

UNITED STATES OF AMERICA

DEPARTMENT OF ENERGY

OFFICE OF FOSSIL ENERGY

PORT ARTHUR LNG, LLC

)
) FE DOCKET NO. 15-96-LNG
)

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

DOE/FE ORDER NO. 4372

MAY 2, 2019

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FREQUENTLY USED ACRONYMS

| | |
|--------|--|
| AEO | Annual Energy Outlook |
| API | American Petroleum Institute |
| 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 |
| IECA | Industrial Energy Consumers of America |
| LCA | Life Cycle Analysis |
| LNG | Liquefied Natural Gas |
| Mcf | Thousand Cubic Feet |
| MMBtu | Million British Thermal Units |
| mtpa | Million Metric Tons per Annum |
| NEPA | National Environmental Policy Act |
| NERA | NERA Economic Consulting |
| NETL | National Energy Technology Laboratory |
| NGA | Natural Gas Act |
| Tcf/yr | Trillion Cubic Feet per Year |

I. INTRODUCTION

On June 15, 2015, Port Arthur LNG, LLC (Port Arthur LNG) filed an application (Application),¹ as subsequently amended, with the Office of Fossil Energy (FE) of the Department of Energy (DOE) under section 3 of the Natural Gas Act (NGA).² Port Arthur LNG requests long-term, multi-contract authorization to export domestically produced liquefied natural gas (LNG) from a natural gas processing, liquefaction, and export project that it proposes to construct, own, and operate in Port Arthur, Texas (the Project).³ Port Arthur LNG seeks to export the LNG to any country with which the United States does not have a free trade agreement (FTA) requiring national treatment for trade in natural gas, and with which trade is not prohibited by U.S. law or policy (non-FTA countries), pursuant to NGA section 3(a).⁴

Port Arthur LNG originally requested authority to export up to 10 million metric tonnes per annum (mtpa) of LNG, which it states is equivalent to approximately 517 billion cubic feet per year (Bcf/yr) of natural gas, or 1.42 Bcf per day (Bcf/d).⁵ Port Arthur LNG seeks to export this LNG, on its own behalf and as agent for other entities that will hold title to the LNG at the time of export, for a term of 20 years to commence on the earlier of the date of first commercial export or seven years from the date of the requested authorization.⁶

In a parallel proceeding in FE Docket No. 15-53-LNG, Port Arthur LNG filed an application requesting to export the same volume of LNG from the Project to any country with

¹ Port Arthur LNG, LLC, Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Countries, FE Docket No. 15-96-LNG (June 15, 2015) [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 has been delegated to the Assistant Secretary for FE in Redelegation Order No. 00-006.02 issued on November 12, 2014.

³ App. at 1.

⁴ 15 U.S.C. § 717b(a); App. at 1.

⁵ App. at 1.

⁶ *Id.*

which the United States currently has, or in the future will have, a FTA requiring national treatment for trade in natural gas, pursuant to NGA section 3(c).⁷ On August 20, 2015, in Order No. 3698, DOE/FE granted that FTA application in the requested volume of 517 Bcf/yr of natural gas.⁸

On August 26, 2015, DOE/FE published a notice of Port Arthur LNG's non-FTA Application in the *Federal Register* (Notice of Application).⁹ The Notice of Application called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by October 26, 2015.¹⁰ DOE/FE received comments opposing the Application from Jean Public¹¹ and Curtis Morrison,¹² and a motion to intervene submitted by the American Petroleum Institute (API).¹³ Because API's motion to intervene takes no position on the Application, the Application is uncontested under DOE/FE's regulations.¹⁴

Subsequently, on November 29, 2016, Port Arthur LNG and its affiliate, PALNG Common Facilities Company, LLC, filed an application with the Federal Energy Regulatory Commission (FERC) in FERC Docket No. CP17-20-000 for authorization to site, construct, and

⁷ 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.

⁸ *Port Arthur LNG, LLC*, DOE/FE Order No. 3698, FE Docket No. 15-53-LNG, Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel From the Proposed Port Arthur LNG Project in Port Arthur, Texas, to Free Trade Agreement Nations (Aug. 20, 2015). At Port Arthur LNG's request, the FTA authorization is for a term of 25 years.

⁹ Port Arthur LNG, LLC, Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations for a 20-Year Period, Notice of Application, 80 Fed. Reg. 51,795 (Aug. 26, 2015) [hereinafter Notice of Application].

¹⁰ 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).

¹¹ Comments of Jean Public, FE Docket No. 15-96-LNG (Aug. 26, 2015).

¹² Comments of Curtis Morrison, FE Docket No. 15-96-LNG (Aug. 31, 2015).

¹³ American Petroleum Instit., Motion to Intervene, FE Docket No. 15-96-LNG (Oct. 26, 2015); *see infra* § VII.

¹⁴ *See* 10 C.F.R. § 590.102(b).

operate the Project.¹⁵ The FERC application proposed a liquefaction facility that would produce up to 13.5 mtpa of LNG per year, equivalent to approximately 698 Bcf/yr of natural gas (1.91 Bcf/d).¹⁶

On October 18, 2018, Port Arthur LNG submitted an amendment to the Application in this proceeding (Amendment),¹⁷ as well an amendment to its FTA authorization in FE Docket No. 15-53-LNG. As relevant here, Port Arthur LNG states that the Amendment modifies the export volume requested in the Application so that Port Arthur LNG “may be authorized to export the Project’s full maximum capacity at optimal conditions, as reflected in the FERC Application.”¹⁸ The Amendment thus seeks to account for the difference between the Application submitted to DOE/FE (517 Bcf/yr) and application submitted to FERC (13.5 mtpa, or 698 Bcf/yr)—for an increase of 181 Bcf/yr in the requested export volume.¹⁹ In sum, under the Amendment, Port Arthur LNG is now requesting authority to export LNG to non-FTA countries in a volume of 698 Bcf/yr (1.91 Bcf/d) of natural gas—equivalent to 13.5 mtpa of LNG.²⁰

On November 20, 2018, in FE Docket No. 15-53-LNG, DOE/FE granted Port Arthur LNG’s amendment of its FTA export authorization (DOE/FE Order No. 3698-A) in the

¹⁵ Port Arthur LNG, LLC, *et al.*, Application of Port Arthur LNG, LLC and PALNG Common Facilities Company, LLC for Authorization under Section 3 of the Natural Gas Act, FERC Docket No. CP17-20-000 (Nov. 29, 2016). Port Arthur Pipeline, LLC concurrently filed an application in FERC Docket Nos. CP17-21-000, *et al.*, for a certificate of public convenience and necessity to construct and operate a new natural gas pipeline system designed to transport natural gas to the Project.

¹⁶ Port Arthur LNG, LLC, Amendment to Application of Port Arthur LNG, LLC for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Countries, FE Docket No. 15-96-LNG, at 4 (Oct. 18, 2018) [hereinafter Amendment].

