UNITED STATES OF AMERICA

DEPARTMENT OF ENERGY

OFFICE OF FOSSIL ENERGY

FREEPORT LNG EXPANSION, L.P. AND FLNG LIQUEFACTION 4, LLC	))))	FE DOCKET NO. 18-26-LNG

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

DOE/FE ORDER NO. 4374

MAY 28, 2019

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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
EPA	U.S. Environmental Protection Agency
FE	Office of Fossil Energy, U.S. Department of Energy
FERC	Federal Energy Regulatory Commission
FLEX4	Freeport LNG Expansion, L.P. and FLNG Liquefaction 4, LLC
FONSI	Finding of No Significant Impact
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GHG	Greenhouse Gas
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
Tcf/yr	Trillion Cubic Feet per Year

I. INTRODUCTION

On March 6, 2018, Freeport LNG Expansion, L.P. (Freeport Expansion) and FLNG Liquefaction 4, LLC (FLIQ4) (collectively, FLEX4) filed an application (Application)[1] with the Office of Fossil Energy of the Department of Energy (DOE/FE) requesting authority under section 3(a) of the Natural Gas Act (NGA).[2] FLEX4 requests long-term, multi-contract authorization to export domestically produced liquefied natural gas (LNG) from the proposed Train 4 Project at the Freeport LNG Terminal (Terminal) on Quintana Island near Freeport, Texas, in a volume equivalent to 262.8 billion cubic feet per year (Bcf/yr) of natural gas, or 0.72 Bcf per day (Bcf/d).[3] FLEX4 seeks to export this LNG by vessel 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).[4]

FLEX4 requests this authorization for a 20-year term commencing on the earlier of the date of first commercial export from the Train 4 Project or seven years from the issuance of the requested authorization. Additionally, FLEX4 requests the authorization on its own behalf and as agent for other entities that will hold title to the LNG at the time of export.[5]

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[1] Freeport LNG Expansion, L.P. and FLNG Liquefaction 4, LLC*,* Application for Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, FE Docket No. 18-26-LNG (Mar. 6, 2018) [hereinafter FLEX4 App.].

[2] 15 U.S.C. § 717b(a). 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 FE in Redelegation Order No. 00-006.02 issued on November 17, 2014.

[3] FLEX4 App. at 1.

[4] In the Application, FLEX4 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 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.

[5] FLEX4 App. at 2.

FLEX4's affiliates—Freeport LNG Development, L.P. (Freeport Development); FLNG Liquefaction, LLC; FLNG Liquefaction 2, LLC; and FLNG Liquefaction 3, LLC (collectively, the Freeport entities)—are currently constructing a liquefaction and export facility at the Terminal, as well as a pretreatment facility and an associated feed gas pipeline (the Liquefaction Project).[6] FLEX4 states that the Train 4 Project will be constructed as an expansion of the Terminal and will be located entirely within the Terminal's footprint.[7]

In 2014, the Federal Energy Regulatory Commission (FERC) authorized the siting, construction, and operation of Trains 1 through 3 of the Liquefaction Project, with a total liquefaction capacity of 1.8 Bcf/d (657 Bcf/yr) of natural gas.[8] In 2016, FERC approved an increase in the total liquefaction capacity of Trains 1 through 3 to 2.14 Bcf/d (782 Bcf/yr) of natural gas (equivalent to approximately 15.49 million metric tons per annum (mtpa) of LNG).[9] Most recently, on May 17, 2019, FERC issued an order authorizing Freeport Development and FLIQ4 to site, construct, and operate the Train 4 Project (FERC Order).[10] As approved by FERC, Train 4 will have a liquefaction capacity of 5.1 mtpa of LNG,[11] which we find is equivalent to 0.72 Bcf/d (262.8 Bcf/yr) of natural gas. The FERC Order thus brings the maximum liquefaction capacity of the Liquefaction Project (Trains 1 through 4) to 1044.8 Bcf/yr of natural gas, or 2.86 Bcf/d (equivalent to approximately 20.59 mtpa of LNG).

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[6] These entities are wholly-owned subsidiaries of Freeport Expansion. FLEX4 App. at 1 n.3, 2.
[7] *Id*. at 5-6.
[8] *See Freeport LNG Development, L.P. et al*., Order Granting Authorization Under Section 3 of the Natural Gas Act, 148 FERC ¶ 61,076, ¶ 17 (July 30, 2014), *reh'g denied*, 149 FERC ¶ 61,119 (Nov. 13, 2014); *see* FLEX4 App. at 1 n.3.
[9] *See Freeport LNG Development, L.P., et al*., Order Amending Section 3 Authorization, 156 FERC ¶ 61,019, ¶¶ 1-2, 6 (July 7, 2016); *see also Freeport LNG Development, L.P., et al*., Order Granting Authorization Under Section 3 of the Natural Gas Act, 167 FERC ¶ 61,155, ¶ 3 (May 17, 2019) [hereinafter FERC Order].
[10] FERC Order at ¶ 1.
[11] *Id*. ¶ 6.

On May 23, 2018, DOE/FE published a Notice of Application in the *Federal Register*.[12] The Notice of Application called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by July 23, 2018. No protests or motions to intervene in opposition to the Application were filed, and therefore the Application is uncontested.[13]

DOE/FE has reviewed the Application, as well as DOE's economic and environmental studies, the Environmental Assessment (EA) prepared for the Train 4 Project by FERC staff, the FERC Order, and the most recent projections of the U.S. Energy Information Administration (EIA), among other evidence discussed below. On the basis of this substantial administrative record, DOE/FE has determined that it has not been shown that FLEX4's proposed exports will be inconsistent with the public interest, as would be required to deny the Application under NGA section 3(a). DOE/FE therefore grants the Application in the requested volume of 262.8 Bcf/yr of natural gas (0.72 Bcf/d).[14]

With the issuance of this non-FTA Order, the Freeport entities now collectively hold a total of six long-term authorizations—two FTA and four non-FTA—approving exports of LNG from the Freeport LNG Terminal. These authorizations are summarized below and in the Appendix to this Order.[15] Because the approved FTA and non-FTA export volumes reflect the planned capacity of the Liquefaction Project at the Terminal, the FTA volumes (in DOE/FE

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[12] Freeport LNG Expansion, L.P. and FLNG Liquefaction 4, LLC, Application for Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, 83 Fed. Reg. 23,909 (May 23, 2018).
[13] 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).
[14] *See infra* §§ VIII-X.
[15] *See infra* § IV.B and Appendix.

Order Nos. 2913-B[16] and 3066-A[17]) are not additive to the non-FTA volumes (in DOE/FE Order Nos. 3282-C,[18] 3357-B,[19] 3957,[20] and this Order).

Additionally, DOE/FE participated as a cooperating agency in FERC's environmental review of the Train 4 Project under the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321 *et seq*. FERC issued the EA for the Train 4 Project on November 2, 2018.[21] Concurrently with this Order, DOE/FE is adopting FERC's EA and issuing a Finding of No Significant Impact (FONSI) for the Train 4 Project (DOE/EA-2105).[22] This Order requires FLEX4's compliance with the 93 environmental conditions adopted in the FERC Order.

The volume approved in this Order—equivalent to 0.72 Bcf/d of natural gas—brings DOE/FE's cumulative total of approved non-FTA exports of LNG and compressed natural gas to 32.99 Bcf/d of natural gas.[23]

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[16] *Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 2913, FE 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), *as amended* Order Nos. 2913-A (Feb. 7, 2014) and No. 2913-B (June 7, 2017).

[17] *Freeport LNG Expansion L.P. et al*., DOE/FE Order No. 3066, FE 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), *as amended* Order No. 3066-A (Feb. 7, 2014).

[18] *Freeport LNG Expansion, L.P.*, *et al.*, DOE/FE Order No. 3282-C, FE 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).

[19] *Freeport LNG Expansion, L.P.*, *et al.*, DOE/FE Order No. 3357-B, FE 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); *see also* DOE/FE Order No. 3357-C (Dec. 4, 2015) (denying request for rehearing).

[20] *Freeport LNG Expansion, L.P.*, *et al.*, DOE/FE Order No. 3957, FE 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).

[21] Federal Energy Regulatory Comm'n, Environmental Assessment for the Freeport LNG Train 4 Project (Freeport LNG Development, LP and FLNG Liquefaction 4, LLC), Docket No. CP17-470-000 (Nov. 2, 2018), *available at*: https://www.ferc.gov/industries/gas/enviro/eis/2018/CP17-470-EA.pdf?csrt=8492601825945519458 [hereinafter FERC EA].

[22] U.S. Dep't of Energy, Finding of No Significant Impact for the Train 4 Project at the Freeport LNG Terminal, DOE/EA-2105 (May 28, 2019).

[23] *See infra* § VII.D.

II. BACKGROUND

A. DOE's LNG Export Studies

1. 2012 EIA and NERA Studies

In 2011, DOE/FE engaged EIA and NERA Economic Consulting (NERA) to conduct a two-part study of the economic impacts of U.S. LNG exports, which together was called the "2012 LNG Export Study." The first part, performed by EIA and published in January 2012, assessed how specified scenarios of increased natural gas exports could affect domestic energy markets. Specifically, EIA examined how prescribed levels of natural gas exports (at 6 Bcf/d and 12 Bcf/d) above baseline cases could affect domestic energy markets.

The second part, performed by NERA under contract to DOE, evaluated the macroeconomic impact of LNG exports on the U.S. economy. NERA used a general equilibrium macroeconomic model of the U.S. economy with an emphasis on the energy sector and natural gas in particular. 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/FE published a notice of availability of the 2012 LNG Export Study in the *Federal Register* for public comment.[24] DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[25]

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[24] *See* 2012 LNG Export Study, 77 Fed. Reg. 73,627 (Dec. 11, 2012), *available at*: http://energy.gov/sites/prod/files/2013/04/f0/fr_notice_two_part_study.pdf (Notice of Availability of the LNG Export Study).

