natural gas to be re-exported in the form of LNG by ECA Liquefaction, S. de R.L. de C.V. from the ECA Mid-Scale Project Phase 1, under construction in Mexico (see Docket No. 18-144-LNG).

A. Term of the Authorization

Consistent with DOE's practice and with FLEX's final non-FTA authorization issued to date, DOE will grant FLEX'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.[395] 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.

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.[396] 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.[397]

C. Agency Rights

FLEX 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

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[395] 10 C.F.R. § 590.405.
[396] *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).
[397] *See id*.

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.[398]

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

D. Contract Provisions for the Sale or Transfer of LNG

DOE will require that FLEX file or cause to be filed with DOE any relevant long-term commercial agreements pursuant to which FLEX exports LNG on its own behalf or 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).[399]

In addition, DOE finds that section 590.202(c) of DOE's regulations[400] requires that FLEX file, or cause to be filed, all long-term contracts associated with the long-term supply of natural gas to the Liquefaction Project, whether signed by FLEX or the Registrant, within 30 days of their execution.

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[398] *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).
[399] 10 C.F.R. § 590.202(b).
[400] *Id*. § 590.202(c).

DOE recognizes that some information in FLEX's or a Registrant's long-term commercial agreements associated with the export of LNG, and/or long-term contracts associated with the long-term supply of natural gas to the Liquefaction Project, may be commercially sensitive. DOE therefore will provide FLEX the option to file or cause to be filed either unredacted contracts, or in the alternative: (A) FLEX 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.

To ensure that DOE destination and reporting requirements included in this 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 this Order shall include an acknowledgement of these requirements.

E. Export Quantity

This Order grants FLEX's Application, such that FLEX is authorized to export LNG to non-FTA countries in the full volume requested, equivalent to 88 Bcf/yr of natural gas.

F. Combined FTA and Non-FTA Export Authorization Volumes

FLEX is currently authorized in DOE/FE Order Nos. 3282-D, 3357-D, and 3957-A to export domestically produced LNG from the Freeport LNG Terminal to non-FTA countries in a total combined volume equivalent to 782 Bcf/yr of natural gas. In light of increased liquefaction production capacity made possible under upper limit normal operations at its existing LNG trains (Trains 1-3) at the Liquefaction Project, as approved by FERC, the volume authorized for export in this Order (88 Bcf/yr) is additive to those non-FTA volumes. Under these four orders, FLEX is authorized to export a total volume of LNG equivalent to 870 Bcf/yr of natural gas, or 2.38 Bcf/d, to non-FTA countries.

Additionally, the volume authorized in this Order is additive to the existing long-term non-FTA export order held by FLEX4 for the Train 4 LNG Project located at the Freeport LNG Terminal (Order No. 4374-A).

Together, the volumes authorized in FLEX's non-FTA orders (totaling 870 Bcf/yr) and FLEX4's non-FTA order (262.8 Bcf/yr) total 1,132.8 Bcf/yr in exports from the Freeport LNG Terminal to non-FTA countries.[401]

Because the source of LNG for all of FLEX's export authorizations is the Freeport LNG Liquefaction Project, FLEX may not treat its FTA export volumes, as set forth in DOE/FE Order Nos. 2913-C and 3066-B, and the non-FTA volumes as additive to one another.

XI. ORDER

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

A. Freeport LNG Expansion, L.P., FLNG Liquefaction, LLC, FLNG Liquefaction 2, LLC, and FLNG Liquefaction 3, LLC (collectively, FLEX) are jointly authorized to export domestically produced LNG by vessel from the Freeport LNG Liquefaction Project (Trains 1-3), located at the existing Freeport LNG Terminal on Quintana Island near Freeport, Texas. The volume authorized in this Order is equivalent to 88 Bcf/yr of natural gas for a term to commence on the date of first commercial export and to extend through December 31, 2050. This quantity is additive to the export volumes in FLEX's existing non-FTA authorizations (DOE/FE Order

[401] *See infra* Appendix A (Tables 1 and 2).

Nos. 3282-D, 3357-D, 3957-A, and 4374-A), but is not additive to the export volumes in FLEX's existing FTA authorizations (DOE/FE Order Nos. 2913-C and 3066-B).

FLEX is authorized to export this LNG on its own behalf and as agent for other entities who hold title to the natural gas, pursuant to one or more contracts of any duration.[402]

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. FLEX 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. FLEX shall ensure compliance with all terms and conditions established by FERC in the orders for the Freeport LNG Liquefaction Project (FERC Docket Nos. CP12-509-000, CP15-518-000, CP20-532-000, CP21-470-000). This includes the 83 environmental conditions adopted in the FERC 2014 Order at Appendix A, [403] the environmental conditions set forth in the FERC 2016 Order,[404] and the environmental conditions set forth in the July 29, 2022 FERC Order (based on the Capacity Amendment Project EA). Additionally, this authorization is

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[402] *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).