¹⁷ *See id.*

¹⁸ *Id.*

¹⁹ *Id.* at 3-5.

²⁰ *Id.*

requested volume of 698 Bcf/yr of natural gas.²¹ Additionally, on March 22, 2019, DOE/FE published a notice of the non-FTA Amendment in the *Federal Register* (Notice of Amendment).²² The Notice of Amendment called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by April 11, 2019.²³ DOE/FE received one filing, entitled “Notice of Intervention, Protest and Comment,” filed by the Industrial Energy Consumers of America (IECA).²⁴ Because IECA’s motion to intervene and protest opposes the Amendment, the Amendment is contested.²⁵ In response to IECA’s Pleading, Port Arthur LNG filed an “Answer in Opposition to Notice of Intervention, Protest and Comment of Industrial Energy Consumers of America” (Answer).²⁶

Most recently, on April 18, 2019, FERC issued an order authorizing Port Arthur LNG to site, construct, and operate the Project in the requested production capacity of 13.5 mtpa.²⁷ FERC also authorized Port Arthur Pipeline, LLC to construct and operate the associated pipelines (*see supra* note 15).²⁸

²¹ *Port Arthur LNG, LLC*, DOE/FE Order No. 3698-A, FE Docket Nos. 15-53-LNG and 18-162-LNG, Order Amending Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel From the Proposed Port Arthur LNG Project in Port Arthur, Texas, to Free Trade Agreement Nations (Nov. 20, 2018).

²² Port Arthur LNG, LLC, Application to Amend Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, Notice of Amendment, 84 Fed. Reg. 10,808, 10,809 (Mar. 22, 2019) [hereinafter Notice of Amendment] (stating that “DOE/FE may disregard comments or protests that do not bear directly on the Amendment—specifically, Port Arthur LNG’s proposed increase of its requested non-FTA export volume).

²³ 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).

²⁴ Industrial Energy Consumers of America, Notice of Intervention, Protest and Comment, FE Docket No. 15-96-LNG (Apr. 11, 2019) [hereinafter IECA Pleading].

²⁵ See 10 C.F.R. § 590.102(b).

²⁶ Port Arthur LNG, LLC, Answer of Port Arthur LNG, LLC in Opposition to Notice of Intervention, Protest, and Comment of Industrial Energy Consumers of America, DOE/FE Docket No. 15-96-LNG (Apr. 18, 2019) [hereinafter Port Arthur LNG Answer].

²⁷ *Port Arthur LNG, LLC, et al.*, Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 167 FERC ¶ 61,052, at ¶ 6 (Apr. 18, 2019) [hereinafter FERC Order].

²⁸ *Id.*

DOE/FE has reviewed the Application and Amendment, the filings in response to the Application and Amendment, DOE's economic and environmental studies, the final environmental impact statement (EIS) prepared for the Project by FERC staff, the FERC Order, and the most recent projections of the U.S. Energy Information Administration (EIA), among other evidence discussed below. On the basis of this substantial administrative record, DOE/FE has determined that it has not been shown that Port Arthur LNG's proposed exports will be inconsistent with the public interest, as would be required to deny the Application and Amendment under NGA section 3(a). DOE/FE therefore grants the Application in the volume requested in the Amendment—698 Bcf/yr of natural gas.²⁹ Because the export volumes authorized in Port Arthur LNG's FTA order (DOE/FE Order No. 3698-A) and this Order each reflect the planned liquefaction capacity of the Project as approved by FERC, the FTA and non-FTA volumes are not additive.

Also, as discussed below, DOE/FE participated as a cooperating agency in FERC's environmental review of the Project under the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321 *et seq.* FERC issued the final EIS for the Project on January 31, 2019.³⁰ After an independent review, DOE/FE adopted the final EIS on February 8, 2019 (DOE/EIS-0517),³¹ and the U.S. Environmental Protection Agency (EPA) published a notice of the adoption on February 15, 2019.³² As an Appendix to this Order, DOE/FE is issuing the

²⁹ See *infra* §§ IX-XI.

³⁰ Federal Energy Regulatory Comm'n, *Final Environmental Impact Statement for Port Arthur Liquefaction Project, Texas Connector Project and Louisiana Connector Project*, FERC Docket Nos. CP 17-20-000, *et al.* (Jan. 31, 2019), available at: <https://www.energy.gov/sites/prod/files/2019/02/f59/final-eis-0517-port-arthur-liquefaction-project-v1-2019-01.pdf> [hereinafter final EIS].

³¹ Letter from Amy Sweeney, DOE/FE, to Julie Roemele, U.S. EPA (Feb. 8, 2019) (adoption of final EIS).

³² U.S. Env'tl. Protection Agency, *Environmental Impact Statements; Notice of Availability*, 84 Fed. Reg. 4,463 (Feb. 15, 2019).

Record of Decision (ROD) under NEPA for the proposed Project. This Order requires Port Arthur LNG's compliance with the 130 environmental conditions adopted in the FERC Order.³³

Concurrently with this Order, DOE/FE is issuing Order No. 4373 to Driftwood LNG LLC (FE Docket No. 16-144-LNG) in a volume equivalent to 1415.3 Bcf/yr of natural gas (3.88 Bcf/d).³⁴ The volumes approved in the Driftwood LNG Order and this Order—equivalent to 3.88 and 1.91 Bcf/d of natural gas, respectively—bring DOE/FE's cumulative total of approved non-FTA exports of LNG and compressed natural gas to 32.27 Bcf/d of natural gas.³⁵

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

³³ Although the final EIS recommended 131 environmental conditions, the FERC Order identified 130 conditions because it combined two of the conditions identified in the EIS into a single condition. *Compare* final EIS at 5-33 (identifying conditions number 25 and 26) to Appendix A of the FERC Order (condition number 25); *see also infra* § VI.C.

³⁴ *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).

³⁵ *See infra* § VIII.E.

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.³⁶ DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.³⁷

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.³⁸ 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.³⁹

DOE/FE commissioned two new macroeconomic studies. The first, *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets*, was performed by EIA and published in October 2014 (2014 EIA LNG Export Study or 2014 Study).⁴⁰ The 2014 Study assessed how specified scenarios of increased natural gas exports could affect domestic energy

³⁶ See 2012 LNG Export Study, 77 Fed. Reg. 73,627 (Dec. 11, 2012), available at: http://energy.gov/sites/prod/files/2013/04/f0/fr_notice_two_part_study.pdf (Notice of Availability of the LNG Export Study).

³⁷ 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).

³⁸ Because there is no natural gas pipeline interconnection between Alaska and the lower 48 states, DOE/FE generally views those LNG export markets as distinct. Accordingly, DOE/FE focuses on LNG exports from the lower-48 states for purposes of determining macroeconomic impacts.