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

2. 2014 and 2015 LNG Export Studies

By May 2014, in light of the volume of LNG exports to non-FTA countries then-authorized by DOE/FE and the number of non-FTA export applications still pending, DOE/FE determined that an updated study was warranted to consider the economic impacts of exporting LNG from the lower-48 states to non-FTA countries.[26] 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.[27]

DOE/FE 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 EIA LNG Export Study or 2014 Study).[28] The 2014 Study assessed how specified scenarios of increased natural gas exports could affect domestic energy markets. At DOE's request, this 2014 Study served as an update of EIA's January 2012 study of LNG export scenarios and used baseline cases from EIA's *Annual Energy Outlook 2014* (AEO 2014).[29]

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/FE (together, Rice-Oxford) and published in October

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[26] Because there is no natural gas pipeline interconnection between Alaska and the lower 48 states, DOE/FE generally views those LNG export markets as distinct. Accordingly, DOE/FE focuses on LNG exports from the lower-48 states for purposes of determining macroeconomic impacts.
[27] *See* U.S. Dep't of Energy, Office of Fossil Energy, Request for an Update of EIA's January 2012 Study of Liquefied Natural Gas Export Scenarios, *available at*: http://energy.gov/fe/downloads/request-update-eia-s-january-2012-study-liquefied-natural-gas-export-scenarios (May 29, 2014) (memorandum from FE to EIA).
[28] U.S. Energy Info. Admin., *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets* (Oct. 2014), *available at*: https://www.eia.gov/analysis/requests/fe/pdf/lng.pdf.
[29] 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.

2015 (2015 LNG Export Study or 2015 Study).[30] 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 2015 to 2040 time period.

In December 2015, DOE/FE published a Notice of Availability of the 2014 and 2015 LNG Export Studies in the *Federal Register*, and invited public comment on those Studies.[31] DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[32]

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/FE.[33] 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/FE determined that a

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

[31] 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).

[32] *See*, *e.g.*, *Sabine Pass Liquefaction, LLC,* DOE/FE Order No. 3792, FE 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).

[33] *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].

new macroeconomic study was warranted.[34] Accordingly, DOE/FE, through its support contractor KeyLogic Systems, Inc., commissioned NERA to conduct the 2018 LNG Export Study. DOE published the 2018 LNG Export Study on its website on June 7, 2018,[35] and concurrently provided notice of the availability of the Study, as discussed below.[36]

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

(i) Includes a larger number of scenarios (54 scenarios) to capture a wider range of uncertainty in four natural gas market conditions than examined in the previous studies;

(ii) Includes LNG exports in all 54 scenarios that are market-determined levels, including the three alternative baseline scenarios that are based on the projections in EIA's *Annual Energy Outlook 2017* (AEO 2017);[37]

(iii) Examines unconstrained LNG export volumes beyond the levels examined in the previous studies;

(iv) Examines the likelihood of those market-determined LNG export volumes; and

(v) Provides macroeconomic projections associated with several of the scenarios lying within the more likely range of exports.[38]

b. Methodology and Scenarios

In its Response to Comments published in the *Federal Register* in December 2018, DOE/FE provided a detailed discussion of the methodology and scenarios used in the 2018

[34] Additionally, as of the date of the 2018 Study, DOE/FE had authorized a cumulative total of LNG exports to FTA countries under section 3(c) of the NGA in a volume of 59.33 Bcf/d of natural gas. These FTA volumes are not additive to the authorized non-FTA volumes.
[35] *See* NERA Economic Consulting, Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports (June 7, 2018), *available at*: https://www.energy.gov/sites/prod/files/2018/06/f52/Macroeconomic%20LNG%20Export%20Study%202018.pdf [hereinafter 2018 LNG Export Study or 2018 Study].
[36] *See* 2018 Study Notice.
[37] U.S. Energy Info. Admin., *Annual Energy Outlook 2017* (with projections to 2050) (Jan. 5, 2017), *available at*: https://www.eia.gov/outlooks/aeo/pdf/0383(2017).pdf.
[38] *See* 2018 Study Notice, 83 Fed. Reg. at 27,316.

Study, including NERA's Global Natural Gas Model (GNGM) and NewERA models.[39] The 2018 Study develops 54 scenarios by identifying various assumptions for domestic and international supply and demand conditions to capture a wide range of uncertainty in natural gas markets. The scenarios include three baseline cases based on EIA's AEO 2017 projections (the most recent EIA projections available at the time), with varying assumptions about U.S. natural gas supply.[40] The three cases for U.S. natural gas supply derived from AEO 2017 are:

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

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

iii. Low Oil and Gas Resource and Technology (LOGR) case, which provides less optimistic resource development estimates than the Reference case.[41]

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

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

ii. A Robust Economic Growth case, which provides a high estimate for U.S. natural gas demand driven by higher levels of gross domestic product growth; and

iii. A Renewables Mandate case, which provides a low estimate for U.S. natural gas demand driven by the imposition of a stringent renewables mandate.[42]

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[39] *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].
[40] 2018 Study Response to Comments, 83 Fed. Reg. at 67,256 (stating that the differences in the natural gas production levels across these cases arise from varying assumptions around unproven offshore resources, onshore shale gas resources, tight gas resources, and conventional and tight oil associated gas resources, as well as the costs of producing these resources).
[41] *See id*.
[42] *See id*.

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

As noted above, the 2018 Study also examines the likelihood of conditions leading to various export scenarios. This unique feature provides not only quantification of the effects to the U.S. natural gas market and its overall economy under each of the scenarios outlined, but also an assessment of the probability of each of these scenarios, and thus the probability of the natural gas and macroeconomic outcomes associated with each scenario.[43]

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.[44] DOE/FE and KeyLogic, Inc. contacted a set of independent experts recommended by DOE (referred to as the peer reviewers) to obtain their probability assignments for these same four metrics. After receiving feedback from the peer reviewers, NERA reevaluated the original probability assignments to arrive at the final probabilities. These peer-reviewed probabilities of uncertainties surrounding developments in the international and domestic natural gas markets were, in turn, combined to develop the 54 export scenarios and their associated macroeconomic impacts.

c. Study Results

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

[43] *See id*.
[44] *See id*.

- The more likely range of LNG exports in the year 2040 was judged to range from 8.7 to 30.7 Bcf/d of natural gas.

- U.S. natural gas prices range from $5 to approximately $6.50 per million British thermal unit (MMBtu) in 2040 (in constant 2016 dollars) under Reference case supply assumptions. These central cases have a combined probability of 47%.

- Levels of gross domestic product (GDP) are most sensitive to assumptions about U.S. supply of natural gas, with high supply driving higher levels of GDP. For each of the supply scenarios, higher levels of LNG exports in response to international demand consistently lead to higher levels of GDP. GDP achieved with the highest level of LNG exports in each group exceeds GDP with the lowest level of LNG exports by $13 to $72 billion in 2040 (in constant 2016 dollars).

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

- Chemical industry subsectors of the economy that rely heavily on natural gas for energy and as a feedstock continue to exhibit robust growth even at higher LNG export levels. This growth is only insignificantly slower than cases with lower LNG export levels.

- Even the most extreme scenarios of high LNG exports outside the more likely probability range (exhibiting a combined probability of less than 3%) show higher overall economic performance in terms of GDP, household income, and consumer welfare than lower export levels associated with the same domestic supply scenarios.[45]

[45] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,255.

d. DOE/FE Proceeding

On June 12, 2018, DOE published a notice of availability of the 2018 LNG Export Study and a request for comments.[46] 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."[47] DOE received 19 comments on the 2018 LNG Export Study from a variety of sources, including participants in the natural gas industry, environmental organizations, and individuals.[48] Of those, nine comments supported the Study,[49] eight comments opposed the 2018 Study and/or exports of LNG,[50] one comment took no position,[51] and one comment was non-responsive.[52]

DOE/FE has evaluated the comments to the 2018 Study. DOE/FE summarized and responded to these comments in the Response to Comments document, published on December 28, 2018.[53] As explained in the Response to Comments, DOE/FE determined that none of the eight comments opposing the 2018 Study provided sufficient evidence to rebut or otherwise undermine the 2018 Study.[54]

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[46] *See* 2018 Study Notice.
[47] *Id*. at 27,315.
[48] The public comments are posted on the DOE/FE website at: https://fossil.energy.gov/app/docketindex/docket/index/10.
[49] 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.
[50] Opposing comments were filed by Patricia Weber; Oil Change International; Food & Water Watch; Industrial Energy Consumers of America (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.
[51] Comment of John Young.
[52] Comment of Vincent Burke.
[53] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.
[54] *See id*. at 67,272.

DOE/FE 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/FE Conclusions

Based upon the record in the 2018 Study proceeding, DOE/FE 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.[55] 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.[56] DOE highlighted the following key findings of the Study:

- "Increasing 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."[57]
- "Increased exports of natural gas will improve the U.S. balance of trade and result in a wealth transfer into the United States."[58]
- "Overall [U.S.] GDP improves as LNG exports increase for all scenarios with the same U.S. natural gas supply condition.[59]
- "There is no support for the concern that LNG exports would come at the expense of domestic natural gas consumption."[60]
- "[A] large share of the increase in LNG exports is supported by an increase in domestic natural gas production."[61]

[55] *See id*.
[56] *See id*.
[57] *Id*. (quoting 2018 LNG Export Study at 55).
[58] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (quoting 2018 LNG Export Study at 64).
[59] *Id*. (quoting 2018 LNG Export Study at 67).
[60] *Id*. (quoting 2018 LNG Export Study at 77).
[61] *Id*.

- "Natural 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."[62]

DOE/FE also observed that EIA's projections in *Annual Energy Outlook 2018* (AEO 2018) showed market conditions that will accommodate increased exports of natural gas.[63] DOE/FE 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.[64]

For all of these reasons, DOE/FE 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."[65] 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.[66]

B. DOE's Environmental Studies

On June 4, 2014, DOE/FE issued two notices in the *Federal Register* proposing to evaluate different environmental aspects of the LNG production and export chain. First, DOE/FE 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 concerning

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[62] *Id*. (quoting 2018 LNG Export Study at 70).
[63] U.S. Energy Info. Admin., *Annual Energy Outlook 2018* (with projections to 2050) (Feb. 6, 2018), *available at*: https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf.
[64] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[65] *Id*. (citing 2018 LNG Export Study at 63 & Appendix F).
[66] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

the potential environmental impacts of unconventional natural gas exploration and production activities, including hydraulic fracturing. DOE/FE 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).[67] DOE/FE received public comments on the Draft Addendum and, on August 15, 2014, issued the final Addendum with its response to the comments contained in Appendix B.[68]

Second, DOE/FE 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. The purpose of this analysis was to determine: (i) how domestically-produced LNG exported from the United States compares with regional coal (or other LNG sources) for electric power generation in Europe and Asia from a life cycle GHG perspective, and (ii) how those results compare with natural gas sourced from Russia and delivered to the same markets via pipeline. DOE/FE published NETL's report entitled, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States* (LCA GHG Report).[69] DOE/FE also received public comments on the LCA GHG Report, and responded to those comments in prior orders.[70]

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[67] 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/FE announced the availability of the Draft Addendum on its website on May 29, 2014.

