UNITED STATES OF AMERICA

DEPARTMENT OF ENERGY

OFFICE OF FOSSIL ENERGY

EPCILON LNG LLC	)	FE DOCKET NO. 20-31-LNG

OPINION AND ORDER GRANTING LONG-TERM AUTHORIZATION TO EXPORT NATURAL GAS TO MEXICO FOR LIQUEFACTION, AND TO RE-EXPORT U.S.-SOURCED NATURAL GAS IN THE FORM OF LIQUEFIED NATURAL GAS FROM MEXICO TO FREE TRADE AGREEMENT AND NON-FREE TRADE AGREEMENT NATIONS

DOE/FE ORDER NO. 4629

DECEMBER 8, 2020

TABLE OF CONTENTS

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
EIA	U.S. Energy Information Administration
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FE	Office of Fossil Energy, U.S. Department of Energy
FERC	Federal Energy Regulatory Commission
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

I. INTRODUCTION

On March 23, 2020, Epcilon LNG LLC (Epcilon) filed an Application[1] with the Office of Fossil Energy (FE) of the Department of Energy (DOE) under section 3 of the Natural Gas Act (NGA).[2] Epcilon requests long-term, multi-contract authorization to export domestically produced natural gas from the United States to Mexico, and after liquefaction in Mexico, to deliver and consume a portion of the liquefied natural gas (LNG) in Mexico and to re-export[3] the LNG as follows:

(i) under section 3(c) of the NGA, to countries with which the United States has entered into a free trade agreement (FTA) requiring national treatment for trade in natural gas (FTA countries);[4] and

(ii) under section 3(a) of the NGA, to any other country with which trade is not prohibited by U.S. law or policy (non-FTA countries).[5]

Epcilon seeks this authorization in a volume equivalent to 395 billion cubic feet per year (Bcf/yr) of natural gas, or 1.083 Bcf per day (Bcf/d), to both FTA and non-FTA countries on a non-additive basis.[6]

Epcilon states that the U.S.-sourced natural gas will be exported to Mexico at the United States-Mexico border via existing cross-border transmission pipelines in Texas and Mexico.[7] Epcilon further states that it seeks the requested authorization in connection with the

[1] Epcilon LNG LLC, Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Free Trade Agreement and Non-Free Trade Agreement Countries, FE Docket No. 20-31-LNG (Mar. 23, 2020) [hereinafter App.].
[2] 15 U.S.C. § 717b. The authority to regulate the imports and exports of natural gas, including liquefied natural gas, under section 3 of the NGA (15 U.S.C. § 717b) has been delegated to the Assistant Secretary for FE in Redelegation Order No. 00-002.04G, issued on June 4, 2019.
[3] For purposes of this Order, "re-export" means to ship or transmit U.S.-sourced natural gas in its various forms (gas, compressed, or liquefied) subject to DOE/FE's jurisdiction under the NGA, 15 U.S.C. § 717b, from one foreign country (*i.e.*, a country other than the United States) to another foreign country.
[4] 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] 15 U.S.C. § 717b(a). *See* App. at 1-3.
[6] App. at 1, 32.
[7] *Id.* at 6.

development of the AMIGO LNG liquefaction and storage facility (the LNG Facility) to be located on the Gulf of California in the State of Sonora, Mexico, approximately 250 miles south of the United States-Mexico border at Nogales, Arizona.[8] According to Epcilon, the proposed LNG Facility will be owned and operated by Epcilon's affiliate, AMIGO LNG S.A.[9] Once constructed, the LNG Facility will be capable of receiving, processing, and liquefying the U.S.-sourced natural gas; storing the resulting LNG; loading the LNG onto ocean-going LNG carriers for re-export to other countries and for delivery within Mexico (including deliveries to LNG receiving terminals in Mexico, as well as via loading the LNG produced at the LNG Facility into ISO shipping containers for delivery by trailer truck to regional markets in Mexico).[10]

Epcilon requests authorization to export LNG to both FTA and non-FTA countries for a period of 20 years, commencing on the earlier of the date of first export or seven years from the date of the final order granting export authorization.[11] Additionally, Epcilon requests authorization on its own behalf and as an agent for other entities that will hold title to the natural gas or LNG at the time it is exported to Mexico and/or re-exported as LNG to other countries, respectively.[12]

In this consolidated Order, DOE/FE grants Epcilon's Application and authorizes the requested export volume of 395 Bcf/yr (1.083 Bcf/d) to both FTA countries (including Mexico) and non-FTA countries. Specifically, DOE/FE grants the FTA portion of the Application under NGA section 3(c). Section 3(c) was amended by section 201 of the Energy Policy Act of 1992 (Pub. L. 102-486) to require that FTA applications "shall be deemed to be consistent with the

[8] *Id.* at 1, 4.
[9] *Id.* at 1, 3; *see also infra* § IV.A.
[10] *Id*. at 1-2, 10-11 (stating that some of the U.S-sourced natural gas, after liquefaction at the LNG Facility, may be sold in Mexico as LNG bunkering fuel to vessels).
[11] *Id.* at 1.
[12] App. at 7.

public interest" and granted "without modification or delay."[13] The FTA portion of the Application falls within NGA section 3(c) and, therefore, DOE/FE approves the requested FTA authorization without modification or delay. Accordingly, none of the public interest analysis discussed below applies to the FTA authorization herein.

On April 24, 2020, DOE/FE published a notice of the non-FTA portion of Epcilon's Application in the *Federal Register* (Notice of Application).[14] The Notice of Application called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by May 26, 2020. DOE/FE received one anonymous comment supporting the Application.[15] No protests or comments in opposition to the Application were filed, and therefore the non-FTA portion of the Application is uncontested.[16]

DOE/FE has reviewed the non-FTA portion of the Application, the comment supporting the Application, DOE's economic and environmental studies, and the most recent long-term projections from 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 Epcilon's proposed re-exports of LNG to non-FTA countries will be inconsistent with the public interest, as would be required to deny Epcilon's request under NGA section 3(a). DOE/FE therefore grants the non-FTA portion of the Application in the full volume requested—395 Bcf/yr of natural gas.[17] The approved FTA and non-FTA volumes are

[13] 15 U.S.C. § 717b(c).
[14] Epcilon LNG LLC, Application for Long-Term, Multi-Contract Authorization to Export Domestically Produced Natural Gas Through Mexico to Non-Free Trade Agreement Countries After Liquefaction to Liquefied Natural Gas; Notice of Application, 85 Fed. Reg. 23,013 (Apr. 24, 2020).
[15] *See* Comment of Anonymous, FE Docket No. 20-31-LNG (Apr. 24, 2020).
[16] 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).
[17] *See infra* §§ VII-X.

not additive. DOE/FE is issuing this Opinion and Order subject to the additional conditions set forth below.

The non-FTA re-export volume approved in this Order—equivalent to 1.083 Bcf/d of natural gas—brings DOE/FE's cumulative total of approved non-FTA exports of LNG and compressed natural gas (CNG) from the lower-48 states to 46.94 Bcf/d of natural gas.[18]

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

[18] Additionally, DOE/FE has issued one final long-term order authorizing exports of LNG produced from Alaskan sources from a proposed facility to be constructed in Alaska to non-FTA countries. *See Alaska LNG Project LLC*, DOE/FE Order No. 3643-A, FE Docket No. 14-96-LNG, Final Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Aug. 20, 2020) (authorizing exports of 2.55 Bcf/d of natural gas). The Alaska volume is not included in the volumes discussed herein, which involve the export of LNG and compressed natural gas produced from the lower-48 states. Because there is no natural gas pipeline interconnection between Alaska and the lower 48 states, DOE/FE generally views those LNG export markets as distinct. Accordingly, DOE/FE focuses on LNG exports (and re-exports) involving natural gas produced in the lower-48 states for purposes of determining macroeconomic impacts to the United States.

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.[19] DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[20]

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. 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.[21]

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 LNG Export Study or 2014 Study).[22] 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

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

[20] *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).

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

[22] 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.

export scenarios and used baseline cases from EIA's *Annual Energy Outlook 2014* (AEO 2014).[23]

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 2015 (2015 LNG Export Study or 2015 Study).[24] 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 Studies in the *Federal Register*, and invited public comment on those Studies.[25] DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[26]

3. 2018 LNG Export Study

a. Overview

[23] 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.
[24] 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.
[25] 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).
[26] *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).

At the time DOE commissioned the 2018 LNG Export Study in 2017, 25 non-FTA applications were pending before DOE/FE.[27] 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 new macroeconomic study was warranted.[28] 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,[29] and concurrently provided notice of the availability of the Study, as discussed below.[30]

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);[31]

(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

---

[27] *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].