³⁹ See U.S. Dep't of Energy, Office of Fossil Energy, Request for an Update of EIA's January 2012 Study of Liquefied Natural Gas Export Scenarios, available at: <http://energy.gov/fe/downloads/request-update-eia-s-january-2012-study-liquefied-natural-gas-export-scenarios> (May 29, 2014) (memorandum from FE to EIA).

⁴⁰ 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>.

markets. At DOE's request, this 2014 Study served as an update of EIA's January 2012 study of LNG export scenarios and used baseline cases from EIA's *Annual Energy Outlook 2014* (AEO 2014).⁴¹

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).⁴² 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.⁴³ DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.⁴⁴

⁴¹ 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.

⁴² 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.

⁴³ 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).

⁴⁴ 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).

3. 2018 LNG Export Study

a. Overview

At the time DOE commissioned the 2018 LNG Export Study in 2017, 25 non-FTA applications were pending before DOE/FE.⁴⁵ 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.⁴⁶ 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, 2018,⁴⁷ and concurrently provided notice of the availability of the Study, as discussed below.⁴⁸

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),⁴⁹

⁴⁵ 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].

⁴⁶ Additionally, as of the date of the 2018 Study, DOE/FE had authorized a cumulative total of LNG exports to FTA countries under section 3(c) of the NGA in a volume of 59.33 Bcf/d of natural gas. These FTA volumes are not additive to the authorized non-FTA volumes.

⁴⁷ 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].

⁴⁸ See 2018 Study Notice.

⁴⁹ 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](https://www.eia.gov/outlooks/aeo/pdf/0383(2017).pdf).

- (iii) Examines unconstrained LNG export volumes beyond the levels examined in the previous studies;
- (iv) Examines the likelihood of those market-determined LNG export volumes; and
- (v) Provides macroeconomic projections associated with several of the scenarios lying within the more likely range of exports.⁵⁰

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 N_{ew}ERA models.⁵¹ 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.⁵² 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.⁵³

⁵⁰ See 2018 Study Notice, 83 Fed. Reg. at 27,316.

⁵¹ 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].

⁵² 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).

⁵³ See *id.*

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

- i. AEO 2017's Reference case, which provides a central estimate of U.S. natural gas demand;
- ii. A Robust Economic Growth case, which provides a high estimate for U.S. natural gas demand driven by higher levels of gross domestic product growth; and
- iii. A Renewables Mandate case, which provides a low estimate for U.S. natural gas demand driven by the imposition of a stringent renewables mandate.⁵⁴

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.⁵⁵

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.⁵⁶ 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

⁵⁴ See *id.*

⁵⁵ See *id.*

⁵⁶ See *id.*

were, in turn, combined to develop the 54 export scenarios and their associated macroeconomic impacts.

c. Study Results

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

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

- Chemical industry subsectors of the economy that rely heavily on natural gas for energy and as a feedstock continue to exhibit robust growth even at higher LNG export levels.

This growth is only insignificantly slower than cases with lower LNG export levels.

- Even the most extreme scenarios of high LNG exports outside the more likely probability range (exhibiting a combined probability of less than 3%) show higher overall economic performance in terms of GDP, household income, and consumer welfare than lower export levels associated with the same domestic supply scenarios.⁵⁷

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.⁵⁸ 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.”⁵⁹ 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.⁶⁰ Of those, nine comments supported the Study,⁶¹

⁵⁷ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,255.

⁵⁸ See 2018 Study Notice.

⁵⁹ *Id.*, 83 Fed. Reg. at 27,315.

⁶⁰ The public comments are posted on the DOE/FE website at: <https://fossil.energy.gov/app/docketindex/docket/index/10>.

⁶¹ 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.

eight comments opposed the 2018 Study and exports of LNG,⁶² one comment took no position,⁶³ and one comment was non-responsive.⁶⁴

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, 2018.⁶⁵ As explained in the Response to Comments, DOE/FE determined that none of the eight comments opposing the 2018 Study provided sufficient evidence to rebut or otherwise undermine the 2018 Study.⁶⁶

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.⁶⁷ 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.⁶⁸ DOE highlighted the following key findings of the Study:

⁶² 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.

⁶³ Comment of John Young.

⁶⁴ Comment of Vincent Burke.

⁶⁵ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.

⁶⁶ See *id.* at 67,272.

⁶⁷ See *id.*

⁶⁸ See *id.*

- “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.”⁶⁹
- “Increased exports of natural gas will improve the U.S. balance of trade and result in a wealth transfer into the United States.”⁷⁰
- “Overall [U.S.] GDP improves as LNG exports increase for all scenarios with the same U.S. natural gas supply condition.”⁷¹
- “There is no support for the concern that LNG exports would come at the expense of domestic natural gas consumption.”⁷²
- “[A] large share of the increase in LNG exports is supported by an increase in domestic natural gas production.”⁷³
- “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.”⁷⁴

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.⁷⁵ 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.⁷⁶

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

⁶⁹ *Id.* (quoting 2018 LNG Export Study at 55).

⁷⁰ 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (quoting 2018 LNG Export Study at 64).

⁷¹ *Id.* (quoting 2018 LNG Export Study at 67).

⁷² *Id.* (quoting 2018 LNG Export Study at 77).

⁷³ *Id.*

⁷⁴ *Id.* (quoting 2018 LNG Export Study at 70).

⁷⁵ 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>.

⁷⁶ 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

interest.”⁷⁷ 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.⁷⁸

B. DOE’s Environmental Studies

On June 4, 2014, DOE/FE issued two notices in the *Federal Register* proposing to evaluate different environmental aspects of the LNG production and export chain. First, DOE/FE announced that it had conducted a review of existing literature on potential environmental issues associated with unconventional natural gas production in the lower-48 states. The purpose of this review was to provide additional information to the public concerning 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).⁷⁹ 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.⁸⁰

Second, DOE/FE commissioned the National Energy Technology Laboratory (NETL), a DOE applied research laboratory, to conduct an analysis calculating the life cycle greenhouse gas (GHG) emissions for LNG exported from the United States. The purpose of this analysis was to determine: (i) how domestically-produced LNG exported from the United States compares with

⁷⁷ *Id.* (citing 2018 LNG Export Study at 63 & Appendix F).

⁷⁸ *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

⁷⁹ 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.

⁸⁰ 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>.

regional coal (or other LNG sources) for electric power generation in Europe and Asia from a life cycle GHG perspective, and (ii) how those results compare with natural gas sourced from Russia and delivered to the same markets via pipeline. DOE/FE published NETL's report entitled, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States* (LCA GHG Report).⁸¹ DOE/FE also received public comments on the LCA GHG Report and responded to those comments in prior orders.⁸²

With respect to both the Addendum and the LCA GHG Report, 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.