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

[69] 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 LCA GHG Report]. DOE/FE announced the availability of the LCA GHG Report on its website on May 29, 2014.

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

With respect to both the Addendum and the LCA GHG Report, DOE/FE has taken all public comments into consideration in this decision and has made those comments, as well as the underlying studies, part of the record in this proceeding.

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

In 2015 and 2016, Sierra Club petitioned the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) for review of five long-term LNG export authorizations issued by DOE/FE under the standard of review discussed below. Sierra Club challenged DOE/FE'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; Sabine Pass Liquefaction, LLC; and Cheniere Marketing, LLC, *et al.* 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*),[71] and three in a consolidated, unpublished opinion issued on November 1, 2017 (*Sierra Club II*).[72] 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.[73]

In *Sierra Club I*, the D.C. Circuit concluded that DOE/FE had complied with both section 3(a) of the NGA and NEPA in issuing the challenged non-FTA authorization (DOE/FE Order No. 3357) to Freeport Expansion and its related entities (collectively, Freeport). DOE/FE 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/FE also considered and disclosed the potential environmental impacts of its decision under

[71] *Sierra Club v. U.S. Dep't of Energy*, 867 F.3d 189 (Aug. 15, 2017) (denying petition for review of the LNG export authorization issued to Freeport LNG Expansion, L.P., *et al.*).
[72] *Sierra Club v. U.S. Dep't of Energy,* 703 Fed. Appx. 1 (D.C. Cir. Nov. 1, 2017) (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 Liquefaction, LLC, and Cheniere Marketing, LLC, *et al.*, respectively).
[73] *See Sierra Club v. U.S. Dep't of Energy*, No. 16-1426, Per Curiam Order (D.C. Cir. Jan. 30, 2018) (granting Sierra Club's unopposed motion for voluntary dismissal)

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, holding 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."[74]

First, the Court rejected Sierra Club's principal NEPA argument concerning the alleged indirect effects of LNG exports, such as the effects related to the likely increase in natural gas production and usage that would result from the Freeport export authorization.[75] The Court found that DOE "offered a reasonable explanation as to why it believed the indirect effects pertaining to increased [natural] gas production were not reasonably foreseeable."[76] 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."[77]

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.[78] The Court pointed to DOE's LCA GHG Report, finding there was "nothing arbitrary" about the scope of DOE's analysis of GHG emissions in that Report.[79]

[74] *Sierra Club I,* 867 F.3d at 203.
[75] *Id.* at 192.
[76] *Id*. at 198.
[77] *Id*. at 201.
[78] *Id*.
[79] *Id*. at 202.

Third, in reviewing Sierra Club's claims under the NGA, the Court found that Sierra Club "repeats the same argument it made to support its NEPA claim—namely, that the Department arbitrarily failed to evaluate foreseeable indirect effects of exports."[80] Having "already rejected this argument" 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."[81]

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."[82] 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/FE's actions in issuing the non-FTA authorizations in those proceedings.[83] The D.C. Circuit's decisions in *Sierra Club I and II* guide our review in this proceeding.

III. PUBLIC INTEREST STANDARD

Section 3(a) of the NGA sets forth the standard for review of the Application:

> [N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the [Secretary of Energy[84]] authorizing it to do so. The [Secretary] shall issue such order upon application, unless after opportunity for hearing, [he] 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.[85]

[80] *Sierra Club I,* 867 F.3d at 203.
[81] *Id.*
[82] *Sierra Club II,* 703 Fed. Appx. 1, at *2.
[83] *Id*.
[84] The Secretary's authority was established by the Department of Energy Organization Act, 42 U.S.C. § 7172, which transferred jurisdiction over imports and export authorizations from the Federal Power Commission to the Secretary of Energy.
[85] 15 U.S.C. § 717b(a).

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.[86] 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.[87] Before reaching a final decision, DOE must also comply with NEPA.

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. In prior decisions, DOE has identified a range of factors that it evaluates when reviewing an application for export authorization. These factors include economic impacts, international impacts, security of natural gas supply, and environmental impacts, among others. To conduct this review, DOE looks to record evidence developed in the application proceeding.

DOE's prior decisions have also looked to certain principles established in its 1984 Policy Guidelines.[88] 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

[86] *See Sierra Club*, 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)).
[87] *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)).
[88] 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.[89]

While the Policy Guidelines are nominally applicable to natural gas import cases, DOE subsequently held in Order No. 1473 that the same Policy Guidelines should be applied to natural gas export applications.[90]

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.[91] 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."[92]

Although DOE Delegation Order No. 0204-111 is no longer in effect, DOE's review of export applications has continued to focus 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.

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[89] *Id*. at 6685.

[90] *Phillips Alaska Natural Gas Corp.*, *et al*., DOE/FE Order No. 1473, FE 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)).

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

[92] 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)).

IV. DESCRIPTION OF REQUEST

A. Description of Applicants

Freeport LNG Expansion, L.P. (Freeport Expansion) is a Delaware limited partnership with its principal place of business in Houston, Texas. Freeport Expansion is wholly owned by FLEX Holdco, LLC, a Delaware limited liability company. FLEX Holdco, LLC is wholly owned by Freeport LNG Development, L.P. (Freeport Development).[93]

FLNG Liquefaction 4, LLC (FLIQ4) is a Delaware limited liability company with its principal place of business in Houston, Texas. FLIQ4, a wholly owned subsidiary of Freeport Expansion, was formed for the purposes of obtaining financing, constructing, and owning the Train 4 Project.[94]

B. Procedural History

Prior to this Order, DOE/FE has issued several long-term authorizations to the Freeport entities approving exports of LNG from Trains 1 through 3 of the Liquefaction Project at the Terminal. As set forth in the Appendix, these authorizations include:

- DOE/FE Order No. 2913-B, authorizing the export of 511 Bcf/yr to FTA countries;
- DOE/FE Order No. 3066-A, authorizing the export of 511 Bcf/yr to FTA countries;
- DOE/FE Order No. 3282-C, authorizing the export of 511 Bcf/yr to non-FTA countries;
- DOE/FE Order No. 3357-B, authorizing the export of 146 Bcf/yr to non-FTA countries; and
- DOE/FE Order No. 3957, authorizing the export of 125 Bcf/yr to non-FTA countries.[95]

[93] FLEX4 App. at 2.
[94] *Id*.
[95] *See supra* notes 16-20; *see* FLEX4 App. at 4-5 (summarizing DOE/FE procedural history).

In sum, DOE/FE has authorized the Freeport entities to export LNG in a volume equivalent to 1,022 Bcf/yr of natural gas to FTA countries, and 782 Bcf/yr to non-FTA countries. This Order approves an additional 262.8 Bcf/yr of non-FTA exports from Train 4, bringing the total non-FTA export volume for the Terminal to 1044.8 Bcf/yr of natural gas.

C. Train 4 Project

FLEX4 states that the liquefaction facilities associated with the Train 4 Project will be located within the footprint of the Terminal, immediately adjacent to facilities currently under construction.[96] As approved by FERC, the Train 4 Project will include the following primary project facilities:

- A fourth liquefaction train at the Terminal (Train 4);
- A fourth pretreatment unit at the Pretreatment Facility (Unit 4);
- A 10.6-mile long, 42-inch diameter pipeline that will be constructed between the existing Stratton Ridge Meter Station, the Pretreatment Facility, and the Terminal (Pipeline); and
- Minor modifications to existing facilities.[97]

According to FLEX4, the Train 4 Project will also include construction of all required utility, auxiliary, and control systems, including common utilities, spill containment systems, fire and safety systems, electric substations, security systems, and plant roads.[98]

FLEX4 states that the Pipeline will provide natural gas to the Train 4 Project, as well as provide redundancy and minimize the potential for interruptions in natural gas deliveries to the Terminal.[99]

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[96] *See* FERC EA at 8; *see also* FLEX4 App. at 5.
[97] FERC EA at 8-9; *see also* FLEX4 App. at 5. The EA states that, although Train 4 will be identical to Trains 1-3, its 5.1-mtpa nominal capacity will reflect updated design information and operating assumptions. FERC EA at 8.
[98] FLEX4 App. at 5-7.
[99] *Id*. at 6.

D. Source of Natural Gas

FLEX4 states that, because of the interconnectivity of the U.S. natural gas pipeline system, the Train 4 Project will have access to natural gas at almost any point on the grid through direct delivery or by displacement.[100]

E. Business Model

FLEX4 requests this authorization on its own behalf and as agent for other parties who will hold title to the LNG at the time of export.[101] FLEX4 states that it has not yet executed long-term natural gas supply or export contracts for the Train 4 Project, but it anticipates entering into commercial agreements in the form of LNG sales and purchase agreements.[102]

FLEX4 states that it will comply with all DOE/FE requirements for exporters and agents, including filing any long-term natural gas supply or export contracts with DOE once those agreements are executed. FLEX4 further states that, when acting as agent, it will register with DOE/FE each LNG title holder for which it seeks to export LNG as agent, and will comply with other registration requirements as set forth in recent DOE/FE orders.[103]

V. APPLICANTS' PUBLIC INTEREST ANALYSIS

A. Overview

FLEX4 states that its proposed non-FTA exports are consistent with the public interest under NGA section 3(a). In support of this position, FLEX4 addresses the following factors: (i) the domestic need for the natural gas to be exported, (ii) the economic benefits associated

[100] *Id.* at 8.
[101] *Id.* at 2.
[102] *Id.* at 8.
[103] *Id.*

with its proposed exports; and (iii) U.S. and global energy policy associated with its proposed exports.[104]

FLEX4 points out that "DOE/FE has previously concluded that exports from the Terminal are not inconsistent with the public interest."[105] FLEX4 notes that this finding was based upon DOE/FE's determination that exports of LNG from the Terminal will result in many local and national economic and public benefits.[106] According to FLEX4, the Train 4 Project is likewise consistent with the public interest due, in part, to its associated benefits and the improved outlook for domestic natural gas production.[107]

B. Domestic Need for Natural Gas To Be Exported

FLEX4 asserts that the domestic supply of natural gas will far exceed market demand for the foreseeable future. Citing projections by EIA, FLEX4 states that "domestic natural gas resources are abundantly available to meet projected future domestic needs," including its proposed export volume.[108]

Citing EIA's *December 2017 Short-Term Energy Outlook*, FLEX4 asserts that U.S. natural gas production in 2018 will be 6.1 Bcf/d higher than the 2017 level.[109] FLEX4 points to EIA's statement that "rising natural gas production [is keeping] pace with increasing consumption and demand for exports—particularly for [LNG] …."[110]

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[104] FLEX4 App. at 9-14.
[105] *Id*. at 10 (citing *Freeport LNG Expansion L.P., et al.*, DOE/FE Order Nos. 3282-C and 3357-B, cited *supra* § I).
[106] *Id*.
[107] *Id*.
[108] *Id* at 11.
[109] *Id.* (citing U.S. Energy Info. Admin., *December 2017 Short-Term Energy Outlook*, at 1 (Dec. 12, 2017), *available at*: https://www.eia.gov/outlooks/steo/archives/dec17.pdf).
[110] FLEX4 App. at 11 (citing U.S. Energy Info. Admin., *October 2017 Short-Term Energy Outlook*, at 10 (Oct. 10, 2017), *available at*: https://www.eia.gov/outlooks/steo/archives/oct17.pdf) (alterations in original).