[28] 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 were not additive to the authorized non-FTA volumes.

[29] *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].

[30] *See* 2018 Study Notice.

[31] 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 [hereinafter AEO 2017].

(v) Provides macroeconomic projections associated with several of the scenarios lying within the more likely range of exports.[32]

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 Study, including NERA's Global Natural Gas Model (GNGM) and NewERA models.[33] 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.[34] 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.[35]

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;

---

[32] *See* 2018 Study Notice, 83 Fed. Reg. at 27,316.
[33] *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].
[34] 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).
[35] *See id.*

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

iii. A Renewables Mandate case, which provides a low estimate for U.S. natural gas demand driven by the imposition of a stringent renewables mandate.[36]

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.[37]

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.[38] 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

[36] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,256.
[37] *See id.*
[38] *See id.*

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

- The more likely range of LNG exports in the year 2040 was judged to range from 8.7 to 30.7 Bcf/d of natural gas.
- U.S. natural gas prices range from $5 to approximately $6.50 per million British thermal unit (MMBtu) in 2040 (in constant 2016 dollars) under Reference case supply assumptions. These central cases have a combined probability of 47%.
- Levels of GDP are most sensitive to assumptions about U.S. supply of natural gas, with high supply driving higher levels of GDP. For each of the supply scenarios, higher levels of LNG exports in response to international demand consistently lead to higher levels of GDP. GDP achieved with the highest level of LNG exports in each group exceeds GDP with the lowest level of LNG exports by $13 to $72 billion in 2040 (in constant 2016 dollars).
- About 80% of the increase in LNG exports is satisfied by increased U.S. production of natural gas, with positive effects on labor income, output, and profits in the natural gas production sector.
- 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.[39]

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.[40] 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."[41] 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.[42] Of those, nine comments supported the Study,[43] eight comments opposed the 2018 Study and/or exports of LNG,[44] one comment took no position,[45] and one comment was non-responsive.[46]

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.[47] As explained in the Response to Comments, DOE/FE determined that none of the

[39] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,255.
[40] *See* 2018 Study Notice.
[41] *Id.* at 27,315.
[42] The public comments are posted on the DOE/FE website at: https://fossil.energy.gov/app/docketindex/docket/index/10.
[43] 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.
[44] 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.
[45] Comment of John Young.
[46] Comment of Vincent Burke.
[47] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.

eight comments opposing the 2018 Study provided sufficient evidence to rebut or otherwise undermine the 2018 Study.[48]

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.[49] 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.[50] 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."[51]
- "Increased exports of natural gas will improve the U.S. balance of trade and result in a wealth transfer into the United States."[52]
- "Overall [U.S.] GDP improves as LNG exports increase for all scenarios with the same U.S. natural gas supply condition."[53]
- "There is no support for the concern that LNG exports would come at the expense of domestic natural gas consumption."[54]

[48] *See id.* at 67,272.
[49] *See id.*
[50] *See id.*
[51] *Id.* (quoting 2018 LNG Export Study at 55).
[52] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (quoting 2018 LNG Export Study at 64).
[53] *Id.* (quoting 2018 LNG Export Study at 67).
[54] *Id.* (quoting 2018 LNG Export Study at 77).

- "[A] large share of the increase in LNG exports is supported by an increase in domestic natural gas production."[55]
- "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."[56]

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.[57] 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.[58]

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."[59] 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.[60]

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

---

[55] *Id.*
[56] *Id.* (quoting 2018 LNG Export Study at 70).
[57] 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 [hereinafter AEO 2018].
[58] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[59] *Id.* (citing 2018 LNG Export Study at 63 & App'x F).
[60] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

states. The purpose of this review was to provide additional information to the public concerning 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).[61] DOE/FE received public comments on the Draft Addendum, and on August 15, 2014, issued the final Addendum with its response to the public comments contained in Appendix B.[62]

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. DOE commissioned this life cycle analysis (LCA) to inform its public interest review of non-FTA applications, as part of its broader effort to evaluate different environmental aspects of the LNG production and export chain.

DOE sought to determine: (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. In June 2014, DOE/FE published NETL's report entitled, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States* (2014 LCA GHG Report or 2014 Report).[63]

---

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

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

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

DOE/FE also received public comments on the LCA GHG Report and responded to those comments in prior orders.[64] DOE has relied on the 2014 Report in its review of all subsequent applications to export LNG to non-FTA countries.[65]

In 2018, DOE commissioned NETL to conduct an update to the 2014 LCA GHG Report, entitled *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States: 2019 Update* (LCA GHG Update or 2019 Update).[66] As with the 2014 Report, the LCA GHG Update compared life cycle GHG emissions of exports of domestically produced LNG to Europe and Asia, compared with alternative fuel sources (such as regional coal and other imported natural gas) for electric power generation in the destination countries. Although core aspects of the analysis—such as the scenarios investigated—were the same as the 2014 Report, the LCA GHG Update contained the following three changes:

- Incorporated NETL's most recent characterization of upstream natural gas production, set forth in NETL's April 2019 report entitled, *Life Cycle Analysis of Natural Gas Extraction and Power Generation* (April 2019 LCA of Natural Gas Extraction and Power Generation);[67]

- Updated the unit processes for liquefaction, ocean transport, and regasification characterization using engineering-based models and publicly-available data informed and reviewed by existing LNG export facilities, where possible; and

[64] *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).
[65] *See, e.g.*, *Venture Global Plaquemines LNG, LLC*, DOE/FE Order No. 4446, FE Docket No. 16-28-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, at 14-15, 38-41 (Oct. 16, 2019).
[66] Nat'l Energy Tech. Lab., *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update* (DOE/NETL 2019/2041) (Sept. 12, 2019), *available at*: https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf. Although the LCA GHG Update is dated September 12, 2019, DOE announced the availability of the LCA GHG Update on its website and in the *Federal Register* on September 19, 2019.
[67] Nat'l Energy Tech. Lab., *Life Cycle Analysis of Natural Gas Extraction and Power Generation* (DOE/NETL-2019/2039) (Apr. 19, 2019), *available at*: https://www.netl.doe.gov/energy-analysis/details?id=3198.

- Updated the 100-year global warming potential (GWP) for methane (CH_4) to reflect the current Intergovernmental Panel on Climate Change's Fifth Assessment Report.[68]

In all other respects, the LCA GHG Update was unchanged from the 2014 Report.[69]

The LCA GHG Update demonstrated that the conclusions of the 2014 LCA GHG Report remained the same. Specifically, the 2019 Update concluded that the use of U.S. LNG exports for power production in European and Asian markets will not increase global GHG emissions from a life cycle perspective, when compared to regional coal extraction and consumption for power production.[70] On this basis, DOE/FE found that the 2019 Update supports the proposition that exports of LNG from the lower-48 states will not be inconsistent with the public interest.[71] Additional details are discussed below,[72] and in DOE's Response to Comments on the 2019 Update.

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

[68] *See* U.S. Dep't of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States; Notice of Availability of Report Entitled Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States: 2019 Update and Request for Comments, 84 Fed. Reg. 49,278, 49,279 (Sept. 19, 2019).
[69] *See* U.S. Dep't of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States: 2019 Update – Response to Comments, 85 Fed. Reg. 72, 75 (Jan. 2, 2020) [hereinafter DOE Response to Comments on 2019 Update].
[70] *See id.* at 78, 85.
[71] *See id.* at 86.
[72] *See infra* § VII.B.3.

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

In 2015 and 2016, Sierra Club petitioned the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) for review of five long-term LNG export authorizations issued by DOE/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 (now Cove Point LNG, LP[73]); 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*),[74] and three in a consolidated, unpublished opinion issued on November 1, 2017 (*Sierra Club II*).[75] 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.[76]

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 to Freeport LNG Expansion, L.P. 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 NEPA. Sierra Club petitioned for review of the Freeport authorization, arguing that DOE fell short of its

[73] *See Cove Point LNG, LP (formerly Dominion Energy Cove Point LNG, LP*), DOE/FE Order Nos. 3019-C, *et al.*, FE Docket Nos. 11-115-LNG, *et al.*, Order Granting Request to Amend Authorizations to Import or Export Liquefied Natural Gas to Reflect Corporate Name Change (Dec. 2, 2020).
[74] *Sierra Club v. U.S. Dep't of Energy*, 867 F.3d 189 (D.C. Cir. 2017) [hereinafter *Sierra Club I*] (denying petition for review of the LNG export authorization issued to Freeport LNG Expansion, L.P., *et al*.).
[75] *Sierra Club v. U.S. Dep't of Energy*, 703 Fed. App'x 1 (D.C. Cir. Nov. 1, 2017) [hereinafter *Sierra Club II*] (denying petitions for review in Nos. 16-1186, 16-1252, and 16-1253 of the LNG export authorizations issued to Dominion Cove Point LNG, LP, Sabine Pass Liquefaction, LLC, and Cheniere Marketing, LLC, *et al*., respectively).
[76] *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).