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

In 2015 and 2016, Sierra Club petitioned the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) for review of five long-term LNG export authorizations issued by DOE/FE under the standard of review discussed below. Sierra Club challenged DOE/FE's approval of LNG exports from projects proposed or operated by the following authorization holders: Freeport LNG Expansion, L.P., *et al.*; Dominion Cove Point LNG, LP; Sabine Pass Liquefaction, LLC; and Cheniere Marketing, LLC, *et al.* The D.C. Circuit subsequently denied four of the five petitions for review: one in a published decision issued on August 15, 2017 (*Sierra Club I*),⁸³ and three in a consolidated, unpublished opinion issued on November 1, 2017

⁸¹ Dep't of Energy, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States*, 79 Fed. Reg. 32,260 (June 4, 2014) [hereinafter LCA GHG Report]. DOE/FE announced the availability of the LCA GHG Report on its website on May 29, 2014.

⁸² 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).

⁸³ *Sierra Club v. U.S. Dep't of Energy*, 867 F.3d 189 (Aug. 15, 2017) (denying petition for review of the LNG export authorization issued to Freeport LNG Expansion, L.P., *et al.*).

(*Sierra Club II*).⁸⁴ 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.⁸⁵

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 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."⁸⁶

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.⁸⁷ 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."⁸⁸ The Court thus held that, "[u]nder our limited and deferential review, we cannot say that the Department

⁸⁴ *Sierra Club v. U.S. Dep't of Energy*, 703 Fed. Appx. 1 (D.C. Cir. Nov. 1, 2017) (denying petitions for review in Nos. 16-1186, 16-1252, and 16-1253 of the LNG export authorizations issued to Dominion Cove Point LNG, LP, Sabine Pass Liquefaction, LLC, and Cheniere Marketing, LLC, *et al.*, respectively).

⁸⁵ 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)

⁸⁶ *Sierra Club I*, 867 F.3d at 203.

⁸⁷ *Id.* at 192.

⁸⁸ *Id.* at 198.

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.”⁸⁹

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.⁹⁰ The Court pointed to DOE’s LCA GHG Report, finding there was “nothing arbitrary” about the scope of DOE’s analysis of GHG emissions in that Report.⁹¹

Third, in reviewing Sierra Club’s claims under the NGA, the Court found that Sierra Club “repeats the same argument it made to support its NEPA claim—namely, that the Department arbitrarily failed to evaluate foreseeable indirect effects of exports.”⁹² 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.”⁹³

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.”⁹⁴ 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.⁹⁵ The D.C. Circuit’s decisions in *Sierra Club I and II* guide our review in this proceeding.

⁸⁹ *Id.* at 201.

⁹⁰ *Id.*

⁹¹ *Id.* at 202.

⁹² *Sierra Club I*, 867 F.3d at 203.

⁹³ *Id.*

⁹⁴ *Sierra Club II*, 703 Fed. Appx. 1, at *2.

⁹⁵ *Id.*

III. PUBLIC INTEREST STANDARD

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

Amendment:

[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 Energy⁹⁶] 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.⁹⁷

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.⁹⁸

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.⁹⁹ Before reaching a final decision, DOE must also comply with NEPA.

Although NGA section 3(a) establishes a broad public interest standard and a presumption favoring export authorizations, the statute does not define “public interest” or identify criteria that must be considered in evaluating the public interest. In prior decisions, DOE has identified a range of factors that it evaluates when reviewing an application for export

⁹⁶ 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.

⁹⁷ 15 U.S.C. § 717b(a).

⁹⁸ See *Sierra Club*, 867 F.3d at 203 (“We have construed [NGA section 3(a)] as containing a ‘general presumption favoring [export] authorization.’”) (quoting *W. Va. Pub. Serv. Comm'n v. U.S. Dep't of Energy*, 681 F.2d 847, 856 (D.C. Cir. 1982)).

⁹⁹ 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)).

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.¹⁰⁰ 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.¹⁰¹

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.¹⁰²

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.¹⁰³ 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

¹⁰⁰ New Policy Guidelines and Delegations Order Relating to Regulation of Imported Natural Gas, 49 Fed. Reg. 6684 (Feb. 22, 1984) [hereinafter 1984 Policy Guidelines].

¹⁰¹ *Id.* at 6685.

¹⁰² *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)).

¹⁰³ *See id.* at 13 and n.45.

Administrator [of the Economic Regulatory Administration] finds in the circumstances of a particular case to be appropriate.”¹⁰⁴

Although DOE Delegation Order No. 0204-111 is no longer in effect, DOE’s review of export applications has continued to focus on: (i) the domestic need for the natural gas proposed to be exported, (ii) whether the proposed exports pose a threat to the security of domestic natural gas supplies, (iii) whether the arrangement is consistent with DOE’s policy of promoting market competition, and (iv) any other factors bearing on the public interest, as determined by DOE.

IV. DESCRIPTION OF REQUEST

A. Description of Applicant

Port Arthur LNG is a Delaware limited liability company with its principal place of business in Houston, Texas. Port Arthur LNG is a wholly-owned, indirect subsidiary of Sempra Energy, a California corporation.¹⁰⁵

B. Proposed Liquefaction Facility

Port Arthur LNG states that the Project will be located in Port Arthur, Texas, on a site previously approved by FERC for use as a LNG import and re-gasification terminal.¹⁰⁶ The Project site is located within a 2,842-acre parcel of land owned in fee by Port Arthur LNG’s affiliate, Port Arthur LNG Holdings, LLC (Port Arthur Holdings), which is also a wholly-owned,

¹⁰⁴ 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)).

¹⁰⁵ Amendment at 2.

¹⁰⁶ App. at 2-3 & n.4.

indirect subsidiary of Sempra Energy.¹⁰⁷ Port Arthur LNG states that it intends to lease or purchase the Project site from Port Arthur Holdings.¹⁰⁸

The Project, as approved by FERC, will include feed gas pre-treatment facilities, two natural gas liquefaction trains, three 160,000 cubic meter LNG storage tanks, marine facilities for vessel berthing and loading, refrigerant make-up and condensate product storage, truck loading and unloading areas, and equipment for self-generation of electrical power.¹⁰⁹ Each of the natural gas liquefaction trains will be capable of producing up to 6.73 mtpa of LNG for export, for a total capacity of approximately 13.5 mtpa of LNG.¹¹⁰ The anticipated facilities will permit natural gas to be received by pipeline at the Project, and to be processed, liquefied, stored, and loaded from the LNG storage tanks into LNG vessels berthed at the marine facilities.¹¹¹

C. Proposed Pipeline

Port Arthur LNG states that Port Arthur Pipeline, LLC (Port Arthur Pipeline) will construct, own, and operate new natural gas pipeline facilities that will connect the Project to numerous interstate and intrastate pipelines.¹¹² Port Arthur Pipeline is an affiliate of Port Arthur LNG and a wholly-owned, indirect subsidiary of Sempra Energy.¹¹³

D. Source of Natural Gas

Port Arthur LNG states that, through the Project's pipeline interconnections, the Project will have access to the national natural gas supply and pipeline system.¹¹⁴ Port Arthur LNG further states that the Project will have access to major natural gas supply basins throughout the

¹⁰⁷ *Id.* at 2-3.