FLEX4 asserts that this trend will continue in the long-term. According to FLEX4, EIA concluded in AEO 2018 that "[n]atural gas production increases in every case, supporting higher levels of domestic consumption and natural gas exports."[111]

C. Economic Benefits

FLEX4 cites DOE's 2012, 2014, and 2015 LNG Export Studies in asserting that LNG exports will not result in significant adverse price impacts to U.S. consumers.[112] FLEX4 points to these Studies in stating that LNG exports are projected to provide an economic benefit to the U.S. economy as a whole, including an increase in GDP, economic welfare, and higher levels of employment.[113]

FLEX4 asserts that its Train 4 Project will benefit the economy by creating jobs, increasing tax revenues, and helping reduce the U.S. trade deficit.[114] Specifically, FLEX4 states that the Train 4 Project will create or extend up to 3,000 engineering and construction jobs, hundreds of off-site jobs, and approximately 106 full-time operational positions.[115]

Next, FLEX4 states that the Train 4 Project will result in significant economic stimulus—which it estimates to be $2.7 to $3.8 billion annually, or $54 to $76 billion over the requested 20-year period.[116] FLEX4 further contends that exports from Train 4 will improve the U.S. balance of trade by approximately $1.7 billion per year, assuming an average LNG value of $7 per million British thermal units.[117]

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[111] *Id*. at 12 (citing U.S. Energy Info. Admin, *Annual Energy Outlook 2018 with Projections to 2050,* at 59 (Feb. 6, 2018), *available at*: https://www.eia.gov/outlooks/archive/aeo18/pdf/AEO2018.pdf).
[112] *Id*. at 12-13.
[113] *Id*.
[114] *See id.* at 13-14.
[115] *Id*. at 13.
[116] FLEX4 App. at 14.
[117] *Id*.

D. U.S. and Global Energy Policy

FLEX4 states that natural gas exports are consistent with U.S. policy initiatives and global energy priorities. FLEX4 contends that the Application supports the Trump Administration's policy goals regarding infrastructure development and global energy dominance. FLEX4 also points out that, in prior LNG export authorizations, DOE/FE has considered the ability of LNG exports to diversify global LNG supplies, thus providing economic and strategic benefits to the United States and its allies.[118]

VI. FERC PROCEEDING

A. FERC's Pre-Filing Procedures

Authorizations issued by FERC permitting the siting, construction, and operation of LNG export terminals are reviewed under NGA section 3(a) and (e), 15 U.S.C. § 717b(a), (e). FERC's approval process for such an application consists of a mandatory pre-filing process during which the environmental review required by NEPA commences,[119] and a formal application process that starts no sooner than 180 days after issuance of a notice that the pre-filing process has commenced.[120]

On June 3, 2015, FERC began its pre-filing review of the proposed Train 4 Project.[121] FERC established pre-filing Docket No. PF15-25-000 to place information related to the Train 4 Project into the public record. On August 19, 2015, FERC issued a Notice of Intent to Prepare an Environmental Assessment for the Train 4 Project and Request for Comments.[122] On August 31, 2016, in response to changes in the Project, FERC issued a Supplemental Notice of Intent to

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[118] *Id.* (citations omitted).
[119] 18 C.F.R. § 157.21.
[120] *Id.* § 157.21(a)(2)(i-ii).
[121] FERC EA at 3; FERC Order at ¶ 23.
[122] FERC EA at 6; FERC Order at ¶ 23 (citing 80 Fed. Reg. 51,548 (Aug. 25, 2015)).

Prepare an Environmental Assessment and Request for Comments.[123] DOE agreed to participate as a cooperating agency in FERC's environmental review.[124]

B. FERC's Environmental Review

On June 29, 2017, Freeport Development and FLIQ4 jointly filed an application with FERC under section 3 of the NGA to site, construct, and operate the Train 4 Project.[125] FERC assigned Docket No. CP17-470-000 to their proposal to site, construct, and operate the Train 4 Project.

In compliance with NEPA, FERC staff issued a Notice of Availability of the Environmental Assessment on November 2, 2018, and placed the EA into the public record.[126] The EA addressed numerous potential impacts of the Train 4 Project, including (but not limited to) wetlands, geological conditions, water resources, air quality, and cumulative impacts. [127]

Based on its environmental analysis, FERC staff recommended 95 site-specific mitigation measures (or environmental conditions) to minimize impacts of the Train 4 Project.[128] FERC staff concluded that, "if Freeport LNG constructs and operates the proposed facilities in accordance with its application and supplements and our recommended mitigation measures, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment."[129] On this basis, FERC staff recommended that FERC issue

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[123] FERC EA at 7; FERC Order at ¶ 24 (citing 81 Fed. Reg. 61,677 (Sept. 7, 2016)).
[124] *See* FERC EA at 4.
[125] *See* Freeport LNG Development, L.P. and FLNG Liquefaction 4, LLC, Application for Authorizations Under Section 3 of the Natural Gas Act, FERC Docket No. CP17-470-000 (June 29, 2017); *see also* FERC Order at ¶ 26.
[126] Federal Energy Regulatory Comm'n; Freeport LNG Development, L.P., FLNG Liquefaction 4, LLC; Notice of Availability of the Environmental Assessment for the Proposed Train 4 Project, Docket No. CP17-470-000, 83 Fed. Reg. 55,880 (Nov. 8, 2018).
[127] FERC EA at 4; FERC Order at ¶ 27.
[128] FERC EA at 3, 235-51 (list of mitigation measures).
[129] *Id*. at 235.

an order containing a Finding of No Significant Impact and including the mitigation measures as conditions of the authorization.[130]

C. FERC's Order Granting Authorization

On May 17, 2019, FERC issued its Order authorizing Freeport Development and FLIQ4 to site, construct, and operate the Train 4 Project.[131] Based on the analysis in the EA, as supplemented in the FERC Order, FERC concluded that, "if constructed and operated in accordance with [the] application and supplements, … and in compliance with the environmental conditions in the appendix to this order, our approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment."[132] FERC added that "[c]ompliance with the environmental conditions … is integral to ensuring that the environmental impacts of approved projects are consistent with those anticipated by our environmental analyses."[133]

Although the final EA recommended 95 environmental mitigation measures, FERC adopted 93 environmental conditions in the FERC Order to reflect various modifications made by FERC to the mitigation measures recommended in the EA.[134] These 93 environmental conditions were included in the appendix of the Order.[135]

FERC reviewed and addressed the major environmental issues addressed in the final EA.[136] Addressing GHG emissions, for example, FERC pointed to the EA's estimate that "operation of the Train 4 Project, including the LNG terminal and pipeline facilities, may result

[130] *Id.*
[131] FERC Order at ¶¶ 1-6.
[132] *Id.* ¶ 84.
[133] *Id.*
[134] *See*, *e.g.*, FERC Order at ¶¶ 58, 61-62, 69-73, 76-81 (FERC choosing not to adopt certain mitigation measures and modifying and renumbering others recommended in the EA).
[135] *Id.* at Appendix.
[136] *See generally id.* at ¶¶ 29-59.

in emissions of up to 491,500 metric tons per year of carbon dioxide equivalent (CO_2e)."[137] FERC further stated that the "direct operational emissions of these facilities could potentially increase annual CO_2e emissions based on the 2016 levels by 0.01 percent at the national level."[138]

On the basis of these estimates, FERC acknowledged the finding in the EA that "the GHG emissions, such as those emitted from the construction and operation of the project, will contribute incrementally to climate change."[139] However, FERC stated that it "previously concluded it could not determine a project's incremental physical impacts on the environment caused by GHG emissions," and therefore "concluded it could not determine whether a project's contribution to climate change would be significant."[140]

In sum, FERC agreed with the EA finding "that the Train 4 Project, if mitigated as recommended, would not constitute a major federal action significantly affecting the quality of the human environment."[141]

VII. DISCUSSION AND CONCLUSIONS

In reviewing FLEX4's Application, DOE/FE has considered both its obligations under NGA section 3(a) and NEPA. To accomplish these purposes, DOE/FE has examined a wide range of information addressing environmental and non-environmental factors, including but not limited to:

- FLEX4's uncontested Application;
- FERC's EA and Order, including the 93 environmental conditions adopted in that Order;

[137] *Id*. at ¶ 35 (citing EA at 191 (Table 28) and 198 (Table 30)).
[138] *Id*.
[139] *Id*. at ¶ 36 (citing EA at 188, 222).
[140] FERC Order at ¶ 36 (citations omitted).
[141] *Id.* at ¶ 67; *see also id*. at ¶ 84.

- The Draft Addendum, comments received in response to the Draft Addendum, and the final Addendum;
- The LCA GHG Report (and the supporting NETL document), including comments submitted in response to those documents; and
- The 2018 LNG Export Study, including comments received in response to that Study.