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."[77]

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.[78] 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."[79] 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."[80]

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.[81] The Court pointed to DOE's 2014 LCA GHG Report, finding there was "nothing arbitrary" about the scope of DOE's analysis of GHG emissions in that Report.[82]

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

[77] *Sierra Club I*, 867 F.3d at 203.
[78] *Id.* at 192.
[79] *Id.* at 198.
[80] *Id.* at 201.
[81] *Id.*
[82] *Id.* at 202.

arbitrarily failed to evaluate foreseeable indirect effects of exports."[83] 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."[84]

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."[85] 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.[86]

The D.C. Circuit's decisions in *Sierra Club I* and *II* continue to guide DOE's review of applications to export LNG to non-FTA countries.

D. DOE/FE's Categorical Exclusion Under NEPA

On December 3, 2020, DOE/FE issued a categorical exclusion from the preparation of an environmental impact statement or environmental assessment under NEPA for Epcilon's Application (Categorical Exclusion).[87] Specifically, DOE/FE applied categorical exclusion B5.7 of DOE/FE's regulations (10 C.F.R. Part 1021, Subpart D, Appendix B5). This exclusion applies to natural gas import or export activities requiring minor operational changes to existing projects, but no new construction in the United States. This Order grants the non-FTA portion of the Application, in part, on the basis of this Categorical Exclusion.

[83] *Sierra Club I*, 867 F.3d at 203.
[84] *Id.*
[85] *Sierra Club II*, 703 Fed. App'x 1, at *2.
[86] *Id.*
[87] U.S. Dep't of Energy, Categorical Exclusion Determination, *Epcilon LNG LLC*, FE Docket No. 20-31-LNG (Dec. 3, 2020) [hereinafter Categorical Exclusion].

III. STANDARD OF REVIEW FOR NON-FTA AUTHORIZATION

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

> [N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the [Secretary of Energy[88]] 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.[89]

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.[90] 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.[91] Before reaching a final decision, DOE must also comply with NEPA.[92]

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,

---

[88] 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.

[89] 15 U.S.C. § 717b(a).

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

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

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

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.[93] The goals of the Policy Guidelines are to minimize federal control and involvement in energy markets and to promote a balanced and mixed energy resource system. The Guidelines provide that:

> The market, not government, should determine the price and other contract terms of imported [or exported] natural gas …. The federal government's primary responsibility in authorizing imports [or exports] will be to evaluate the need for the gas and whether the import [or export] arrangement will provide the gas on a competitively priced basis for the duration of the contract while minimizing regulatory impediments to a freely operating market.[94]

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.[95]

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.[96] 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

[93] U.S. Dep't of Energy, New Policy Guidelines and Delegations Order Relating to Regulation of Imported Natural Gas, 49 Fed. Reg. 6684 (Feb. 22, 1984) [hereinafter 1984 Policy Guidelines].
[94] *Id*. at 6685.
[95] *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)).
[96] *See id*. at 13 and n.45.

Administrator [of the Economic Regulatory Administration] finds in the circumstances of a particular case to be appropriate."[97]

Although DOE Delegation Order No. 0204-111 is no longer in effect,[98] 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.

IV. DESCRIPTION OF REQUEST

A. Description of Applicant

Epcilon is a Texas limited liability company with its principal place of business in Katy, Texas.[99] Epcilon states that it is an affiliate of LNG Alliance Pte. Ltd., a Singapore private limited company that is the project development company for the LNG Facility.[100] Both Epcilon and LNG Alliance Pte. Ltd. are wholly owned by Dr. Muthu Chezhian, a citizen of Norway with a principal place of residence in Katy, Texas.[101]

Epcilon states that the proposed LNG Facility will be owned and operated by Epcilon's affiliate, AMIGO LNG S.A. (AMIGO LNG), Mexican *sociedad anonima*, through several

[97] 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)).

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

[99] App. at 3-4.

[100] *Id.* at 3.

[101] *See id.* at Attachment 2, at 2-2.

subsidiaries that are also Mexican *sociedad anonima*.[102] AMIGO LNG is owned 90% by Dr. Chezhian and 10% by Epcilon.[103]

B. The AMIGO LNG Facility

Epcilon states that AMIGO LNG is currently developing the LNG Facility in Guaymas in the State of Sonora, Mexico.[104] The proposed location is a coastal site on the Gulf of California, approximately 250 miles south of the United States-Mexico border at Nogales, Arizona.[105] Epcilon states that, in connection with the siting of the LNG Facility, AMIGO LNG is negotiating rights-of-way with the Port Authority of Guaymas, which—under a long-term lease with the Mexican government—has the land and maritime rights applicable to developing the onshore and nearshore portions of the LNG Facility.[106] Epcilon states that AMIGO LNG is in the process of securing the requisite environmental and construction permits to support the requested authorization.[107]

Epcilon states that the LNG Facility will include the following onshore facilities:

- Two full-containment LNG storage tanks with usable capacity of 230,000 m^3 (for the first tank) and 170,000 m^3 (for the second tank);
- An LNG impoundment basin;
- Four LNG storage tank send-out pumps; and
- Approximately 5,000 feet of above-ground cryogenic pipeline between the tanks, LNG pumps, and two LNG loading docks, including facilities with truck loading capability.[108]

Epcilon further states that the nearshore facilities will include:

---

[102] *Id.* at 3.
[103] *Id.* at Attachment 2, at 2-2.
[104] *Id.* at 4.
[105] App. at 4.
[106] *Id.*
[107] *Id.* at 5.
[108] *Id*. at 4-5.

- Two nearshore liquefaction barges (referred to as FLNG barges);
- A marine wharf designed to berth Q-Flex-sized vessels; and
- A small-scale jetty to berth small-scale-sized LNG vessels.[109]

Epcilon states that a gas pipeline lateral will connect between the onshore gas spur line and the FLNG barges.[110]

According to Epcilon, the LNG Facility will be constructed in phases with the initial phase commencing as early as 2020.[111] The initial Train 1 phase will produce approximately 3.9 million metric tons per annum (mtpa) of LNG capacity.[112] Epcilon states that, in the second phase, it will expand this capacity with an additional 3.9 mtpa, to yield total liquefaction capacity of approximately 7.8 mtpa of LNG—equivalent to the requested export volume of 395 Bcf/yr of natural gas.[113]

Once the LNG Facility is constructed, Epcilon plans to load the U.S.-sourced natural gas in the form of LNG onto oceangoing LNG carriers for re-export to other nations. Additionally, Epcilon intends to use the LNG to serve domestic markets within Mexico. For areas in Mexico that have (or will have) LNG terminals with terminal-to-pipeline interconnections, Epcilon will transport the LNG within Mexico by vessel. For areas without access to natural gas pipelines, Epcilon will utilize the LNG Facility's truck-loading facilities to distribute the LNG using ISO shipping containers loaded onto LNG trailer trucks.[114] Epcilon states that it also expects some of the U.S.-sourced natural gas in the form of LNG to be sold as bunkering fuel to vessels.[115]

C. Existing Pipelines

[109] *Id*. at 5.
[110] *Id*.
[111] App. at 5.
[112] *Id.* at 2, 5.
[113] *Id.* at 2, 6.
[114] *Id*. at 1-2, 6, 10-11.
[115] *Id.* at 11.