¹⁰⁸ *Id.* at 3.

¹⁰⁹ FERC Order at ¶ 8, *see also* App. at 5.

¹¹⁰ FERC Order at ¶ 8, *see also* Amendment at 4-5.

¹¹¹ App. at 5.

¹¹² *Id.* at 8.

¹¹³ *Id.*

¹¹⁴ *Id.*

United States, including the vast supplies available in the Gulf Coast and Appalachian regions.¹¹⁵ According to Port Arthur LNG, unconventional supply areas—including the Barnett, Haynesville, Eagle Ford, Fayetteville and Woodford shale gas formations—also represent attractive sources of supply for the Project.¹¹⁶

Port Arthur LNG asserts that the Project will access these diverse supply sources from numerous intrastate and interstate natural gas pipelines and natural gas storage facilities in close proximity to the Project. Port Arthur LNG states that 12 major natural gas market centers are located in Louisiana and Texas, which will enable the Project to enter into a wide and geographically diverse range of natural gas supply arrangements.¹¹⁷

E. Business Model

Port Arthur LNG requests authority to export LNG on its own behalf and as agent for other entities that will hold title to the LNG at the time of export. Port Arthur LNG states that, to date, it has not yet entered into agreements for the use of, or the sale of LNG produced by, the Project facilities.¹¹⁸ Port Arthur LNG states that it will file all long-term, binding contracts associated with the export of LNG from its Project, once executed.¹¹⁹

Port Arthur LNG states that it will comply with all DOE/FE requirements for exporters and agents. Port Arthur LNG further states that, when acting as agent, it will register with DOE/FE each LNG title holder for which it seeks to export LNG as agent, and will comply with other registration requirements as set forth in prior DOE/FE orders.¹²⁰

¹¹⁵ *Id.* at 7-8

¹¹⁶ *Id.* at 8-9.

¹¹⁷ App. at 10-11.

¹¹⁸ *Id.* at 6.

¹¹⁹ *Id.*; *see also* Amendment at 6.

¹²⁰ App. at 6; *see also* Amendment at 6.

V. APPLICANT'S PUBLIC INTEREST ANALYSIS

A. Overview

Port Arthur LNG asserts that the requested authorization satisfies the standards used by DOE/FE in determining whether to grant a non-FTA export authorization under NGA section 3(a).¹²¹ In support of this position, Port Arthur LNG addresses the following factors: (i) domestic need for the natural gas to be exported; (ii) local, regional, and national economic benefits; (iii) international impacts; and (iv) environmental benefits.

We note that Port Arthur LNG addresses these factors in both its Application and Amendment.¹²² Where possible, we refer to the most updated information provided by Port Arthur LNG in the Amendment. Additionally, Port Arthur LNG commissioned ICF International to prepare a report, and a subsequent update, to assess the economic effects of the Project.¹²³ Port Arthur LNG submitted the 2015 ICF Report with its Application, and the 2016 ICF Report with its Amendment.¹²⁴ Below, we refer to Port Arthur LNG's citations to the 2016 ICF Report.

B. Domestic Need for the Natural Gas to be Exported

Port Arthur LNG maintains that there are more than sufficient natural gas resources to accommodate both domestic demand and the exports proposed in the Application and Amendment throughout the 20-year term of the requested authorization.¹²⁵

¹²¹ App. at 14.

¹²² See *id.* at 12-26; see also Amendment at 6-22.

¹²³ Amendment at 5.

¹²⁴ See ICF International, *Economic Impacts of the Port Arthur Liquefaction Project: Information for DOE Non-FTA Permit Application* (June 5, 2015) (Appendix A to the App.) [hereinafter 2015 ICF Report]; see also ICF International, *Economic Impacts of the Port Arthur Liquefaction Project: Information for DOE Non-FTA Permit Application* (Nov. 11, 2016) (Appendix C to the Amendment) [hereinafter 2016 ICF Report].

¹²⁵ Amendment at 9.

1. Domestic Natural Gas Supply

Port Arthur LNG states that both natural gas supply historical data released by EIA and EIA's estimates of future natural gas resources demonstrate that natural gas supplies are ample and will increase.¹²⁶

Citing AEO 2018, Port Arthur LNG asserts that estimates of recoverable natural gas resources increased by approximately 715 trillion cubic feet (Tcf) (41%) between 2007 and 2016.¹²⁷ Port Arthur LNG further states that natural gas production over the 2017-2020 period is projected to grow at 6% a year, greater than the 4% per year average growth rate from 2005 to 2015.¹²⁸ According to Port Arthur LNG, this growth trend is expected to continue over the next several decades.¹²⁹ For example, Port Arthur LNG states that total U.S. dry natural gas production will grow to 42.98 Tcf by 2050, with a 1.4% annual growth rate between 2016 and 2050.¹³⁰

Port Arthur LNG further notes that estimates of shale gas production through 2035 in AEO 2018 show a significant increase, as compared to AEO 2015. For example, projections of shale gas production in 2030 rose from 17.85 Tcf to 26.87 Tcf, and in 2035 from 18.85 Tcf to 28.24 Tcf.¹³¹

Next, Port Arthur LNG points to the 2016 ICF Report in discussing the increase in the overall volume of U.S. natural gas resources.¹³² According to Port Arthur LNG, ICF estimated that 944 Tcf of the total resource base could be economically developed with natural gas prices

¹²⁶ See App. at 11 n.34 (citations omitted).

¹²⁷ Amendment at 9 n.24.

¹²⁸ *Id.* at 10 n.29 (citing AEO 2018 at 62).

¹²⁹ *Id.* at 10.

¹³⁰ *Id.* at 10-11 n.31 (citing AEO 2018 at Table 13).

¹³¹ *Id.* at 11 n.33.

¹³² Amendment at 11.

at \$5.00 per MMBtu using today’s technology.¹³³ Port Arthur LNG states that this estimate of 944 Tcf is “conservative” since it assumes no future improvements or cost reductions in drilling and completion technology.¹³⁴ However, extrapolating advances in drilling and completion technologies into the future, the 2015 ICF Report projects that the volume of natural gas in the lower-48 states that will be economic to produce at \$5.00 per MMBtu will grow to 1,452 Tcf by 2040.¹³⁵ The 2016 ICF Report updates this projection to 1,465 Tcf by 2043.¹³⁶

2. Domestic Natural Gas Demand

Port Arthur LNG asserts that, while natural gas demand is anticipated to grow, the growth in demand will continue to be outpaced by available supply. Citing 2018 AEO data, Port Arthur LNG states that natural gas demand in 2017 was only 16% higher than in 2000.¹³⁷ Port Arthur LNG points out that, in AEO 2018, EIA estimated long-term annual U.S. demand growth of 0.8%, with demand expected to reach 34.48 Tcf in 2050.¹³⁸ During the same time period, total U.S. dry gas production is projected to grow at a 1.4% annual rate with dry gas production estimated to reach 42.98 Tcf in 2050, as compared to 26.94 Tcf in 2016.¹³⁹

The 2016 ICF Report projects that, under the ICF Base Case (which assumes no exports from the Project), U.S. and Canadian natural gas consumption will exceed 50 Tcf in 2040.¹⁴⁰ Port Arthur LNG contends that, despite the projected growth in domestic demand through the

¹³³ *Id.*

¹³⁴ *Id.* at 11-12.