[403] *Freeport LNG Development, L.P., et al*., Order Granting Authorizations Under Section 3 of the Natural Gas Act, 148 FERC ¶ 61,076 (2014); *see also Freeport LNG Development, L.P., et al*., Freeport LNG Liquefaction Project, Phase II Modification Project, Final Environmental Impact Statement, FERC/EIS-0250F (June 2014); *see also* DOE/FE Order No. 3357-B at 3-5 (on October 3, 2014, after an independent review, DOE adopted FERC's final EIS for the FLEX Liquefaction Project (DOE/EIS-0487)).

[404] *See Freeport LNG Development, L.P., et al*., Order Amending Section 3 Authorization, 156 FERC ¶ 61,019 (2016).

conditioned on FLEX's on-going compliance with any other preventative and mitigative measures at the Freeport LNG Terminal imposed by federal or state agencies.

E. (i) FLEX 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 <u>all executed long-term contracts associated with the long-term export of LNG</u> from the Liquefaction Project on its own behalf or as agent for other entities. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described above.

(ii) FLEX shall file, or cause others to file, with the Office of Regulation, Analysis, and Engagement a non-redacted copy of <u>all executed long-term contracts associated with the long-term supply of natural gas</u> to the Liquefaction Project. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described above.

F. FLEX 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 FLEX with all information necessary to permit FLEX 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. FLEX, or others for whom FLEX 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. 4961, issued March 3, 2023, in Docket No. 21-98-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 Freeport LNG Expansion, L.P., FLNG Liquefaction, LLC, FLNG Liquefaction 2, LLC, and FLNG Liquefaction 3, LLC (collectively, FLEX) 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 FLEX are made aware of all such actual destination countries.

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

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

J. With respect to any change in control of the authorization holder, FLEX must comply with DOE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.[405]

K. Monthly Reports: With respect to the exports authorized by this Order, FLEX 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 motions to intervene submitted by Sierra Club/NRDC and IECA are granted.

Issued in Washington, D.C., on March 3, 2023.

Amy R. Sweeney
Digitally signed by Amy R. Sweeney
Date: 2023.03.03 14:44:31 -05'00'

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

[405] *See* 79 Fed. Reg. at 65,541-42.

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

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

Docket No.	Order No. (as Amended)	Date Originally Issued	Trains	Volume (Bcf/yr)	Term/Type
10-160-LNG	2913-C	Feb. 10, 2011, as amended	1-3	511.0	Export term through Dec. 31, 2050, multi-contract
12-06-LNG	3066-B	Feb. 10, 2012, as amended	1-3	511.0	Export term through Dec. 31, 2050, multi-contract
Total FTA Volume				**1022.0**	

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

Docket No.	Order No. (as Amended)	Date Issued	Trains	Volume (Bcf/yr)	Term/Type
10-161-LNG	3282-D	Nov. 14, 2014, as amended	1-3	511.0	Export term through Dec. 31, 2050, multi-contract
11-161-LNG	3357-D	Nov. 14, 2014, as amended	1-3	146.0	Export term through Dec. 31, 2050, multi-contract
16-108-LNG	3957-A	Dec. 19, 2016, as amended	1-3	125.0	Export term through Dec. 31, 2050, multi-contract
18-26-LNG	4374-A	May 28, 2019, as amended	4	262.8	Export term through Dec. 31, 2050, multi-contract
21-98-LNG	4961	March 3, 2023	1-3	88.0	Export term through Dec. 31, 2050, multi-contract
Total Non-FTA Volume				**1,132.8**	

APPENDIX B: FINDING OF NO SIGNIFICANT IMPACT

FINDING OF NO SIGNIFICANT IMPACT FOR THE APPLICATION OF FREEPORT LNG EXPANSION, L.P., FLNG LIQUEFACTION, LLC, FLNG LIQUEFACTION 2, LLC AND FLNG LIQUEFACTION 3, LLC (COLLECTIVELY, FLEX) TO EXPORT LIQUEFIED NATURAL GAS FROM THE FREEPORT 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),[406] the Federal Energy Regulatory Commission (FERC) authorized Freeport LNG Development, L.P., FLNG Liquefaction, LLC, FLNG Liquefaction 2, LLC, and FLNG Liquefaction 3, LLC (collectively, Freeport LNG) to construct and operate liquefaction and other facilities at the existing Freeport LNG terminal to export domestic natural gas, including three liquefaction trains (Liquefaction Project).[407] Under FERC's order, as amended, Freeport LNG was authorized to operate the Liquefaction Project with a total liquefaction production capacity of approximately 782 billion cubic feet per year (Bcf/yr) of natural gas.