Epcilon states that it plans to obtain natural gas produced in the United States and exported to Mexico via an integrated network of existing cross-border natural gas transmission pipelines across Texas and Mexico.[116] According to Epcilon, the primary routing includes transportation of natural gas sourced from the Waha Hub near Fort Stockton, Texas, on the Trans-Pecos Pipeline (operated by Trans-Pecos Pipeline, LLC), to the United States-Mexico border near Presidio, Texas. From Presidio, Texas, the natural gas will flow to the interconnected El Encino Pipeline (operated by Infraestructura Energética Nova, S.A.B. de C.V., or Ienova), to the Topolobampo Pipeline (operated by TC Energy Corporation), and into the Guaymas Pipeline (operated by Ienova) at the El Oro interconnection. Epcilon states that the LNG Facility will be served by a short lateral off of the Guaymas Pipeline.[117]

Epcilon further states that, with more than 5 Bcf/d of pipeline capacity available to export natural gas from West Texas to Mexico by the end of 2019, "there is ample available cross-border capacity to support delivery of the quantities of natural gas that Epcilon plans to procure for the LNG Facility."[118]

D. Source of Natural Gas

Epcilon states that sources of natural gas for the LNG Facility may include all of the natural gas-producing basins within the United States through the interconnected interstate natural gas transmission grid.[119] Epcilon states that suppliers to the LNG Facility in Mexico will have access to the U.S. natural gas pipeline grid through various interconnections, such as those available at the Waha Hub, San Juan Hub, and Henry Hub.[120]

E. Business Model

[116] *Id.* at 6, 11.
[117] App. at 6, 11.
[118] *Id*. at 7.
[119] *Id.* at 11.
[120] *Id.*

Epcilon requests authorization to export natural gas and LNG on its own behalf and as an agent for persons who may wish to procure natural gas from their own sources and have that natural gas liquefied in the LNG Facility for re-export outside of Mexico or for delivery into Mexican markets.[121] Epcilon states that it intends to enter into long-term agreements to export natural gas and to re-export LNG—specifically, either LNG sales and purchase agreements or LNG tolling arrangements.[122] Under LNG sales and purchase agreements, Epcilon states that it will procure the natural gas to be processed through the proposed LNG Facility, take title to the natural gas no later than the time it is received at the LNG Facility, and transfer title to the produced LNG to customers upon loading of the oceangoing LNG carriers for export (or re-export).[123]

In transactions structured as LNG tolling arrangements, Epcilon states that it will cause its affiliate AMIGO LNG S.A. to process natural gas to which the tolling party has title through the LNG Facility and will cause AMIGO LNG S.A. to deliver the resulting LNG to the tolling party in exchange for paying a tolling fee.[124] Under the LNG tolling arrangements, to the extent the tolling party seeks to export its LNG outside of Mexico, Epcilon will act as its export agent pursuant to the LNG Tolling Arrangement, whereby the tolling party shall agree to become a Registrant exporting subject to Epcilon's export authorization.[125]

According to Epcilon, it is currently engaged in early commercial discussions with a number of interested counterparties concerning LNG supply arrangements that would be targeted for export destinations in both FTA and non-FTA countries, as well as potential LNG sales in

[121] *Id.* at 8.
[122] *Id*. at 9.
[123] App. at 9.
[124] *Id.*
[125] *Id*. at 9-10.

Mexico.[126] Epcilon states that it will comply with all DOE/FE requirements for exporters and agents, including registration requirements. Epcilon further states that, when acting as agent, it will register with DOE/FE each LNG title holder for which it seeks to re-export LNG as agent, and will comply with other registration requirements, as set forth in prior DOE/FE orders.[127]

F. Environmental Review

Epcilon states that its proposed natural gas and LNG exports do not involve or require the construction of any facilities within the United States, and therefore there will be no environmental effects cognizable under NEPA.[128] Epcilon asks DOE/FE to apply categorical exclusion B5.7, *Import or export natural gas, with operational changes*, which applies to "[a]pprovals … of new authorizations … [to] export natural gas under section 3 of the [NGA] that involve minor operational changes (such as changes in natural gas throughput, transportation, and storage operations) but not new construction."[129] According to Epcilon, this categorical exclusion applies to its requested authorization for the following reasons: (i) none of Epcilon's or its affiliates' facilities, including the proposed LNG Facility, will be constructed in the United States; (ii) quantities of natural gas initially required to support Epcilon's planned export activities can be accommodated by existing U.S.-Mexico border crossing pipeline capacity; and (iii) the precise nature of any modifications or expansions of U.S. pipelines that might later be made to support expanded exports of natural gas to the LNG Facility are currently unknown.[130] Therefore, "the proposed LNG Facility will not require and will not drive the construction of any new pipeline facilities in the United States."[131] Epcilon further states that the

[126] *Id*. at 9.
[127] *Id*. at 8-9.
[128] *Id*. at 30.
[129] App. at 30 (quoting 10 C.F.R. Part 1021, Subpt. D, App. B, Categorical Exclusion B5.7).
[130] *Id.* at 30-31.
[131] *Id*. at 31.

LNG Facility will comply with the applicable requirements of Mexican environmental law and regulations.[132]

V. APPLICANT'S PUBLIC INTEREST ANALYSIS FOR NON-FTA AUTHORIZATION

A. Overview

Epcilon asserts that its requested non-FTA authorization is in the public interest under NGA section 3(a), citing the abundance of the U.S. natural gas supply base, the excess of available natural gas deliverability over domestic demand, and the benefits associated with increased trade in U.S. natural gas, as well as DOE/FE's precedent in other LNG export proceedings.[133]

B. Adequacy of Domestic Supply

Epcilon states that domestic supplies of natural gas have been growing at a faster rate than growth in domestic demand, with natural gas reserves in the United States "more than adequate to meet domestic demand for many years to come."[134] Epcilon maintains that there will be plentiful natural gas resources to accommodate both domestic demand for natural gas and its proposed exports and re-exports throughout the export authorization period.[135] For this reason, Epcilon states that its requested non-FTA authorization will not cause any significant change in domestic supply, demand, or prices for natural gas.[136]

In support of this position, Epcilon cites a variety of data from EIA, including the *Annual Energy Outlook 2019* (AEO 2019).[137] According to Epcilon, EIA estimates that U.S.

---

[132] *Id*. at 32.
[133] *Id*. at 12.
[134] *Id.* at 15.
[135] App. at 15-16; *see also id*. at 18.
[136] *Id*. at 15.
[137] *Id.* at 15 n.25 (citing U.S. Energy Info. Admin., *Annual Energy Outlook 2019* (Jan. 24, 2019), *available at*: https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf).

consumption of natural gas will grow at an annual rate of 0.8% from 2017 to 2050, while U.S. dry gas production during the same time period is projected to grow at an annual rate of 1.4%.[138] Epcilon contends that this increase is adequate to support both the growth in U.S. natural gas consumption and a substantial volume of LNG exports (8.5 trillion cubic feet per year in 2050)—including exports (and re-exports) through its LNG Facility.[139]

C. Impact on Domestic Natural Gas Prices

Because of the growth in domestic natural gas supply in recent years, Epcilon asserts that domestic natural gas prices have fallen since 2008 from approximately $11.00 per MMBtu to the current wellhead price levels ranging from $0.40 to $3.00 per MMBtu.[140] Pointing to EIA's AEO 2018 Reference case, Epcilon states that the Henry Hub spot price for natural gas, stated in 2017 dollars, will remain well under $5.00 per MMBtu through 2025, and will not exceed $7.59 per MMBtu in any year over the period from 2016 through 2040.[141]

Citing DOE/FE's LNG export studies (discussed *supra* § II.A), Epcilon contends that exports of LNG from U.S. natural gas will not result in adverse economic impacts to U.S. consumers.[142] Epcilon further maintains that its proposed exports are "modest in scope" as compared to many other LNG export projects proposed for the United States, but regardless of the quantities involved, the LNG exports will offer economic benefits to U.S. consumers, in terms of net gains in real household income and real GDP.[143]

D. Public Benefits

[138] *Id*. at 17 (citing AEO 2018 at Table 13).
[139] *Id*. (citing AEO 2017 at Table 62).
[140] *Id*. at 18.
[141] App. at 18 (citing AEO 2018 at Table 13).
[142] *Id*. at 19-25.
[143] *Id*. at 25.

Epcilon asserts that its requested authorization will result in the following economic and environmental benefits consistent with the public interest:

- Economic stimulus through the creation of jobs, increased economic activity, increased tax revenues, and exports;
- Promotion of the use of domestic natural gas for environmentally beneficial applications, including marine bunkering and vehicle fueling; and
- Promotion of the use of LNG to customers outside of the United States who currently burn higher carbon fuels, thereby increasing economic trade and ties with foreign nationals, while displacing those fuels.[144]

In particular, Epcilon states that, although the LNG Facility will be located in Mexico, construction of the Facility will create and promote U.S. jobs because Epcilon will draw on individuals and entities in the United States for design, specialized equipment fabrication, and construction services.[145]

Epcilon discusses several other benefits associated with its proposed re-exports that it contends will accrue to the United States. First, Epcilon asserts that its proposed re-exports will help to reduce the U.S. trade deficit with Mexico.[146] Epcilon asserts that, if its LNG Facility were to operate at full capacity and assuming today's prices for natural gas produced in West Texas,[147] the value of U.S.-sourced natural gas exported for liquefaction in a single year would exceed $354,900,000.[148] This amount, Epcilon contends, would reduce the trade deficit with Mexico on a dollar-for-dollar basis for every year that the LNG Facility operates.[149]

[144] *Id*. at 25.
[145] *Id.* at 26.
[146] *Id.* at 25-26.
[147] App. at 7.
[148] *Id.* at 29.
[149] *Id.* at 30.