¹³⁵ App. at 17; Amendment at 11.

¹³⁶ Amendment at 12.

¹³⁷ *Id.* n.38 (citing U.S. Energy Info. Admin., *U.S. Natural Gas Total Consumption* (Sept. 28, 2018), <https://www.eia.gov/dnav/ng/hist/n9140us2a.htm>).

¹³⁸ *Id.* n.39 (citing AEO 2018 at Table 13).

¹³⁹ *Id.* n.40 (citing AEO 2018 at Table 14).

¹⁴⁰ Amendment at 13 (citing 2016 ICF Report at 25).

forecast period of 2040, U.S. natural gas resources will be “wholly adequate to satisfy domestic demand as well as the added demand of LNG exports from the Project.”¹⁴¹

3. Impact on Domestic Natural Gas Prices

Port Arthur LNG points to DOE’s economic studies, including the 2018 LNG Export Study, in asserting that LNG exports will not result in adverse economic outcomes for U.S. consumers. Port Arthur LNG cites DOE/FE’s conclusions in the 2018 Study (discussed *supra*) in stating that higher levels of exports will lead to higher levels of GDP and consumer welfare (expressed in dollar terms).¹⁴²

Turning to the 2016 ICF Report, Port Arthur LNG states that “ICF found that the price increases due to additional LNG exports produced by Port Arthur LNG will be minimal.”¹⁴³ Port Arthur LNG asserts that the cost of natural gas production will fall due to an increasing percentage of total natural gas production from unconventional sources and the relatively low cost of production from those sources.¹⁴⁴ Additionally, the 2016 ICF Report projects that, by 2040, the Henry Hub natural gas price attributable to Port Arthur LNG will increase from an estimated 2040 price of \$5.88/MMBtu (with some LNG exports, but not the Project) to a 2040 price with the Project of \$5.99/MMBtu—a difference of \$0.11/MMBtu.¹⁴⁵

C. Local, Regional, and National Economic Benefits

Port Arthur LNG asserts that the Project will stimulate local, regional, and national economies through direct, indirect, and induced job creation, increased economic activity, and tax revenues. The 2016 ICF Report projects the creation of an average of nearly 41,000 jobs for

¹⁴¹ *Id.*

¹⁴² *Id.* at 17-18 (citing 2018 LNG Export Study)

¹⁴³ *Id.* at 18.

¹⁴⁴ Amendment at 18-19.

¹⁴⁵ *Id.* at 19.

the U.S. economy annually from 2019 through 2043, plus approximately 5,700 jobs annually in Texas over the same forecast period.¹⁴⁶

Port Arthur LNG further asserts that LNG exports from the Project will increase both state and federal tax revenues. The 2016 ICF Report estimates that total Texas government revenues will increase by \$240 million annually through 2043 with the Project. This equates to a cumulative increase in Texas government revenues of approximately \$6 billion.¹⁴⁷ During the same time period, the 2016 ICF Report estimates that LNG exports from the Project will increase collective government revenues by \$3.9 billion annually, for a cumulative impact of \$102 billion over the 2019-2043 forecast period.¹⁴⁸

Additionally, Port Arthur LNG asserts that the Project will make a significant contribution to the national economy. According to the 2016 ICF Report, the additional LNG volumes exported from the Project could add \$11 billion to the U.S. economy annually from 2019 through 2043, resulting in a cumulative contribution of \$287 billion (including the value of associated natural gas liquids and multiplier effects).¹⁴⁹ In Texas alone, the Project is expected to add \$1.9 billion to the economy annually and \$46.3 billion cumulatively through 2043.¹⁵⁰

D. International Impacts

Port Arthur LNG states that its proposed exports will help to improve the United States' balance of trade deficit. Port Arthur LNG points to the 2016 ICF Report, which projects a cumulative value for LNG exports from the Project of \$137 billion between 2019 and 2043.¹⁵¹

¹⁴⁶ *Id.*

¹⁴⁷ *Id.* at 20.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ Amendment at 20.

¹⁵¹ *Id.* at 21.

According to Port Arthur LNG, this corresponds to an annual reduction in the U.S. trade deficit of \$5.3 billion for the same time period.¹⁵²

Port Arthur LNG also states that its proposed exports will help to diversify global energy resources which, in turn, will promote the geopolitical security interests of the United States. In particular, Port Arthur LNG contends that exports of U.S. LNG will foster increased liquidity in the global natural gas market. Port Arthur LNG asserts that, by introducing additional market-based price structures, the Project will help to reduce premiums charged to economies that do not currently have sufficient energy supply alternatives and thus reduce natural gas price volatility around the world.¹⁵³

E. Environmental Benefits

Port Arthur LNG maintains that LNG exports can have significant environmental benefits because natural gas is cleaner burning than other fossil fuels. Port Arthur LNG further asserts that an increased supply of natural gas through LNG exports will help other nations reduce their consumption of coal in electric generation as a means of improving local air quality conditions. According to Port Arthur LNG, the proposed exports can help the United States secure its position as a leader in the move toward more diverse fuel supplies.¹⁵⁴

VI. FERC PROCEEDING

A. FERC's Pre-Filing Procedures

Authorizations issued by FERC permitting the siting, construction, and operation of LNG export terminals are reviewed under NGA section 3(a) and (e), 15 U.S.C. § 717b(a), (e). FERC's approval process for such an application consists of a mandatory pre-filing process during which

¹⁵² *Id.*

¹⁵³ *Id.* at 21-22.

¹⁵⁴ *Id.* at 22.

the environmental review required by NEPA commences,¹⁵⁵ and a formal application process that starts no sooner than 180 days after issuance of a notice that the pre-filing process has commenced.¹⁵⁶

On March 31, 2015, FERC began its pre-filing review of the Port Arthur LNG Project.¹⁵⁷ FERC established pre-filing Docket No. PF15-18-000 to place information related to the Project into the public record.¹⁵⁸ On June 24, 2015, FERC issued a Notice of Intent to Prepare an Environmental Impact Statement for the proposed Project.¹⁵⁹ DOE participated as a cooperating agency in FERC's environmental review.¹⁶⁰

B. FERC's Environmental Review

On November 29, 2016, Port Arthur LNG and its affiliate, PALNG Common Facilities Company, LLC, filed an application with FERC under NGA section 3 to site, construct, and operate the Project.¹⁶¹ FERC assigned Docket No. CP17-20-000 to Port Arthur LNG's proposal.