A. Non-Environmental Issues

1. Significance of the 2018 LNG Export Study

As discussed above, DOE/FE commissioned the 2018 LNG Export Study and invited public comments on the Study. DOE/FE analyzed this material in its Response to Comments published in the *Federal Register* on December 28, 2018. On the basis of the 2018 Study, DOE/FE concluded that the United States will experience net economic benefits from the issuance of authorizations to export domestically produced LNG.[142] 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.[143]

We take administrative notice of EIA's recent authoritative projections for natural gas supply, demand, and prices, set forth in the *Annual Energy Outlook 2019* (AEO 2019), issued on January 24, 2019.[144] DOE/FE has assessed AEO 2019 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study. The Reference case for AEO 2017 includes the effects of the Clean Power Plan (CPP) final rule, which was intended to reduce GHG emissions from the power sector.[145] AEO 2017 also included a Reference case without

[142] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,272; *see also supra* § II.A.3.
[143] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[144] U.S. Energy Info. Admin., *Annual Energy Outlook 2019* (Jan. 24, 2019), *available at*: https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf.
[145] U.S. Envtl. Prot. Agency, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule, 80 Fed. Reg. 64,662 (Oct. 23, 2015). On February 9, 2016, the U.S. Supreme Court issued a stay of the effectiveness of the CPP final rule pending review by the D.C. Circuit in consolidated cases

implementation of the CPP. Both AEO 2017 Reference cases show natural gas production levels that favor exports, but that also have lower net LNG exports in 2050 (12.0 Bcf/d for the Reference case with the CPP and 12.5 Bcf/d for the Reference case without the CPP), compared with AEO 2019 that shows net LNG exports of 13.8 Bcf/d in 2050. As discussed below, AEO 2019—which does not include the CPP in its Reference case—is even more supportive of exports than both Reference cases for AEO 2017.

EIA's projections in AEO 2019 continue to show market conditions that will accommodate increased exports of natural gas. When compared to the AEO 2017 Reference cases, both with and without the CPP, the AEO 2019 Reference case projects increases in domestic natural gas production—well in excess of what is required to meet projected increases in domestic consumption.

For these reasons, we reaffirm that the 2018 LNG Export Study is fundamentally sound. The 2018 Study, as well as AEO 2019, support our finding that FLEX4's proposed authorization will not be inconsistent with the public interest.

2. FLEX4's Application

Upon review, DOE/FE finds that several factors identified in the Application, as well as in the 2018 LNG Export Study, support a grant of FLEX4's requested authorization under NGA section 3(a).

First, FLEX4 points to DOE's 2012, 2014, and 2015 LNG Export Studies in asserting that the United States has significant natural gas resources available to meet both projected future

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challenging the rule. *See Chamber of Commerce, et al. v. EPA, et al.*, No. 15A787, Order in Pending Case (U.S. Feb. 9, 2016). The litigation over the CPP final rule pending in the D.C. Circuit has been held in abeyance as the U.S. Environmental Protection Agency (EPA) reviews the CPP and considers an alternative regulatory approach. *See West Virginia, et al. v. EPA, et al.*, Case Nos. 15-1363 *et al.*, Per Curiam Order (D.C. Cir. Apr. 5, 2019); *see also West Virginia, et al. v. EPA, et al.*, Case Nos. 15-1363 *et al.*, EPA Status Report, at 2-3 (D.C. Cir. May 6, 2019) (describing status of EPA's rulemaking activities).

domestic needs and demand for the proposed exports. We agree, based on more recent projections and analyses. Specifically, we find that the 2018 LNG Export Study and AEO 2019 continue to project robust domestic supply conditions that are more than adequate to satisfy both domestic needs and exports of LNG, including those proposed in the Application.[146]

Second, the 2018 LNG Export Study indicates that exports of LNG will generate net economic benefits to the broader U.S. economy.[147] Indeed, the 2018 Study consistently shows macroeconomic benefits to the U.S. economy in every scenario, as well as positive annual growth across the energy intensive sectors of the economy.[148]

Third, as discussed below, over the 20-year term of the authorization, the proposed exports will improve the liquidity of international natural gas markets and will make a positive contribution to the United States' trade balance. For these reasons, we agree with FLEX4 that its proposed exports are consistent with U.S. policy.[149]

The 2018 Study also shows that energy intensive industries will continue to grow robustly even at higher levels of LNG exports, albeit at slightly lower rates of increase than they would at lower levels.

Accordingly, based on the 2018 Study and the more recent data in AEO 2019, DOE/FE finds that the market will be capable of sustaining the level of exports requested in FLEX4's Application over the authorization term without negative economic impacts, including domestic price impacts (discussed below).

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[146] *See*, *e.g.*, 2018 Study Response to Comments, 83 Fed. Reg. at 67,262.
[147] *Id*.
[148] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,268-69 (citing 2018 LNG Export Study at 67, 70).
[149] FLEX4 App. at 14.

3. Price Impacts

As discussed above, the 2018 LNG Export Study projects the economic impacts of LNG exports in a range of scenarios, including scenarios that exceed the current amount of LNG exports authorized in the final non-FTA export authorizations issued to date (equivalent to a total of 32.99 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."[150]

Additionally, DOE/FE has analyzed AEO 2019 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study. Comparing key results from 2050 (the end of the projection period in Reference case projections from AEO 2017) shows that the Reference case outlook in AEO 2019 projects lower-48 market conditions that would be even more supportive of LNG exports than in AEO 2017, including higher production and demand coupled with lower prices. For example, for the year 2050, the AEO 2019 Reference case anticipates nearly 8% and 10% more natural gas production in the lower-48 than the AEO 2017 Reference case with the CPP and without the CPP, respectively. It also projects an average Henry Hub natural gas price that is lower than the AEO 2017 Reference cases by nearly 20% for the Reference case with the CPP and 17% for the Reference case without the CPP. Table 1 below shows these comparisons:

[150] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,258 (citing 2018 LNG Export Study at 55).

Table 1: Year 2050 Reference Case Comparisons in AEO 2017 and AEO 2019

	AEO 2017 Reference Case **With Clean Power Plan**	**AEO 2017 Reference Case** **Without Clean Power Plan**	**AEO 2019 Reference Case** **Without Clean Power Plan**
Lower-48 Dry Natural Gas Production (Bcf/d)	109.6	107.9	118.3
Total Natural Gas Consumption (Bcf/d)	94.8	92.4	95.8
Electric Power Sector Consumption (Bcf/d)	34.2	31.8	33.3
<u>Net</u> Exports by Pipeline (Bcf/d)	3.2	3.4	8.9
<u>Net</u> LNG Exports (Bcf/d)	12.0	12.5	13.8
LNG Exports – Total (Bcf/d)	12.2	12.7	14.1
Henry Hub Spot Price ($/MMBtu) **(Note 1)**	$6.07 (2018$)	$5.88 (2018$)	$4.87 (2018$)

Note 1: Prices adjusted to 2018$ with the AEO 2017 projection of a Gross Domestic Product price index.

For these reasons, and as explained in DOE/FE's Response to Comments on the 2018 Study, we find that arguments concerning domestic price increases are not supported by the record evidence.[151]

[151] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,267-69 (§ VI.G) (DOE/FE's response to comments on natural gas price impacts).

4. Benefits of International Trade

We have not limited our review to the 2018 LNG Export Study and data from AEO 2019, but have considered the international consequences of our decision. As discussed above, we review applications to export LNG to non-FTA nations under section 3(a) of the NGA. The United States' commitment to free trade is one factor 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. Indeed, increased production of domestic natural gas has significantly reduced the need for the United States to import LNG. In global trade, LNG shipments that would have been destined to U.S. markets have been redirected to Europe and Asia, improving energy security for many of our key trading partners. To the extent U.S. exports can 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. As such, we agree with FLEX4 that authorizing its exports may advance the public interest for reasons that are distinct from and additional to the economic benefits identified in the 2018 LNG Export Study.

B. Environmental Issues

In reviewing the potential environmental impacts of FLEX4's proposal to export LNG to non-FTA countries, DOE/FE has considered both its obligations under NEPA and its obligation under NGA section 3(a) to ensure that the proposal is not inconsistent with the public interest.

1. Adoption of FERC's EA

DOE/FE participated in FERC's environmental review of the proposed Train 4 Project as a cooperating agency and has examined FERC's reasoning and conclusions. For the reasons set forth below, DOE/FE has not found that the arguments raised in the FERC proceeding, the current proceeding, or the 2018 LNG Export Study proceeding detract from the reasoning and conclusions contained in FERC's EA. Accordingly, DOE has adopted the EA (see *supra* § I), and hereby incorporates the reasoning contained in the EA in a Finding of No Significant Impact (FONSI), issued concurrently with this Order.

2. Environmental Impacts Associated with Induced Production of Natural Gas

The current rapid development of natural gas resources in the United States likely will continue, with or without the export of natural gas to non-FTA nations.[152] Nevertheless, a decision by DOE/FE 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 gas production, including impacts to water resources, air quality, greenhouse gas 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 exports of natural gas to non-FTA nations should be prohibited. Rather, we believe the public interest is better served by addressing these environmental concerns directly—through federal, state, or local regulation, or through self-imposed industry guidelines where appropriate—rather than by prohibiting exports of natural gas. Unlike DOE, environmental regulators have the legal authority to impose requirements on natural gas production that appropriately balance benefits and burdens, and to update these regulations from time to time as technological practices and scientific understanding evolve.

[152] Addendum at 2.

Section 3(a) of the NGA is too blunt an instrument to address these environmental concerns efficiently. A decision to prohibit exports of natural gas would cause the United States to forego entirely the economic and international benefits discussed herein, but would have little more than a modest, incremental impact on the environmental issues. For these reasons, we conclude that the environmental concerns associated with natural gas production do not establish that exports of natural gas to non-FTA nations are inconsistent with the public interest. We note that the D.C. Circuit in *Sierra Club I* rejected Sierra Club's arguments on this basis, and we find that the Court's conclusions and reasoning control in this proceeding.[153]

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

Sierra Club and other commenters on the Life Cycle Greenhouse Gas (LCA GHG) Report, the Addendum, and the 2018 LNG Export Study (as well as DOE/FE's earlier economic studies) expressed concern that exports of natural gas could have a negative effect on the GHG intensity and total amount of energy consumed in foreign nations.

The LCA GHG Report 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.[154] The key findings for U.S. LNG exports to Europe and Asia are summarized in Figures 1 and 2 below:

[153] *See Sierra Club I*, 867 F.3d at 203 (rejecting argument that DOE arbitrarily failed to evaluate foreseeable indirect effects of exports under NGA section 3(a)); *see supra* § II.C.
[154] *See supra* § II.B.