Second, Epcilon asserts that its proposed re-exports of LNG will help to improve economic trade and ties between the United States and the destination countries.[150] According to Epcilon, promoting this trade is consistent with a variety of federal policies, including DOE/FE's policy of promoting competition in the marketplace, and the obligations of the United States under the General Agreement on Tariffs and Trade (GATT).[151]

Third, Epcilon argues that the proposed re-exports will have wider geopolitical benefits. Specifically, Epcilon contends that the U.S.-sourced LNG will benefit the global LNG market by improving the liquidity of international natural gas markets and providing a predictable supply of natural gas.[152] This, in turn, could help to reduce European reliance on Russian natural gas supplies and provide Asia with increased energy security and pricing relief by helping to decouple LNG prices from oil prices.[153] According to Epcilon, the location of the proposed LNG Facility on the west coast of North America will provide a competitive advantage in Asian markets, including China.[154]

VI. CURRENT NON-FTA PROCEEDING BEFORE DOE/FE

DOE/FE received one comment in response to Epcilon's Notice of Application published in the *Federal Register*, and therefore the Application is uncontested.[155] The comment, which was submitted anonymously, states the commenter's support for Epcilon's Application. Specifically, the commenter states that Epcilon's proposed exports will provide both "a solution

[150] *Id*. at 27.
[151] *Id*.
[152] *Id*. at 28.
[153] App. at 28-29 (*citing* Ebinger, *et al.*, *Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas,* Energy Security Initiative at Brookings, at 42 (May 2012)).
[154] *Id*. at 29.
[155] Comment from Anonymous, FE Docket No. 20-31-LNG (Apr. 24, 2020).

to the low demand and lack of availability to store LNG" globally and an economic stimulus to the LNG sector.[156]

VII. DISCUSSION AND CONCLUSIONS FOR NON-FTA AUTHORIZATION

In reviewing the non-FTA portion of Epcilon's Application, DOE/FE has considered 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:

- Epcilon's Application, and the comment submitted in support of the Application;
- The Draft Addendum, comments received in response to the Draft Addendum, and the final Addendum;
- The 2014 LCA GHG Report and the 2019 LCA GHG Update, including comments submitted in response to those documents; and
- 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

DOE/FE commissioned the 2018 LNG Export Study and invited public comments on the Study.[157] 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.[158] 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.[159]

---

[156] *Id*.
[157] *See supra* § II.A.3.
[158] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,272.
[159] *See id.* at 67,273.

We take administrative notice of EIA's recent authoritative projections for natural gas supply, demand, and prices, set forth in the *Annual Energy Outlook 2020* (AEO 2020), issued on January 29, 2020.[160] DOE/FE has assessed AEO 2020 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study.[161] The AEO 2017 Reference case without the CPP shows lower net LNG exports of 12.5 Bcf/d of natural gas in 2050, compared with the AEO 2020 Reference case that shows net LNG exports of 15.8 Bcf/d in 2050. As discussed below, the AEO 2020 Reference case is even more supportive of exports than the AEO 2017 Reference case without the CPP.

EIA's projections in AEO 2020 continue to show market conditions that will accommodate increased exports of natural gas. When compared to the AEO 2017 Reference case without the CPP, the AEO 2020 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 2020, support our finding that Epcilon's proposed exports and re-exports will not be inconsistent with the public interest.

[160] U.S. Energy Info. Admin., *Annual Energy Outlook 2020* (Jan. 29, 2020), *available at*: https://www.eia.gov/outlooks/aeo/pdf/aeo2020.pdf.

[161] AEO 2017 included two versions of the Reference case—one with, and one without, the implementation of the Clean Power Plan (CPP). In recent non-FTA orders, we discussed both versions of the AEO 2017 Reference case, noting that the U.S. Environmental Protection Agency (EPA) was reviewing the CPP and considering an alternative regulatory approach. On June 19, 2019, EPA repealed the CPP and issued the final Affordable Clean Energy (ACE) rule. *See* U.S. Envtl. Prot. Agency, Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations, 84 Fed. Reg. 32,520 (July 8, 2019). Accordingly, in this Order, we refer only to the AEO 2017 Reference case without the CPP. The AEO 2020 Reference case does not include the CPP, so the comparisons between AEO 2017 and AEO 2020 are consistent in that regard.

2. Epcilon'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 Epcilon's requested authorization under NGA section 3(a).

First, Epcilon points to DOE's 2018 LNG Export Study, as well as DOE's older LNG export studies and EIA data, in asserting that the United States has significant natural gas resources available to meet both projected future domestic needs and demand for the proposed exports. We agree. Specifically, we find that the 2018 LNG Export Study and AEO 2020 continue to project robust domestic supply conditions that are more than adequate to satisfy both domestic needs and exports (and re-exports) of LNG, including those proposed in the Application.[162]

Second, the 2018 LNG Export Study indicates that exports of LNG will generate net economic benefits to the broader U.S. economy.[163] 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.[164]

Third, over the 20-year term of the authorization, the proposed exports and re-exports will improve the United States' ties with its trade partners and make a positive contribution to the United States' trade balance. For these reasons, we agree with Epcilon that its proposed exports and re-exports are consistent with U.S. policy.

Accordingly, based on the 2018 LNG Export Study and the more recent data in AEO 2020, DOE/FE finds that the market will be capable of sustaining the level of exports and re-

[162] *See, e.g.*, 2018 Study Response to Comments, 83 Fed. Reg. at 67,262.
[163] *Id.*
[164] *See id.* at 67,268-69 (citing 2018 LNG Export Study at 67, 70).

exports requested in Epcilon's Application over the authorization term without negative economic impacts, including domestic price impacts (discussed below).

3. Price Impacts

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 from the lower-48 states authorized in the final non-FTA export authorizations to date (equivalent to a total of 46.94 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."[165]

Additionally, DOE/FE has analyzed AEO 2020 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 the Reference case without the CPP from AEO 2017) shows that the Reference case outlook in AEO 2020 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 2020 Reference case anticipates over 13% more natural gas production in the lower-48 than the AEO 2017 Reference case without the CPP. It also projects an average Henry Hub natural gas price that is lower than the AEO 2017 Reference case without the CPP by over 38%. Table 1 below shows these comparisons:

Table 1: Year 2050 Reference Case Comparisons in AEO 2017 Reference Case Without the CPP and AEO 2020 Reference Case

	AEO 2017 Reference Case Without the CPP	**AEO 2020 Reference Case**

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

Lower-48 Dry Natural Gas Production (Bcf/d)	107.9	122.3
Total Natural Gas Consumption (Bcf/d)	92.4	100.0
Electric Power Sector Consumption (Bcf/d)	31.8	33.4
Net Exports by Pipeline (Bcf/d)	3.4	6.6
Net LNG Exports (Bcf/d)	12.5	15.8
LNG Exports – Total (Bcf/d)	12.7	15.9
Henry Hub Spot Price ($/MMBtu) (Note 1)	$6.00 (2019$)	$3.69 (2019$)

Note 1: Prices adjusted to 2019$ 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.[166]

4. Benefits of International Trade

We have not limited our review to the 2018 LNG Export Study and data from AEO 2020, but have considered the international consequences of our decision. As discussed above, we review applications to export (and re-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.

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

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. Therefore, we agree with Epcilon that authorizing its exports and re-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 and DOE/FE's prior macroeconomic studies.