In compliance with NEPA, FERC staff issued a Notice of Availability of a Draft Environmental Impact Statement on September 28, 2018, and placed the draft EIS into the public

¹⁵⁵ 18 C.F.R. § 157.21.

¹⁵⁶ *Id.* § 157.21(a)(2)(i-ii).

¹⁵⁷ *Port Arthur LNG, LLC & Port Arthur LNG Pipeline Company, LLC*, Approval of Pre-Filing Requests, FERC Docket Nos. PF15-18-000 and 15-19-000 (Mar. 31, 2015).

¹⁵⁸ *See id.*

¹⁵⁹ *Port Arthur LNG, LLC & Port Arthur LNG Pipeline Company, LLC*, Notice of Intent to Prepare an Environmental Impact Statement for the Planned Port Arthur Liquefaction Project and Port Arthur Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings, FERC Docket Nos. PF15-18-000 and 15-19-000 (Jun. 24, 2015).

¹⁶⁰ FERC Order at ¶ 99.

¹⁶¹ *Port Arthur LNG, LLC and PALNG Common Facilities Company, LLC*, Application of Port Arthur LNG, LLC and PALNG Common Facilities Company, LLC for Authorization under Section 3 of the Natural Gas Act, FERC Docket No. CP17-20-000 (Nov. 29, 2016).

record.¹⁶² On January 31, 2019, FERC staff issued the final EIS for the Project.¹⁶³ The final EIS responded to comments received on the draft EIS, and addressed numerous potential impacts of the Project, including (but not limited to) wetlands, geological conditions, water resources, air quality, and cumulative impacts.¹⁶⁴

Based on its environmental analysis, FERC staff concluded “that, if constructed and operated in accordance with applicable laws and regulations, PALNG’s [Port Arthur LNG] and PAPL’s [Port Arthur Pipeline, LLC] proposed mitigation, and our recommendations presented in section 5.2 of the EIS, the Projects would result in some adverse environmental impact; however, those impacts would not be significant.”¹⁶⁵ The final EIS further stated that most of those impacts would be temporary or short-term during construction and operation. FERC staff developed 131 site-specific environmental mitigation measures in the final EIS, which it recommended that FERC attach as conditions to any authorization of the Project.¹⁶⁶

C. FERC’s Order Granting Authorization

On April 18, 2019, FERC issued its Order authorizing Port Arthur LNG to site, construct, and operate the Project with a liquefaction capacity of up to approximately 13.5 mtpa of LNG.¹⁶⁷ FERC also authorized Port Arthur Pipeline, LLC to construct and operate the associated pipelines.¹⁶⁸

¹⁶² Federal Energy Regulatory Comm’n, Notice of Availability of the Draft Environmental Impact Statement for the Proposed Port Arthur Liquefaction Project, Texas Connector Project, and Louisiana Connector Project, Docket Nos. CP17-20-000, *et al.*, 83 Fed. Reg. 50,656 (Sep. 28, 2018).

¹⁶³ Federal Energy Regulatory Comm’n, Notice of Availability of the Final Environmental Impact Statement for the Proposed Port Arthur Liquefaction Project, Texas Connector Project, and Louisiana Connector Project, Docket Nos. CP17-20-000, *et al.*, 84 Fed. Reg. 2,221 (Jan. 31, 2019); *see also* note 30 (link to final EIS).

¹⁶⁴ FERC Order at ¶ 101; Final EIS at ES-5.

¹⁶⁵ Final EIS at ES-10.

¹⁶⁶ *Id.* at 5-27 to 5-46 (list of mitigation measures).

¹⁶⁷ FERC Order at ¶ 29.

¹⁶⁸ *Id.* at ¶ 36.

In granting the authorization, FERC found “the final Environmental Impact Statement (EIS) prepared for the proposed projects finds that most of the direct environmental impacts of the proposed facilities are expected to be minor.”¹⁶⁹ FERC further found that “[a]ll adverse impacts from construction and operation of the facilities will be reduced to less than significant levels if the projects are constructed and operated in accordance with applicable laws and regulation and the environmental mitigation measures recommended in the final EIS and adopted by this order.”¹⁷⁰ Although the final EIS recommended 131 environmental conditions, the FERC Order identified 130 conditions because FERC combined two of the conditions from the final EIS into a single condition.¹⁷¹

On this basis, FERC found that Port Arthur LNG’s proposal is not inconsistent with the public interest pursuant to NGA section 3 and that Port Arthur Pipeline’s associated pipeline facilities (the Texas and Louisiana Connector Projects) are in the public convenience and necessity pursuant to NGA section 7(c).¹⁷²

FERC reviewed and addressed the major environmental issues addressed in the final EIS.¹⁷³ In addressing greenhouse gas emissions (GHG), for example, FERC pointed to the final EIS’s estimate that operation of the Port Arthur LNG Project and the related pipelines may result in emissions of up to 4,722,648 metric tons per year of carbon dioxide equivalent (CO₂e).¹⁷⁴ FERC further stated that the “direct and indirect operational emissions of the LNG terminal

¹⁶⁹ *Id.* at ¶ 26.

¹⁷⁰ *Id.* (citing final EIS at ES-9).

¹⁷¹ Compare final EIS at 5-33 (identifying conditions number 25 and 26) to Appendix A of the FERC Order (condition number 25).

¹⁷² FERC Order at ¶¶ 29, 30, 142.

¹⁷³ See generally *id.* at ¶¶ 99 through 143.

¹⁷⁴ *Id.* at ¶ 137 (citing final EIS at Tables 4.11.1-7).

could potentially increase CO₂e emissions based on the 2016 levels by approximately 0.08% at the national level.”¹⁷⁵

On the basis of these estimates, FERC acknowledged the finding in the final EIS that “the quantified GHG emissions from the construction and operation of the project will contribute incrementally to climate change.”¹⁷⁶ However, FERC stated that it “has previously concluded it could not determine a project’s incremental physical impacts on the environment caused by GHG emissions,” and “has also previously concluded it could not determine whether a project’s contribution to climate change would be significant.”¹⁷⁷

Additionally, FERC determined that the “final EIS concludes that the project’s contribution to cumulative impacts on resources affected by the projects would not be significant, and that the potential cumulative impacts of the projects and the other projects considered would be minor or insignificant.”¹⁷⁸ Based on the discussion in the final EIS, FERC found that the cumulative impacts of the Project would not be significant.¹⁷⁹

In sum, FERC agreed with “the conclusions presented in the final EIS” and found that the Project, “if constructed and operated as described in the final EIS, is an environmentally acceptable action.”¹⁸⁰

VII. CURRENT PROCEEDING BEFORE DOE/FE

DOE/FE received three filings in response to the Notice of Application, and one filing in response to the Notice of Amendment.