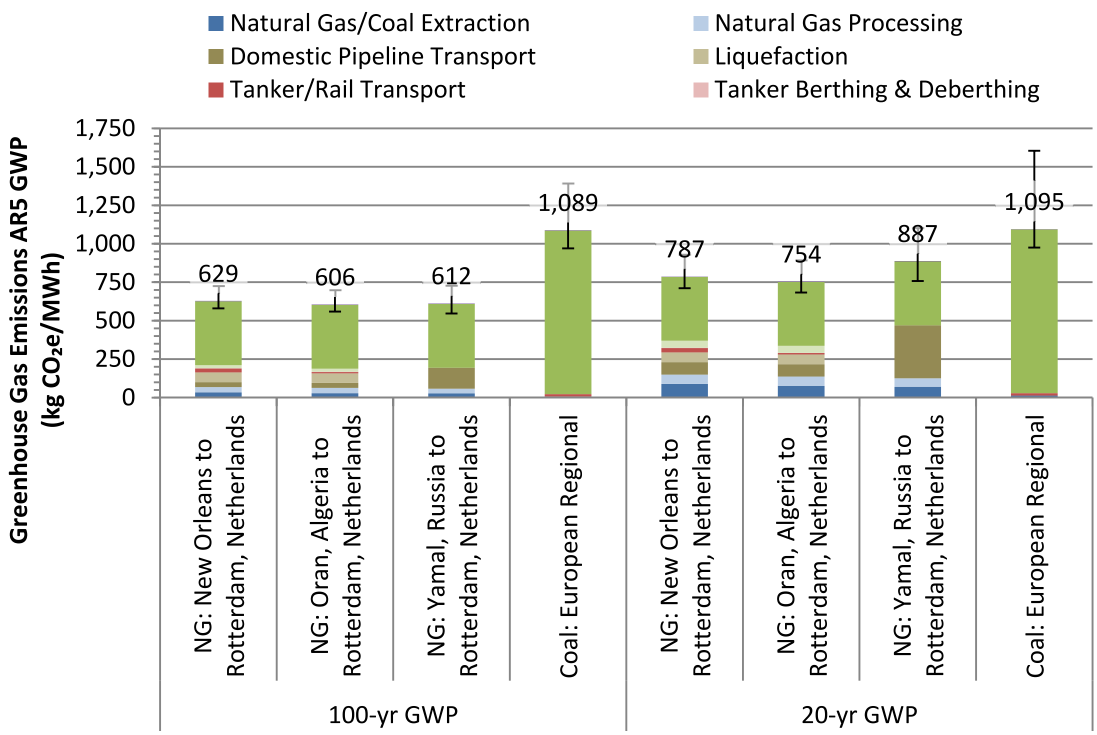

Figure 1: Life Cycle GHG Emissions for Natural Gas and Coal Power in Europe[155]

[155] LCA GHG Report at 9 (Figure 6-1).

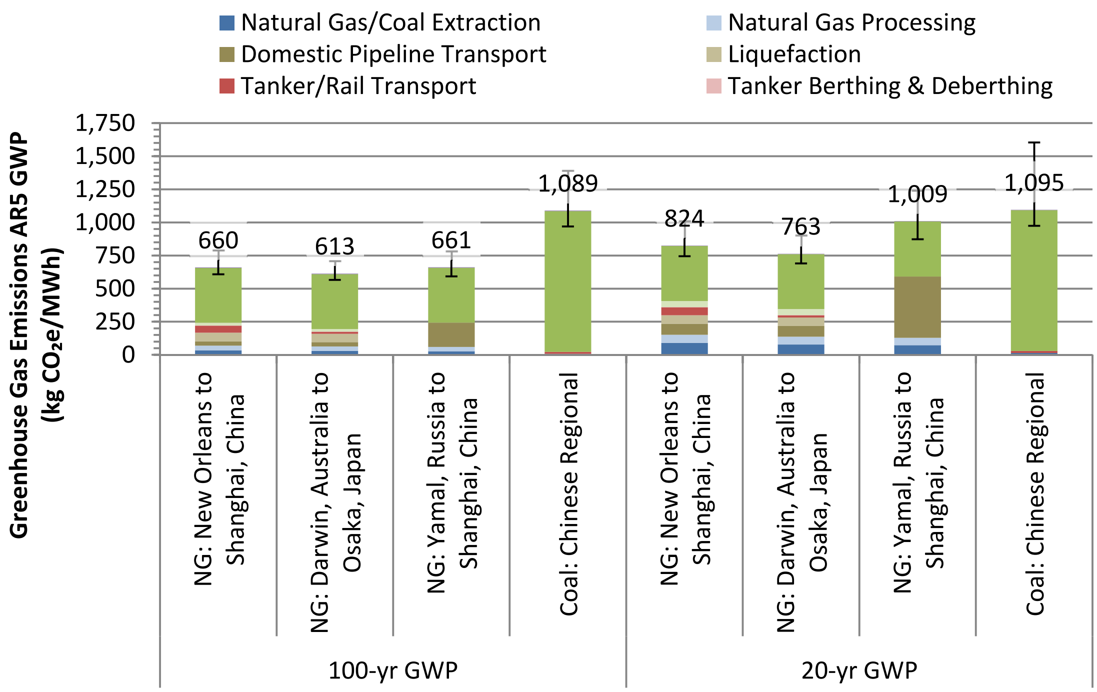

Figure 2: Life Cycle GHG Emissions for Natural Gas and Coal Power in Asia[156]

While acknowledging substantial uncertainty, the LCA GHG Report 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. 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.[157]

The LCA GHG Report does not answer the ultimate question whether authorizing exports of natural gas to non-FTA nations will increase or decrease global GHG emissions, because regional coal and imported natural gas are not the *only* fuels with which U.S.-exported LNG would 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, as well as

[156] LCA GHG Report at 10 (Figure 6-2).
[157] *Id*. at 9, 18.

efficiency and conservation measures. To model the effect that U.S. LNG exports would have on net global GHG emissions would require projections of how each of these fuel sources would be affected in each LNG-importing nation. Such an analysis would not only have to consider market dynamics in each of these countries over the coming decades, but also the interventions of numerous foreign governments in those markets.

The uncertainty associated with estimating each of these factors would likely render such an analysis too speculative to inform the public interest determination in this or other non-FTA LNG export proceedings. Accordingly, DOE/FE elected to focus on the discrete question of how U.S. LNG compares on a life cycle basis to regional coal and other sources of imported natural gas in key LNG-importing countries. The conclusions of the LCA GHG Report, combined with the observation that many LNG-importing nations rely heavily on fossil fuels for electric generation, suggests that exports of U.S. LNG may decrease global GHG emissions, although there is substantial uncertainty on this point as indicated above. Based on the record evidence, however, we see no reason to conclude that U.S. LNG exports will increase global GHG emissions in a material or predictable way.

Finally, we note that, in *Sierra Club I*, the D.C. Circuit rejected Sierra Club's argument that DOE/FE should have evaluated additional variables in the LCA GHG Report, such as the potential for LNG to compete with renewable energy sources in certain import markets. The D.C. Circuit ruled that Sierra Club's argument fell "under the category of flyspecking" and stated that the Court "[saw] nothing arbitrary about the Department's decision."[158] We find that the Court's conclusions and reasoning control in this proceeding, and we therefore decline to address them further.

[158] *Sierra Club I*, 867 F.3d at 202 (internal quotations and citation omitted).

C. 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. Nonetheless, our 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. Yet we also have taken into account factors that could mitigate these impacts, such as the current oversupply situation and data indicating that the natural gas industry would increase natural gas supply in response to increasing exports. Further, we note that it is far from certain 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 inherent in the global market demand for LNG.

More generally, DOE/FE continues to subscribe to the principle set forth in our 1984 Policy Guidelines[159] 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. There may be other circumstances as well that cannot be foreseen that would require agency action.[160] Given

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[159] 49 Fed. Reg. at 6684 (Feb. 22, 1984).

[160] Some commenters previously asked DOE to clarify the circumstances under which the agency would exercise its authority to revoke (in whole or in part) previously issued LNG export authorizations. We cannot precisely identify all the circumstances under which such action would be taken. We reiterate our observation in *Sabine Pass* that: "In the event of any unforeseen developments of such significant consequence as to put the public interest at risk, DOE/FE is fully authorized to take action as necessary to protect the public interest. Specifically, DOE/FE is authorized by section 3(a) of the Natural Gas Act … to make a supplemental order as necessary or appropriate to protect the public interest. Additionally, DOE is authorized by section 16 of the Natural Gas Act 'to perform any and all acts and to prescribe, issue, make, amend, and rescind such orders, rules, and regulations as it may find necessary or appropriate' to carry out its responsibilities." *Sabine Pass Liquefaction, LLC*, DOE/FE Order No.

these possibilities, DOE/FE recognizes the need to monitor market developments closely as the impact of successive authorizations of LNG exports unfolds.

D. Conclusion

We have reviewed the evidence in the record and relevant precedent in earlier non-FTA export decisions and have not found an adequate basis to conclude that FLEX4's proposed exports of LNG to non-FTA countries will be inconsistent with the public interest. For that reason, we are authorizing FLEX4's proposed exports subject to the limitations and conditions described in this Order.

In deciding whether to grant a final non-FTA export authorization, we also consider in our decision-making the cumulative impacts of the total volume of all final non-FTA export authorizations. With the issuance of this Order, there are currently 35 final non-FTA authorizations in a cumulative volume of exports totaling 32.99 Bcf/d of natural gas, or approximately 12.0 Tcf per year, as follows: Sabine Pass Liquefaction, LLC (2.2 Bcf/d),[161] Carib Energy (USA) LLC (0.04 Bcf/d),[162] Cameron LNG, LLC (1.7 Bcf/d),[163] FLEX I (1.4

2961, FE Docket No. 10-111-LNG, Opinion and Order Conditionally Granting Long-Term Authorization to Export Liquefied Natural Gas from Sabine Pass LNG Terminal to Non-Free Trade Agreement Nations, at 33 n.45 (May 20, 2011) (quoting 15 U.S.C. § 717o).

[161] *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 2961-A, FE 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).

[162] *Carib Energy (USA) LLC*, DOE/FE Order No. 3487, FE Docket No. 11-141-LNG, Final Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers by Vessel to Non-Free Trade Agreement Nations in Central America, South America, or the Caribbean (Sept. 10, 2014).

[163] *Cameron LNG, LLC*, DOE/FE Order No. 3391-A, FE 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).