B. Environmental Issues

In reviewing the potential environmental impacts of Epcilon's proposal to export LNG, 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. Issuance of a Categorical Exclusion

DOE's regulations at 10 C.F.R. Part 1021, Subpart D, Appendix B, list categorical exclusions that apply to DOE actions. Item B5.7 provides a categorical exclusion where approvals or disapprovals of authorizations to import or export natural gas under NGA section 3 involve minor operational changes, but not new construction. We find that the present authorization falls within the scope of the B5.7 categorical exclusion for two reasons. First, AMIGO LNG's proposed natural gas liquefaction facility will be constructed in Mexico. This construction outside of the United States is beyond the scope of DOE's environmental review under NEPA. Second, the transportation of U.S.-sourced natural gas will occur via existing

cross-border transmission pipelines, and therefore will not involve new construction of facilities located within the United States. On this basis, DOE/FE issued the Categorical Exclusion on December 3, 2020.[167]

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.[168] Nevertheless, a decision by DOE/FE to authorize exports (or re-exports) to non-FTA nations could accelerate that development by some increment. As discussed above, the Addendum reviewed the academic and technical literature covering the most significant issues associated with unconventional natural gas production, including impacts to water resources, air quality, 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 (or re-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

[167] *See* U.S. Dep't of Energy, Categorical Exclusion Determination, *Epcilon LNG LLC*, FE Docket No. 20-31-LNG (Dec. 3, 2020); *see also supra* § II.D.
[168] Addendum at 2.

appropriately balance benefits and burdens, and to update these regulations from time to time as technological practices and scientific understanding evolve.

By comparison, 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 (or re-exports) of natural gas to non-FTA nations are inconsistent with the public interest. We further note that the D.C. Circuit in *Sierra Club I* rejected Sierra Club's arguments on this basis, and the Court's conclusions and reasoning guide our review in this proceeding.[169]

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

As explained above, both the 2014 LCA GHG Report and the 2019 Update estimated the life cycle GHG emissions of U.S. LNG exports to Europe and Asia, compared with certain other fuels used to produce electric power in those importing countries.[170] The 2019 Update was based on the most current available science, methodology, and data from the U.S. natural gas system to assess GHGs associated with exports of U.S. LNG.[171]

---

[169] *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.
[170] *See supra* § II.B.
[171] DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 85.

The 2019 Update demonstrates that the conclusions of the 2014 LCA GHG Report have not changed.[172] While acknowledging uncertainty, the LCA GHG Update shows that, to the extent U.S. LNG exports are preferred over coal in LNG-importing nations, U.S. LNG exports are likely to reduce global GHG emissions on per unit of energy consumed basis for power production.[173] 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.[174]

The LCA GHG Update (like the 2014 Report) does not provide information on whether authorizing exports of U.S. LNG to non-FTA nations will increase or decrease GHG emissions on a global scale.[175] Recognizing there is a global market for LNG, exports of U.S. LNG will affect the global price of LNG which, in turn, will affect energy systems in numerous countries. DOE further acknowledges that regional coal and imported natural gas are not the only fuels with which U.S.-exported LNG will compete. U.S. LNG exports may also compete with renewable energy, nuclear energy, petroleum-based liquid fuels, coal imported from outside East Asia or Western Europe, indigenous natural gas, synthetic natural gas derived from coal, and other resources. However, 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.[176] 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. Moreover, the uncertainty associated with estimating each of these factors would likely render such an analysis too speculative to inform

[172] *Id.*
[173] *Id.*
[174] *Id.*
[175] *Id.* at 81.
[176] *Id.*

the public interest determination in DOE's non-FTA proceedings.[177] Based on the evidence, however, DOE sees no reason to conclude that U.S. LNG exports (or re-exports) will increase global GHG emissions in a material or predictable way.[178]

Finally, we note that the D.C. Circuit held in *Sierra Club I* that there was "nothing arbitrary about the Department's decision" to compare emissions from exported U.S. LNG to emissions of coal or other sources of natural gas, rather than renewables or other possible fuel sources.[179] The Court's decision in *Sierra Club I* guided DOE's development of the 2019 Update.

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 in volumes up to and including 52.8 Bcf/yr of natural gas. 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 have also 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

[177] DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 81.
[178] *Id.* at 86.
[179] *Sierra Club I*, 867 F.3d at 202 (finding that "Sierra Club's complaint 'falls under the category of flyspecking'") (citation omitted).

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[180] 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.[181] Given 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 Epcilon's proposed export of U.S.-sourced natural gas to Mexico and re-export in the form of LNG from Mexico for delivery to non-FTA countries will be inconsistent with the public interest.

In deciding whether to grant a final non-FTA export authorization, we also consider the cumulative impacts of the total volume of all non-FTA export authorizations involving natural gas produced from the lower-48 states.[182] With the issuance of this Order and the recent vacatur

[180] 1984 Policy Guidelines, 49 Fed. Reg. 6684.

[181] In previous orders, some commenters asked DOE to clarify the circumstances under which the agency would exercise its authority to revoke (in whole or in part) issued LNG export authorizations. DOE/FE stated that it could not precisely identify all the circumstances under which such action might be considered. More recently, on June 15, 2018, DOE/FE issued a policy statement addressing this issue. *See* U.S. Dep't of Energy, Policy Statement Regarding Long-Term Authorizations to Export Natural Gas to Non-Free Trade Agreement Countries, 83 Fed. Reg. 28,841 (June 21, 2018). DOE/FE noted that it has never rescinded a long-term non-FTA export authorization and stated that it "does not foresee a scenario where it would rescind one or more non-FTA authorizations." *Id.* at 28,843.

[182] As noted in Section I, DOE/FE has issued one final long-term order authorizing exports of LNG produced from Alaskan sources from a proposed facility to be constructed in Alaska to non-FTA countries. *See Alaska LNG Project LLC*, DOE/FE Order No. 3643-A, FE Docket No. 14-96-LNG, Final Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Aug. 20, 2020). The

of two long-term non-FTA export authorizations at the request of the authorization holders,[183] there are currently 42 final non-FTA authorizations from the lower 48-states in a cumulative volume of exports totaling 46.94 Bcf/d of natural gas, or approximately 17.1 trillion cubic feet per year, as follows:[184] Sabine Pass Liquefaction, LLC (2.2 Bcf/d),[185] Cameron LNG, LLC (1.7 Bcf/d),[186] FLEX I (1.4 Bcf/d),[187] FLEX II (0.4 Bcf/d),[188] Cove Point LNG, LP (0.77 Bcf/d),[189] Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),[190] Sabine Pass

Alaska volume is not additive to the cumulative volume of exports of LNG and compressed natural gas produced from the lower-48 states, discussed herein.

[183] On October 22, 2020, and November 17, 2020, DOE/FE granted the request of Floridian Natural Gas Storage Company, LLC (FE Docket No. 15-38-LNG) and Carib Energy (USA) LLC (FE Docket No. 11-141-LNG), respectively, to vacate their long-term non-FTA export authorization. Previously, on February 5, 2019, DOE/FE granted the request of Flint Hills Resources, LP (FE Docket No. 15-168-LNG) to vacate its long-term non-FTA export authorization.

[184] This cumulative volume of non-FTA exports from the lower-48 states does not include export volumes granted pursuant to DOE/FE's final rule for small-scale exports of natural gas. *See* U.S. Dep't of Energy, Small-Scale Natural Gas Exports, Final Rule, 83 Fed. Reg. 35,106 (July 25, 2018) (expediting DOE's application and approval process for qualifying small-scale exports of natural gas); *see also* 10 C.F.R. §§ 590.102(p), 208(a) (codifying final rule); U.S. Dep't of Energy, Office of Fossil Energy, Long Term Applications Received by DOE/FE to Export Domestically Produced LNG from the Lower-48 States, at 10 (as of Dec. 3, 2020), *available at:* https://www.energy.gov/sites/prod/files/2020/12/f81/Summary%20of%20LNG%20Export%20Applications.pdf (identifying small-scale applications and current status).

[185] *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).

[186] *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).

[187] *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).

[188] *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).

[189] *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 by Vessel from the Cove Point LNG Terminal in Calvert County, Maryland, to Non-Free Trade Agreement Nations (May 7, 2015), *reh'g denied* DOE/FE Order No. 3331-B (Apr. 18, 2016), *amended by* DOE/FE Order No. 3331-C (Aug. 4, 2017), *further amended by* DOE/FE Order No. 3331-D (Dec. 2, 2020).

[190] *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).

Liquefaction, LLC Expansion Project (1.38 Bcf/d),[191] American LNG Marketing LLC (0.008 Bcf/d),[192] Emera CNG, LLC (0.008 Bcf/d),[193] Air Flow North American Corp. (0.002 Bcf/d),[194] Bear Head LNG Corporation and Bear Head LNG (USA), LLC (0.81 Bcf/d),[195] Pieridae Energy (USA) Ltd.,[196] Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),[197] Cameron LNG, LLC Design Increase (0.42 Bcf/d),[198] Cameron LNG, LLC Expansion Project (1.41 Bcf/d),[199] Lake Charles Exports, LLC (2.0 Bcf/d),[200] Lake Charles LNG Export Company, LLC,[201] Carib

[191] *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).