In an application filed with FERC on June 29, 2021, Freeport LNG asked FERC to amend its existing NGA section 3 authorizations to increase the total liquefaction production capacity of the Liquefaction Project from 782 Bcf/yr to 870 Bcf/yr of natural gas—for an additional 88 Bcf/yr, reflecting the Liquefaction Project's actual production capabilities (Capacity Amendment or Capacity Amendment Project).[408] Pursuant to the regulations of the Council on Environmental Quality, FERC prepared an environmental assessment (Capacity Amendment Project EA or EA) that analyzed the potential environmental impacts associated with this requested increase in the Liquefaction Project's production capacity.[409] FLEX filed a related application with the U.S. Department of Energy (DOE) requesting authority to export domestically produced liquefied natural gas (LNG) to non-free trade agreement countries.

SUPPLEMENTARY INFORMATION: Freeport LNG filed its Capacity Amendment application in FERC Docket No. CP21-470-000 under NGA section 3 and the procedures of Part

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[406] 15 U.S.C. § 717b.
[407] *Freeport LNG Dev. L.P. et al.*, Order Granting Authorizations Under Section 3 of the Natural Gas Act, FERC Docket Nos. CP12-509 and CP12-29, 148 FERC ¶ 61,076, *order denying reh'g and clarification*, 149 FERC ¶ 61,119 (2014). At Freeport LNG's request, FERC subsequently amended this order. *See Freeport LNG Dev. L.P.*, 156 FERC ¶ 61,019 (2016) (increasing the maximum production capability of the approved facilities to a more accurate quantity); *Freeport LNG Development LP,* 174 FERC ¶ 61,108 (2021) (restating maximum capacity on an annual basis instead of a daily basis).
[408] *See Freeport LNG Dev., L.P. et al.*, Application for Limited Amendment to Authorizations Granted under Section 3 of the Natural Gas Act, FERC Docket No. CP21-470-000 (June 29, 2021) [hereinafter FERC App.].
[409] Fed. Energy Regulatory Comm'n, *Freeport LNG Capacity Amendment Project Environmental Assessment* (Freeport LNG Development, L.P., FLNG Liquefaction, LLC, FLNG Liquefaction 2, LLC, and FLNG Liquefaction 3, LLC), FERC Docket No. CP21-470-000 (May 2022), *available at* https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20220512-3032.

153 of FERC's regulations.[410] In the FERC proceeding, Freeport LNG stated that its requested increase in LNG production capacity (88 Bcf/yr) would be "consistent with the highest production scenario previously reviewed for upper limit normal operations by FERC staff, and consistent with the maximum combined daily LNG production capacity of the three liquefaction trains authorized as part of the Liquefaction Project."[411] The requested increase would not require additional construction or modification of facilities beyond those previously approved by FERC.

On September 10, 2021, FLEX filed an Application with DOE's Office of Fossil Energy and Carbon Management in Docket No. 21-98-LNG.[412] FLEX seeks authorization to export additional domestically produced LNG from the Liquefaction Project in a volume equivalent to 88 Bcf/yr of natural gas (just over 0.24 Bcf per day). FLEX 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, 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 (non-FTA countries), pursuant to NGA section 3(a).[413]

Currently, in Docket Nos. 10-161-LNG,[414] 11-161-LNG,[415] and 16-108-LNG,[416] FLEX is authorized to export LNG from the Liquefaction Project to non-FTA countries in a total combined volume equivalent to 782 Bcf/yr of natural gas through December 31, 2050.[417] As relevant here, FLEX seeks authorization to export the additional volume of 88 Bcf/yr to non-FTA countries to align its non-FTA export volume with the Liquefaction Project's already FERC-approved LNG production capacity of 870 Bcf/yr.[418]

FERC prepared the Capacity Amendment Project EA, which found that "the proposed Project would not have any additional environmental impacts beyond those discussed in the June 2014 Final Environmental Impact Statement…for the Freeport LNG Liquefaction Project and Phase II Modification Project . . ., respectively, and the March 2016 [Environmental Assessment] for the