Bcf/d),[164] FLEX II (0.4 Bcf/d),[165] Dominion Cove Point LNG, LP (0.77 Bcf/d),[166] Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),[167] Sabine Pass Liquefaction, LLC Expansion Project (1.38 Bcf/d),[168] American Marketing LLC (0.008 Bcf/d),[169] Emera CNG, LLC (0.008 Bcf/d),[170] Floridian Natural Gas Storage Company, LLC,[171] Air Flow North American Corp. (0.002 Bcf/d),[172] Bear Head LNG Corporation and Bear Head LNG (USA),

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[164] *Freeport LNG Expansion, L.P.*, *et al.*, DOE/FE Order No. 3282-C, FE 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).

[165] *Freeport LNG Expansion, L.P.*, *et al.*, DOE/FE Order No. 3357-B, FE 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).

[166] *Dominion Cove Point LNG, LP*, DOE/FE Order No. 3331-A, FE Docket No. 11-128-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas from the Cove Point LNG Terminal in Calvert County, Maryland, to Non-Free Trade Agreement Nations (May 7, 2015).

[167] *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FE Order No. 3638, FE 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).

[168] *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3669, FE 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).

[169] *American LNG Marketing LLC*, DOE/FE Order No. 3690, FE 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).

[170]*Emera CNG, LLC,* DOE/FE Order No. 3727, FE Docket No. 13-157-CNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Compressed Natural Gas by Vessel From a Proposed CNG Compression and Loading Facility at the Port of Palm Beach, Florida, to Non-Free Trade Agreement Nations (Oct. 19, 2015).

[171] *Floridian Natural Gas Storage Co., LLC*, DOE/FE Order No. 3744, FE Docket No. 15-38-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers Loaded at the Proposed Floridian Facility in Martin County, Florida, and Exported by Vessel to Non-Free Trade Agreement Nations (Nov. 25, 2015).

[172] *Air Flow North American Corp*., DOE/FE Order No. 3753, FE Docket No. 15-206-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers Loaded at the Clean Energy Fuels Corp. LNG Production Facility in Willis, Texas, and Exported by Vessel to Non-Free Trade Agreement Nations in Central America, South America, the Caribbean, or Africa (Dec. 4, 2015).

LLC (0.81 Bcf/d),[173] Pieridae Energy (USA) Ltd.,[174] Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),[175] Cameron LNG, LLC Design Increase (0.42 Bcf/d),[176] Cameron LNG, LLC Expansion Project (1.41 Bcf/d),[177] Lake Charles Exports, LLC (2.0 Bcf/d),[178] Lake Charles LNG Export Company, LLC,[179] Carib Energy (USA), LLC (0.004),[180] Magnolia LNG, LLC (1.08 Bcf/d),[181] Southern LNG Company, L.L.C. (0.36 Bcf/d),[182] the FLEX Design Increase

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

[174] *Pieridae Energy (USA) Ltd*., DOE/FE Order No. 3768, FE 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).

[175] *Sabine Pass Liquefaction, LLC,* DOE/FE Order No. 3792, FE 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).

[176] *Cameron LNG*, *LLC*, DOE/FE Order No. 3797, FE Docket No. 15-167-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).

[177] *Cameron LNG*, *LLC*, DOE/FE Order No. 3846, FE 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).

[178] *Lake Charles Exports, LLC*, DOE/FE Order No. 3324-A, FE 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).

[179] *Lake Charles LNG Export Co., LLC*, DOE/FE Order No. 3868, FE 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).

[180] *Carib Energy (USA) LLC*, DOE/FE Order No. 3937, FE 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).

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

[182] *Southern LNG Company, L.L.C.*, DOE/FE Order No. 3956, FE 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).

(0.34 Bcf/d),[183] Golden Pass Products LLC (2.21 Bcf/d),[184] Delfin LNG LLC,[185] the Lake Charles LNG Export Company, LLC Design Increase (0.33 Bcf/d),[186] the Lake Charles Exports, LLC Design Increase,[187] Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),[188] Mexico Pacific Limited LLC (1.7 Bcf/d),[189] Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),[190] Energía Costa Azul, S. de R.L. de C.V. (Mid-Scale Project) (0.44 Bcf/d),[191] Energía Costa Azul, S. de R.L. de C.V. (Large-Scale Project) (1.3 Bcf/d),[192] Port Arthur LNG, LLC (1.91 Bcf/d),[193] Driftwood LNG LLC (3.88 Bcf/d),[194] and this Order.

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[183] *Freeport LNG Expansion, L.P.*, *et al.*, DOE/FE Order No. 3957, FE 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).

[184] *Golden Pass Products LLC*, DOE/FE Order No. 3978, FE 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).

[185] *Delfin LNG LLC*, DOE/FE Order No. 4028, FE 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).

[186] *Lake Charles LNG Export Co.*, *LLC*, DOE/FE Order No. 4010, FE 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 Calcasieu Parish, Louisiana, to Non-Free Trade Agreement Nations (June 29, 2017).

[187] *Lake Charles Exports*, *LLC*, DOE/FE Order No. 4011, FE 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 Calcasieu Parish, Louisiana, to Non-Free Trade Agreement Nations (June 29, 2017).

[188] *Eagle LNG Partners Jacksonville II LLC*, DOE/FE Order No. 4078, FE 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).

[189] *See Mexico Pacific Limited LLC*, DOE/FE Order No. 4312, FE 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).

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

[191] *Energía Costa Azul, S. de R.L. de C.V.,* DOE/FE Order No. 4364, FE 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).

[192] *Energía Costa Azul, S. de R.L. de C.V.,* DOE/FE Order No. 4365, FE 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).

[193] *Port Arthur LNG, LLC*, DOE/FE Order No. 4372, FE 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).

[194] *Driftwood LNG LLC,* DOE/FE Order No. 4373, FE 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).

On February 5, 2019, DOE/FE vacated a non-FTA authorization previously issued to Flint Hills Resources, LP, in a volume of 0.01 Bcf/d, at the company's request.[195] Additionally, 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. Likewise, the *Carib* and *Floridian* orders are both 14.6 Bcf/yr of natural gas (0.04 Bcf/d), yet are not additive to one another because the source of LNG approved under both orders is from the Floridian Facility.[196] Additionally, the volumes authorized for export in the *Bear Head* and *Pieridae US* orders are not additive; together, they are limited to a maximum of 0.81 Bcf/d to reflect the current capacity of the Maritimes Northeast Pipeline at the U.S.-Canadian border.[197] 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 be inconsistent with the public interest.[198]

DOE/FE will continue taking a measured approach in reviewing the other pending applications to export domestically produced LNG. Specifically, DOE/FE will continue to assess the cumulative impacts of each succeeding request for export authorization on the public

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[195] *Flint Hills Resources, LP*, DOE/FE Order Nos. 3809-A and 3829-A, FE Docket No. 15-168-LNG, Order Granting Request to Vacate Long-Term, Multi-Contract Authorizations to Export LNG to Free Trade Agreement Nations and to Non-Free Trade Agreement Nations (Feb. 5, 2019) (vacating, in relevant part, DOE/FE Order No. 3829 authorizing the export of 0.01 Bcf/d of natural gas to non-FTA countries).
[196] *See Floridian Natural Gas Storage Co., LLC*, DOE/FE Order No. 3744, at 22 (stating that the quantity of LNG authorized for export by Floridian in DOE/FE Order No. 3744 "will be reduced by the portion of the total approved export volume of 14.6 Bcf/yr that is under firm contract directly or indirectly to Carib Energy (USA), LLC"); *see also id*. at 21 (Floridian "may not treat the volumes authorized for export in the [*Carib* and *Floridian*] proceedings as additive to one another.").
[197] *See Bear Head LNG Corporation and Bear Head LNG (USA)*, DOE/FE Order No. 3770, at 178-79 (stating that the quantity of LNG authorized for export by Bear Head LNG and Pieridae US "are not additive; together, they are limited to a maximum of 0.81 Bcf/d to reflect the current capacity of the M&N US Pipeline.").
[198] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (citing 2018 LNG Export Study at 63 & Appendix F).

interest with due regard to the effect on domestic natural gas supply and demand fundamentals. In keeping with the performance of its statutory responsibilities, DOE/FE will attach appropriate and necessary terms and conditions to authorizations to ensure that the authorizations are utilized in a timely manner and that authorizations are not issued except where the applicant can show that there are or will be facilities capable of handling the proposed export volumes and existing and forecast supplies that support that action. Other conditions will be applied as necessary.

The reasons in support of proceeding cautiously are several: (1) the 2018 LNG Export Study, like any study based on assumptions and economic projections, is inherently limited in its predictive accuracy; (2) applications to export significant quantities of domestically produced LNG are still a relatively new phenomena with uncertain impacts; and (3) the market for natural gas has experienced rapid reversals in the past and is again changing rapidly due to economic, technological, and regulatory developments. The market of the future very likely will not resemble the market of today. In recognition of these factors, DOE/FE intends to monitor developments that could tend to undermine the public interest in grants of successive applications for exports of domestically produced LNG and, as previously stated, to attach terms and conditions to the authorization in this proceeding and to succeeding LNG export authorizations as are necessary for protection of the public interest.

VIII. FINDINGS

On the basis of the findings and conclusions set forth above, DOE/FE grants FLEX4's Application, subject to the Terms and Conditions and Ordering Paragraphs set forth below.

IX. TERMS AND CONDITIONS

To ensure that the authorization issued by this Order is not inconsistent with the public interest, DOE/FE has attached the following Terms and Conditions to the authorization. FLEX4 must abide by each Term and Condition or face appropriate sanction.

A. Term of the Authorization

FLEX4 requests a 20-year term commencing on the date of first export. FLEX4's requested 20-year term is consistent with our practice in the non-FTA export authorizations issued to date. The non-FTA term will begin on the date when FLEX4 commences commercial export of domestically sourced LNG from the Train 4 Project, but not before.

B. Commencement of Operations

As requested by FLEX4 and consistent with our final non-FTA authorizations to date, DOE/FE will add as a condition of the authorization that FLEX4 must commence commercial LNG export operations from the Train 4 Project no later than seven years from the date of issuance of this Order. The purpose of this condition is to ensure that other entities that may seek similar authorizations are not frustrated in their efforts to obtain those authorizations by authorization holders that are not engaged in actual export operations.

C. Commissioning Volumes

FLEX4 will be permitted to apply for short-term export authorizations to export Commissioning Volumes prior to the commencement of the first commercial exports of domestically sourced LNG from the Train 4 Project. "Commissioning Volumes" are defined as the volume of LNG produced and exported under a short-term authorization during the initial start-up of each LNG train, before each LNG train has reached its full steady-state capacity and begun its commercial exports pursuant to FLEX4's long-term contracts.[199] The Commissioning Volumes will not be counted against the export volume authorized in this Order.