[192] *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).

[193] *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).

[194] *Air Flow North American Corp*., DOE/FE Order No. 3753, FE Docket No. 14-206-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).

[195] *Bear Head LNG Corp. 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).

[196] *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).

[197] *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).

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

[199] *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).

[200] *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).

[201] *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).

Energy (USA), LLC (0.004),[202] Magnolia LNG, LLC (1.08 Bcf/d),[203] Southern LNG Company, L.L.C. (0.36 Bcf/d),[204] the FLEX Design Increase (0.34 Bcf/d),[205] Golden Pass LNG Terminal LLC (2.21 Bcf/d),[206] Delfin LNG LLC (1.8 Bcf/d),[207] the Lake Charles LNG Export Company, LLC Design Increase (0.33 Bcf/d),[208] the Lake Charles Exports, LLC Design Increase,[209] Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),[210] Mexico Pacific Limited LLC (1.7 Bcf/d),[211] Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),[212] ECA Liquefaction, S. de R.L. de C.V. (Mid-

[202] *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).
[203] *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).
[204] *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).
[205] *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).
[206] *Golden Pass LNG Terminal 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), *amended by* DOE/FE Order No. 3978-B, Order Granting Request to Transfer Authorizations and Responding to Statement of Change in Control (Mar. 4, 2020).
[207] *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).
[208] *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 Lake Charles, Louisiana, to Free Trade Agreement and Non-Free Trade Agreement Nations (June 29, 2017).
[209] *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 Lake Charles, Louisiana, to Free Trade Agreement and Non-Free Trade Agreement Nations (June 29, 2017).
[210] *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).
[211] *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).
[212] *Venture Global Calcasieu Pass, LLC,* DOE/FE Order No. 4346, FE Docket Nos. 13-69-LNG, 14-88-LNG, 15-

Scale Project) (0.44 Bcf/d),[213] Energía Costa Azul, S. de R.L. de C.V. (Large-Scale Project) (1.3 Bcf/d),[214] Port Arthur LNG, LLC (1.91 Bcf/d),[215] Driftwood LNG LLC (3.88 Bcf/d),[216] FLEX4 (0.72 Bcf/d),[217] Gulf LNG Liquefaction Company, LLC (1.53 Bcf/d),[218] Eagle LNG Partners Jacksonville LLC (0.14 Bcf/d),[219] Venture Global Plaquemines LNG, LLC (3.40 Bcf/d),[220] Texas LNG Brownsville LLC (0.56 Bcf/d),[221] Corpus Christi Liquefaction Stage III, LLC (1.59

25-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (March 5, 2019).

[213] *ECA Liquefaction, 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), *amended by* DOE/FE Order No. 4364-A (Oct. 7, 2019) (transferring authorization from Energía Costa Azul, S. de R.L. de C.V. to ECA Liquefaction, S. de R.L. de C.V.).

[214] *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).

[215] *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).

[216] *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).

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

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

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

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

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

Bcf/d),[222] Annova LNG Common Infrastructure, LLC (0.99 Bcf/d),[223] Rio Grande LNG, LLC (3.61 Bcf/d),[224] Jordan Cove Energy Project L.P. (1.08 Bcf/d),[225] and this Order.

We note that the volumes authorized for export in the *Lake Charles Exports* and *Lake Charles LNG Export* orders are both 2.0 Bcf/d and 0.33 Bcf/d, respectively, yet are not additive to one another because the source of LNG approved under all of those orders is the Lake Charles Terminal.[226] 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.[227]

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.[228] DOE/FE further notes that, to date, the amount of U.S. LNG export capacity that is operating or under construction totals 15.54 Bcf/d of natural gas across eight large-scale export projects in the lower-48 states.[229]

---

[222] *Corpus Christi Liquefaction Stage III, LLC*, DOE/FE Order No. 4490, FE Docket No. 18-78-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).
[223] *Annova LNG Common Infrastructure, LLC*, DOE/FE Order No. 4491, FE Docket No. 19-34-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).
[224] *Rio Grande LNG, LLC*, DOE/FE Order No. 4492, FE Docket No. 15-190-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).
[225] *See* Jordan Cove Energy Project L.P., DOE/FE Order No. 3413-A, FE Docket No. 12-32-LNG, Final Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (July 6, 2020).
[226] *Lake Charles LNG Export Co., LLC*, DOE/FE Order No. 4010, at 55; *see also Lake Charles Exports, LLC*, DOE/FE Order No. 4011, at 54.
[227] *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.").
[228] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (citing 2018 LNG Export Study at 63 & App'x F).
[229] U.S. Energy Info. Admin., *U.S. Liquefaction Capacity* (Nov. 3, 2020), *available at*: https://www.eia.gov/naturalgas/U.S.liquefactioncapacity.xlsx (total of 15.54 Bcf/d calculated by adding Column N

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

The reasons in support of proceeding cautiously are several: (1) the 2018 LNG Export Study, like any study based on assumptions and economic projections, is inherently limited in its predictive accuracy; (2) applications to export significant quantities of domestically produced LNG are still a relatively new phenomena with uncertain impacts; and (3) the market for natural gas has experienced rapid reversals in the past and is again changing rapidly due to economic, 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 to attach terms and conditions to LNG export authorizations to protect the public interest.

VIII. FINDINGS

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

IX. TERMS AND CONDITIONS

in "Existing & Under Construction" worksheet). Additionally, DOE/FE takes administrative notice that, on November 17, 2020, ECA Liquefaction reached a final investment decision (FID) for the development, construction, and operation of the ECA Mid-Scale Project, to be located in Baja California, Mexico. *See* "Sempra Energy Announces FID for Landmark Energía Costa Azul LNG Export Project" (Nov. 17, 2020), *available at:* https://www.sempra.com/sempra-energy-announces-fid-landmark-energia-costa-azul-lng-export-project.

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. Epcilon must abide by each Term and Condition or face appropriate sanction.[230]

A. Term of the Authorizations

For the FTA authorization, Epcilon requests a 20-year term commencing on the date of first export. DOE/FE grants that request without modification as required by NGA section 3(c). The 20-year term will begin on the date when Epcilon commences export of U.S.-sourced natural gas by pipeline from the United States to Mexico.

For the non-FTA authorization, Epcilon also requests a 20-year term commencing on the date of first export. This term is consistent with our practice in the non-FTA export authorizations issued to date. The 20-year non-FTA term will begin on the date when Epcilon commences re-export of U.S.-sourced natural gas in the form of LNG from the proposed LNG Facility.

B. Commencement of Operations

As requested by Epcilon, DOE/FE will add as a condition of the FTA authorization that Epcilon must commence exports of U.S.-sourced natural gas no later than seven years from the date of issuance of this Order.

Likewise, and consistent with our final non-FTA authorizations to date, DOE/FE will add as a condition of the authorization that Epcilon must commence re-exports of LNG 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

[230] For purposes of these Terms and Conditions, references to "exports of U.S-sourced natural gas" means exports of U.S.-sourced natural gas by pipeline from the United States to Mexico. References to "re-exports of LNG" means the re-export of U.S.-sourced natural gas in the form of LNG from Epcilon's LNG Facility to FTA and non-FTA countries.

those authorizations by authorization holders that are not engaged in actual export or re-export operations.

C. FTA Countries for FTA Authorization

The countries with which the United States has a FTA requiring national treatment for trade in natural gas currently are: Australia, Bahrain, Canada, Chile, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, Republic of Korea, and Singapore.

D. Commissioning Volumes

Epcilon will be permitted to apply for short-term export authorizations to re-export Commissioning Volumes prior to the commencement of the first commercial re-exports of LNG from the LNG Facility. "Commissioning Volumes" are defined as the volume of LNG produced and exported (or re-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 or re-exports pursuant to Epcilon's long-term contracts.[231] The Commissioning Volumes will not be counted against the export volume authorized in this Order.

E. Make-Up Period

Epcilon will be permitted to continue exporting to FTA countries for a total of three years following the end of the 20-year FTA term established in this Order, and re-exporting to non-FTA countries for a total of three years following the end of the 20-year non-FTA term established in this Order, solely to export or re-export any volume that it was unable to export or

[231] *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) (providing additional discussion of Commissioning Volumes and the Make-Up Period).

re-export during the original periods (Make-Up Volume). The three-year term during which the Make-Up Volume may be exported and re-exported shall be known as the "Make-Up Period."