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[410] *See* FERC App at 1.
[411] *Id.* at 2.
[412] FLEX App., Docket No. 21-98-LNG (Sept. 10, 2021).
[413] 15 U.S.C. § 717b(a).
[414] *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), *amended by* DOE/FE Order No. 3282-D (Oct. 21, 2020) (extending export term).
[415] *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), *reh'g denied*, DOE/FE Order No. 3357-C (Dec. 4, 2015), *amended by* DOE/FE Order No. 3357-D (Oct. 21, 2020) (extending export term).
[416] *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), *amended by* DOE/FE Order No. 3957-A (Oct. 21, 2020) (extending export term).
[417] FLEX notes that, in Docket Nos. 10-160-LNG and 12-06-LNG, it is authorized to export LNG from the Liquefaction Project to FTA countries in a volume equivalent to 1,022 Bcf/yr of natural gas. FLEX App. at 5.
[418] *Id.* at 3-4 (describing 2021 FERC Capacity Amendment Project application then-pending at FERC).

Liquefaction Capacity Increase…."[419] FERC placed the Capacity Amendment Project EA into the public record in May 2022 and finalized it in its Order Amending Section 3 Authorization, issued on July 29, 2022 (FERC Order).[420]

In the FERC Order, FERC granted Freeport LNG's Capacity Amendment application, authorizing a maximum LNG production capacity for the Liquefaction Project of 870 Bcf/yr of natural gas as conditioned in the FERC Order. FERC required that, in all other respects, Freeport LNG's existing NGA section 3 authorization remain in full force and effect.[421]

Previously, on August 15, 2014, DOE published the *Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States* (Addendum).[422] DOE prepared the Addendum to be responsive to the public and to provide the best information 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.[423]

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).[424] The 2014 LCA GHG Report included a life cycle analysis (LCA) calculation of 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 LCA 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).[425] 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

[419] Capacity Amendment Project EA at 3.
[420] *Freeport LNG Dev., L.P. et al.*, Order Amending Section 3 Authorization, 180 FERC ¶ 61,055 (2022).
[421] *Id.* at Ordering Para. C.
[422] 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).
[423] *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).
[424] 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).
[425] Nat'l Energy Tech. Lab., *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update* (DOE/NETL-2019/2041) (Sept. 12, 2019), https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf.

power production."[426] 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."[427]

Additionally, as part of a NEPA rulemaking finalized on December 4, 2020,[428] DOE conducted a detailed review of technical documents regarding potential effects associated with marine transport of LNG.[429] These documents were identified in an accompanying Marine Transport Technical Support Document (Technical Support Document).[430] 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."[431] DOE incorporates by reference herein the Technical Support Document.

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 and Incorporation by Reference: Discussion and analyses related to the potential impacts of a grant of the Capacity Amendment application are contained within the EA prepared by FERC—which is adopted herein (DOE/EA-2206) and incorporated by reference—as well as in the FERC Order. The cumulative impact analysis in the EA was "limited to any operational impacts of the Project facilities combined with the impacts of other proposed developments occurring within the vicinity of the Project," since the Capacity Amendment application did not require construction of new facilities or modification of previously authorized facilities.[432] The EA found that the Capacity Amendment Project would not affect the following resources: ground water, springs, or aquifers; wetlands or waterbodies; surface water, water intakes, or source water protection areas; cultural resources; forested lands and vegetation; residential or commercial areas; fish or wildlife, including federally threatened and/or endangered species; geologic resources and soils; noise; and state or national parks, forests, recreation areas, or refuge areas.[433] The EA also analyzed air quality, climate change, environmental justice, cumulative impacts, and reliability and safety.

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[426] 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).
[427] *Id.*
[428] *See* NEPA Implementing Procedures.
[429] *Id.* at 78,199.
[430] *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)).
[431] *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.
[432] EA at 11; *see also id.* at 3.
[433] *Id.* at 3-4.

The EA concluded, and FERC agreed, that "if Freeport LNG operates the proposed facilities in accordance with its application and supplements, approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment."[434]

DETERMINATION: On the basis of the EA for the Capacity Amendment Project (DOE/EA-2176), the prior NEPA reviews of the Liquefaction Project (2014 EIS (DOE/EIS-0487) and 2016 EA (DOE/EA-2055)), 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 FLEX's Application to export LNG from the Freeport LNG Terminal in this Order (DOE/FECM Order No. 4961) 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/freeport-lng-expansion-lp-flng-liquefaction-llc-flng-liquefaction-2-llc-and-flng. The EA and FONSI will also be available at: https://www.energy.gov/nepa/doeea-2206-freeport-lng-capacity-amendment-project.

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[434] EA at 14; *see also* FERC Order at P 31.