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[199] For additional discussion of Commissioning Volumes and the Make-Up Period referenced below, see *Freeport LNG Expansion, L.P.*, *et al.*, DOE/FE Order Nos. 3282-B & 3357-A, FE Docket Nos. 10-161-LNG & 11-161-LNG, Order Amending DOE/FE Order Nos. 3282 and 3357, at 4-9 (June 6, 2014).

D. Make-Up Period

FLEX4 will be permitted to continue exporting for a total of three years following the end of the 20-year term established in this Order, solely to export any Make-Up Volume that it was unable to export during the original export period. The three-year term during which the Make-Up Volume may be exported shall be known as the "Make-Up Period."

The Make-Up Period does not affect or modify the export volume authorized in this Order. Insofar as FLEX4 may seek to export additional volumes not previously authorized for export, it will be required to obtain appropriate authorization from DOE/FE.

E. Transfer, Assignment, or Change in Control

DOE/FE'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.[200] DOE/FE has found that this requirement applies to any change of control of the authorization holder. This condition was deemed necessary to ensure that DOE/FE will be given an adequate opportunity to assess the public interest impacts of such a transfer or change.

DOE/FE 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. A rebuttable presumption that control exists will arise from the

[200] 10 C.F.R. § 590.405.

ownership or the power to vote, directly or indirectly, 10% or more of the voting securities of such entity.[201]

F. Agency Rights

FLEX4 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/FE previously has determined that, in LNG export orders in which Agency Rights have been granted, DOE/FE shall require registration materials filed for, or by, an 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.[202]

To ensure that the public interest is served, this authorization shall be conditioned to require that where FLEX4 proposes to export LNG from the Train 4 Project as agent for other entities that hold title to the LNG (Registrants), it must register with DOE/FE those entities on whose behalf it will export LNG in accordance with the procedures and requirements described herein.

G. Contract Provisions for the Sale or Transfer of LNG to be Exported

DOE/FE will require that FLEX4 file or cause to be filed with DOE/FE any relevant long-term commercial agreements, including liquefaction tolling agreements, pursuant to which

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[201] For information on DOE/FE's procedures governing a change in control, see U.S. Dep't of Energy, Procedures for Changes in Control Affecting Applications and Authorizations to Import or Export Natural Gas, 79 Fed. Reg. 65,541 (Nov. 5, 2014) [hereinafter Procedures for Changes in Control].

[202] *See*, *e.g.*, *Cameron LNG, LLC*, DOE/FE Order No. 3846, FE 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, FE 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).

FLEX4 exports LNG as agent for a Registrant. DOE/FE 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).[203]

In addition, DOE/FE finds that section 590.202(c) of DOE/FE's regulations[204] requires that FLEX4 file, or cause to be filed, all long-term contracts associated with the long-term supply of natural gas to the Train 4 Project, whether signed by FLEX4 or the Registrant, within 30 days of their execution.

DOE/FE recognizes that some information in FLEX4'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 Train 4 Project, may be commercially sensitive. DOE/FE therefore will provide FLEX4 the option to file or cause to be filed either unredacted contracts, or in the alternative (A) FLEX4 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, destinations, re-sale provisions, and other relevant provisions; and (B) the filing must demonstrate why the redacted information should be exempted from public disclosure.[205]

To ensure that DOE/FE destination and reporting requirements included in this Order are conveyed to subsequent title holders, DOE/FE will include as a condition of this authorization

[203] 10 C.F.R. § 590.202(b).
[204] *Id*. § 590.202(c).
[205] *Id*. § 590.202(e) (allowing confidential treatment of information in accordance with 10 C.F.R. § 1004.11).

that future contracts for the sale or transfer of LNG exported pursuant to this Order shall include an acknowledgement of these requirements.

H. Export Quantity

This Order grants the Application in the full volume of LNG requested, up to the equivalent of 262.8 Bcf/yr of natural gas.

I. Combined FTA and Non-FTA Export Authorization Volumes

The Freeport entities are currently authorized to export domestically produced LNG from the Freeport LNG Terminal to non-FTA countries in a volume totaling 782 Bcf/yr of natural gas. In light of the new planned capacity of the Liquefaction Project as approved by FERC, the export volume authorized in this Order for the Train 4 Project (262.8 Bcf/yr) is additive to that volume. Accordingly, the Freeport entities—including FLEX4—are authorized to export a total volume of LNG equivalent to 1044.8 Bcf/yr of natural gas, or 2.86 Bcf/d, to non-FTA countries, as set forth in their respective orders.

Because the FTA volumes approved for the Freeport entities, as set forth in DOE/FE Order Nos. 2913-B and 3066-A, and the non-FTA volume authorized in this Order are from the same Liquefaction Project, they are not additive.

X. ORDER

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

A. Freeport LNG Expansion, L.P. and FLNG Liquefaction 4, LLC (together, FLEX4) are jointly authorized to export domestically produced LNG in a volume up to the equivalent of 262.8 Bcf/yr of natural gas. FLEX4 is authorized to export the LNG by vessel from the proposed Train 4 Project to be located at the Freeport LNG Terminal on Quintana Island near Freeport, Texas. This authorization is for a term of 20 years to commence from the date of first commercial export, but not before. FLEX4 is authorized to export the LNG on its own behalf and as agent for other entities who hold title to the natural gas, pursuant to one or more long-term contracts (a contract greater than two years).

B. FLEX4 may export Commissioning Volumes prior to the commencement of the term of this Order, pursuant to a separate short-term export authorization. The Commissioning Volumes will not be counted against the export volume authorized in this Order.

C. FLEX4 may continue exporting for a total of three years following the end of the 20-year export term, solely to export any Make-Up Volume that it was unable to export during the original export period. The three-year Make-Up Period allowing the export of Make-Up Volumes will not affect or modify the export volume authorized in this Order. Insofar as FLEX4 may seek to export additional volumes not previously authorized, it will be required to obtain appropriate authorization from DOE/FE.

D. FLEX4 must commence export operations using the planned liquefaction facilities no later than seven years from the date of issuance of this Order.

E. The LNG export quantity authorized in this Order is equivalent to 262.8 Bcf/yr of natural gas.

F. 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.

G. FLEX4 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.

H. FLEX4 shall ensure compliance with all terms and conditions established by FERC in the EA, including the 93 environmental conditions adopted in the FERC Order issued on May 17, 2019. Additionally, this authorization is conditioned on FLEX4's on-going compliance with any other preventative and mitigative measures imposed by federal or state agencies at the Train 4 Project.

I. (i) FLEX4 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 export of LNG</u> as agent for other entities from the Train 4 Project. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described above.

(ii) FLEX4 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 Train 4 Project. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described above.

J. FLEX4 is permitted to use its authorization to export LNG as agent for other LNG title-holders (Registrants), after registering those entities with DOE/FE. Registration materials shall include an agreement by the Registrant to supply FLEX4 with all information necessary to permit FLEX4 to register that person or entity with DOE/FE, including: (1) the Registrant's agreement to comply with this Order and all applicable requirements of DOE/FE'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/FE, described in Ordering Paragraph I 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/FE within 30 days of such change(s).

K. FLEX4, or others for whom FLEX4 acts as agent, shall include the following provision in any agreement or other contract for the sale or transfer of LNG 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 F of DOE/FE Order No. 4374, issued May 28, 2019, in FE Docket No. 18-26-LNG, and/or to purchasers that have agreed in writing to limit their direct or indirect resale or transfer of such natural gas or LNG to such countries. Customer or purchaser further commits to cause a report to be provided to both Freeport LNG Expansion, L.P. and FLNG Liquefaction 4, LLC that identifies the country (or countries) into which the LNG was actually delivered, and to include in any resale contract for such LNG the necessary conditions to ensure that Freeport LNG Expansion, L.P. and FLNG Liquefaction 4, LLC are made aware of all such actual destination countries.

L. Within two weeks after the first export authorized in Ordering Paragraph A occurs, FLEX4 shall provide written notification of the date that the first export occurred.

M. FLEX4 shall file with the Office of Regulation, Analysis, and Engagement, on a semi-annual basis, written reports describing the status of the proposed Train 4 Project. The reports shall be filed on or by April 1 and October 1 of each year, and shall include information on the status of the Train 4 Project, the date the Train 4 Project is expected to commence first exports of LNG, and the status of any associated long-term supply and export contracts.

N. With respect to any change in control of the authorization holder, FLEX4 must comply with DOE/FE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.[206]

O. Monthly Reports: With respect to the exports authorized by this Order, FLEX4 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 of LNG 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 of LNG have occurred, the report must give the following details of each LNG cargo: (1) the name(s) of the authorized exporter registered with DOE/FE; (2) the name of the U.S. export terminal; (3) the name of the LNG tanker; (4) the date of departure from the U.S. export terminal; (5) the country (or countries) into which the LNG was actually delivered; (6) the name of the supplier/seller; (7) the volume in thousand cubic feet (Mcf); (8) the price at point of export per million British thermal units (MMBtu); (9) the duration of the supply agreement; and (10) the name(s) of the purchaser(s).

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

P. All monthly report filings on Form FE-746R shall be made to the U.S. Department of Energy (FE-34), Office of Fossil Energy, Office of Regulation, Analysis, and Engagement,

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

according to the methods of submission listed on the Form FE-746R reporting instructions available at https://www.energy.gov/fe/services/natural-gas-regulation.

Issued in Vancouver, Canada, on May 28, 2019.

Steven Eric Winberg
Assistant Secretary
Office of Fossil Energy

APPENDIX

The long-term authorizations issued by DOE/FE to the Freeport entities are identified in the following tables:

Table 1: Orders Issued for the Long-Term Export of Domestic 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-B	February 10, 2011	1-3	511.0	25 years, multi-contract
12-06-LNG	3066-A	February 10, 2012	1-3	511.0	25 years, multi-contract
Total Volume				**1,022.0**	

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

Docket No.	Order No. (as Amended)	Date Originally Issued	Trains	Volume (Bcf/yr)	Term/Type
10-161-LNG	3282-C	May 17, 2013	1-3	511.0	20 years, multi-contract
11-161-LNG	3357-B	November 15, 2013	1-3	146.0	20 years, multi-contract
16-108-LNG	3957	December 19, 2016	1-3	125.0	20 years, multi-contract
18-26-LNG	4374	May 28, 2019	4	262.8	20 years, multi-contract
Total Volume				**1044.8**	