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

F. 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.[232] 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.[233] A rebuttable presumption that control exists will arise from the ownership or the power to vote, directly or indirectly, 10% or more of the voting securities of such entity.[234]

---

[232] 10 C.F.R. § 590.405.
[233] *See* U.S. Dep't of Energy, Procedures for Changes in Control Affecting Applications and Authorizations to Import or Export Natural Gas, 79 Fed. Reg. 65,541, 65,542 (Nov. 5, 2014).
[234] *See id*.

G. Agency Rights

Epcilon requests authorization to export U.S.-sourced natural gas and to re-export LNG on its own behalf and as agent for other entities that hold title to the natural gas at the time of export and to the LNG at the time of re-export, respectively, 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, a LNG title-holder (Registrant) to include the same company identification information and long-term contract information of the Registrant as if the Registrant had filed an application to export LNG on its own behalf.[235]

To ensure that the public interest is served, this authorization shall be conditioned to require that where Epcilon proposes to export the U.S.-sourced natural gas and/or to re-export LNG as agent for other entities that hold title to the natural gas or LNG, respectively (Registrants), it must register those entities with DOE/FE in accordance with the procedures and requirements described herein.[236]

H. Contract Provisions for the Sale or Transfer of U.S.-Sourced Natural Gas to be Exported and U.S.-Sourced Natural Gas in the Form of LNG to be Re-Exported

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

[235] *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).

[236] DOE/FE notes that the registration requirements established in this Order will apply only in circumstances where Epcilon exports natural gas from the United States or re-exports LNG from Mexico on behalf of an entity that holds title to the natural gas or LNG at the time that Epcilon exports it or re-exports it, respectively. If natural gas or LNG is exported or re-exported by a person or entity other than Epcilon pursuant to a different authorization issued by DOE/FE, the terms of that other authorization will govern the registration requirements that apply. Registration will not be required for purchases of natural gas originating in Mexico where the purchase was not part of an arrangement to export the natural gas from the United States on behalf of the purchaser.

Epcilon exports U.S.-sourced natural gas or re-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).[237]

In addition, DOE/FE finds that section 590.202(c) of DOE/FE's regulations[238] requires that Epcilon file, or cause to be filed, all long-term contracts associated with the long-term supply of U.S.-sourced natural gas to the LNG Facility, whether signed by Epcilon or the Registrant, within 30 days of their execution.

DOE/FE recognizes that some information in Epcilon's or a Registrant's long-term commercial agreements associated with the export of U.S.-sourced natural gas and/or the re-export of LNG, and/or long-term contracts associated with the long-term supply of U.S.-sourced natural gas to the LNG Facility, may be commercially sensitive. DOE/FE therefore will provide Epcilon the option to file or cause to be filed either unredacted contracts, or in the alternative (A) Epcilon 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.[239]

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

[237] 10 C.F.R. § 590.202(b).
[238] *Id*. § 590.202(c).
[239] *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 U.S.-sourced natural gas and LNG exported or re-exported, respectively, pursuant to this Order shall include an acknowledgement of these requirements.

I. Export and Re-Export Quantity

Epcilon sought authorization to export and re-export up to a combined total of 395 Bcf/yr of natural gas to FTA and non-FTA countries. As set forth herein, this Order authorizes the exports and re-exports in the full volume requested, up to the equivalent of 395 Bcf/yr of natural gas for FTA and non-FTA countries. The FTA and non-FTA volumes are not additive to one another.

X. ORDER

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

A. Epcilon LNG LLC (Epcilon) is authorized to export U.S.-sourced natural gas by pipeline from the United States to Mexico and, after liquefaction in Mexico, to re-export the U.S.-sourced natural gas in the form of LNG from the proposed AMIGO LNG facility (the LNG Facility) to be located in the State of Sonora, Mexico, in a volume equivalent to 395 Bcf/yr of natural gas. This authorization is for a term of 20 years for both the FTA and non-FTA authorizations, to commence from the date of first commercial export or re-export, respectively. Epcilon is authorized to export the U.S-sourced natural gas and to re-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. For the FTA authorization, Epcilon is authorized to export natural gas to Mexico by pipeline and, after liquefaction in Mexico, to re-export the U.S.-sourced natural gas in the form of LNG to Australia, Bahrain, Canada, Chile, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, Republic of Korea, and Singapore, and to any nation with which the United States subsequently enters into a FTA requiring national treatment for trade in natural gas, provided that the destination nation has the capacity to import LNG via ocean-going vessel. FTA countries are currently identified by DOE/FE at: https://www.energy.gov/fe/services/natural-gas-regulation.

C. For the non-FTA authorization, Epcilon may re-export the U.S.-sourced natural gas in the form of LNG 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.

D. Epcilon may export or re-export Commissioning Volumes prior to the

commencement of the terms 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.

E. Epcilon may to continue exporting to FTA countries for a total of three years following the end of the 20-year FTA term established in this Order, and re-exporting to non-FTA countries for a total of three years following the end of the 20-year non-FTA term established in this Order, solely to export or re-export any Make-Up Volume that it was unable to export or re-export during the original term. Insofar as Epcilon may seek to export or re-export additional volumes not previously authorized, it will be required to obtain appropriate authorization from DOE/FE.

F. Epcilon must commence export and re-export operations using the planned LNG Facility no later than seven years from the date of issuance of this Order.

G. The export and re-export quantity authorized in this Order is equivalent to a total of 395 Bcf/yr of natural gas for both the FTA and non-FTA authorizations.

H. Epcilon 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. Failure to comply with these requirements could result in rescission of this authorization and/or other civil or criminal penalties.

I. (i) Epcilon shall file, or cause others to file, with the Office of Regulation, Analysis, and Engagement a non-redacted copy of all executed long-term contracts associated with the long-term export of U.S.-sourced natural gas and re-export in the form of LNG as agent for other

entities from the LNG Facility. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described above.

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

J. Epcilon is permitted to use its authorization to export U.S.-sourced natural gas and to re-export U.S.-natural gas in the form of LNG as agent for other LNG title-holders (Registrants), after registering those entities with DOE/FE. Registration materials shall include an acknowledgement and agreement by the Registrant to supply Epcilon with all information necessary to permit Epcilon 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. Epcilon, or others for whom Epcilon acts as agent, shall include the following provision in any agreement or other contract for the sale or transfer of U.S.-sourced natural gas exported or re-exported in the form of LNG pursuant to this Order:

> Customer or purchaser acknowledges and agrees that it will resell or transfer U.S.-sourced natural gas, including in the form of LNG, purchased hereunder for delivery only to countries identified in Ordering Paragraphs B and C of DOE/FE Order No. 4629, issued December 8, 2020, in FE Docket No. 20-31-LNG, and/or to purchasers that have agreed in writing to limit their direct or indirect resale or transfer of the natural gas or LNG to such countries. Customer or purchaser further commits to cause a report to be provided to Epcilon LNG LLC that identifies the country (or countries) into which the natural gas or LNG was actually delivered, and to include in any resale contract for such LNG the necessary conditions to ensure that Epcilon LNG LLC is made aware of all such countries.

L. Within two weeks after the first export of U.S.-sourced natural gas authorized in Ordering Paragraph A occurs, Epcilon shall provide written notification of the date that the first export occurred.

M. Epcilon shall file with the Office of Regulation, Analysis, and Engagement, on a semi-annual basis, written reports describing the status of the proposed LNG Facility. 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 proposed LNG Facility, the date the LNG Facility is expected to commence first re-exports of LNG, and the status of the long-term contracts associated with the long-term export of U.S-sourced natural gas and the re-export of LNG and any long-term supply contracts.

N. With respect to any change in control of the authorization holder, Epcilon must comply with DOE/FE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.[240]

O. Monthly Reports: With respect to the exports of natural gas authorized by this Order, Epcilon shall file with the Office of Regulation, Analysis, and Engagement, within 30 days

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

following the last day of each calendar month, a report on Form FE-746R indicating whether exports of U.S.-sourced natural gas 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 natural gas have occurred, the report must give the following details: (1) the country of destination; (2) the point(s) of exit; (3) the volume in thousand cubic feet (Mcf); (4) the average purchase price of gas per million British thermal units (MMBtu) at the international border; (5) the name of the supplier(s); (6) the name of the U.S. transporter(s); and (7) the estimated or actual duration of the supply agreement(s).

With respect to the re-export of U.S.-sourced natural gas as LNG authorized by this Order, Epcilon 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 re-exports of this LNG to FTA countries 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 re-export. In subsequent months, if re-exports have not occurred, a report of "no activity" for that month must be filed. If re-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, 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 Washington, D.C., on December 8, 2020.

Steven Eric Winberg
Assistant Secretary
Office of Fossil Energy