¹⁷⁵ *Id.* (citing EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016 (2018)).

¹⁷⁶ *Id.* at ¶ 138 (citing final EIS at 4-360 to 4-362).

¹⁷⁷ *Id.* (citations omitted).

¹⁷⁸ FERC Order at ¶ 139 (citing final EIS at 4-324 and 5-25).

¹⁷⁹ *Id.* (citing final EIS at 5-25 and ES-9).

¹⁸⁰ *Id.* at ¶ 142.

A. Non-Intervenor Comments Opposing Application

Jean Public and Curtis Morrison each filed comments opposing the Application. Ms. Public opposes selling U.S. natural gas to foreign entities solely to enrich “fat cat” corporations.¹⁸¹ She urges DOE to keep natural gas in the United States for domestic use. Ms. Public also opposes hydraulic fracturing as a means of extracting natural gas, citing concerns with pollution and increased seismicity.¹⁸²

Mr. Morrison argues that Port Arthur LNG’s proposed exports will promote and facilitate the consumption of fossil fuel, which he contends will “violate[] the rights of future generations to a safe and stable atmosphere, guaranteed under the public trust doctrine.”¹⁸³

B. Motion to Intervene of the American Petroleum Institute

On October 26, 2015, API filed a motion to intervene in response to the Notice of Application.¹⁸⁴ API states that it is a national trade association representing more than 625 member companies involved in all aspects of the oil and natural gas industry in the United States, including owners and operators of LNG import and export facilities in the United States and around the world, as well as owners and operators of LNG vessels, global LNG traders, and manufacturers of essential technology and equipment used in the LNG value chain. API further states that its members have extensive experience with the drilling and completion techniques used in producing domestic natural gas resources. For these reasons, API states that it has a direct and immediate interest in these proceedings that cannot be adequately protected by any other party.¹⁸⁵

¹⁸¹ Comments of Jean Public, FE Docket No. 15-96-LNG (Aug. 26, 2015).

¹⁸² *Id.*

¹⁸³ Comments of Curtis Morrison, FE Docket No. 15-96-LNG (Aug. 31, 2015).

¹⁸⁴ American Petroleum Inst., Motion to Intervene, FE Docket No. 15-96-LNG (Oct. 26, 2015).

¹⁸⁵ *See id.* at 2.

C. Motion to Intervene, Protest, and Comment of the Industrial Consumers of America

IECA did not submit a filing in response to the Notice of Application. However, on April 11, 2019, IECA submitted a “Notice of Intervention, Protest and Comments” in response to the Notice of Amendment.¹⁸⁶ IECA does not directly address the Amendment, but instead challenges the Application and DOE/FE’s approval of LNG exports generally on several procedural and substantive grounds, which we briefly summarize below.

First, in support of its motion to intervene, IECA states that it is a nonpartisan association of leading manufacturing companies with \$1.0 trillion in annual sales and more than 1.7 million employees worldwide. IECA’s stated purpose is to promote the interests of manufacturing companies. IECA states that its membership represents a diverse set of industries including chemicals, plastics, aluminum, fertilizer, automotive, and many more.¹⁸⁷

Next, in protesting the Amendment, IECA contends that DOE/FE should not rely upon the 1984 Policy Guidelines (discussed *supra* § III) in reviewing LNG export applications.¹⁸⁸ IECA argues that the 1984 Policy Guidelines were drafted to address natural gas imports, and thus they should not be used to inform decision-making on LNG exports.¹⁸⁹ IECA contends that the NGA, on the other hand, is intended to protect the public interest by encouraging the orderly development of plentiful supplies of electricity and natural gas at reasonable prices and protecting consumers against exploitation by natural gas companies. IECA maintains these

¹⁸⁶ Industrial Energy Consumers of America, Notice of Intervention, Protest and Comment, FE Docket No. 15-96 LNG (Apr. 11, 2019) [hereinafter IECA Pleading]. Although IECA styled its Pleading to include a “Notice of Intervention,” we note that IECA is seeking to intervene under 10 C.F.R. § 590.303(b), which involves a motion to intervene. A notice of intervention is available only to state commissions, as specified in 10 C.F.R. §§ 590.303(a) and 590.102(p). Therefore, we refer to IECA’s request for intervention as a motion.

¹⁸⁷ IECA Pleading at 4.

¹⁸⁸ *Id.* at 2.

¹⁸⁹ *Id.*

statutory purposes are frustrated by LNG exports because the exports will tend to reduce domestic supplies and increase domestic prices.¹⁹⁰ IECA therefore argues that DOE should undertake a rulemaking to “define the public interest for LNG exports to [non-FTA] countries before giving consideration to this and future application[s] to export.”¹⁹¹

Additionally, in addressing the phrase “public interest,” IECA cites “The Special Counsel’s Report,” submitted by U.S. Attorney General William Barr to Congress on March 24, 2019.¹⁹² IECA states that Attorney General Barr’s use of the phrase “public interest” in that Report demonstrates that (in IECA’s words), “[t]he public interest is about people,” and “not about *net economic benefits* or *markets*.”¹⁹³ IECA asserts that DOE/FE’s interpretation and use of “public interest” is inconsistent with this meaning.¹⁹⁴

Second, IECA claims that only natural gas producers and the exporters of natural gas will benefit from LNG exports. By comparison, according to IECA, “everyone else in the economy [will be] losers”—and will face significantly higher natural gas prices, wage decreases, capital investment decreases, especially in manufacturing, and reduced indirect economic income.¹⁹⁵

In particular, IECA states that DOE approval of LNG export volumes will connect low U.S. natural gas prices (\$3.00 MMBtu) to high global LNG prices (Asia \$12.00 MMBtu)—which will drive up prices for U.S. consumers.¹⁹⁶ IECA points to increased U.S. crude oil prices, which it states are connected to the global market price.¹⁹⁷ IECA asserts that, “[i]f global crude

¹⁹⁰ *Id.* at 2-3.

¹⁹¹ *Id.* at 7.

¹⁹² IECA Pleading at 5, 1.

¹⁹³ *Id.* at 5 (emphasis in original).

¹⁹⁴ *Id.*

¹⁹⁵ *Id.* at 1; *see also id.* at 5-7.

¹⁹⁶ *Id.* at 2; *see also id.* at 6.

¹⁹⁷ IECA Pleading at 3.

oil prices rise, so does U.S. gasoline prices.”¹⁹⁸ IECA maintains that “[t]he same will happen to natural gas.”¹⁹⁹

IECA also charges that natural gas consumers in Australia currently pay higher prices for natural gas (specifically, the “Asian LNG net back price” as opposed to Australian domestic consumer prices) as a result of exporting Australian LNG.²⁰⁰ According to IECA, “the 2018 LNG Export Study “confirms that market determined U.S. LNG prices will connect U.S. prices to higher global LNG prices.”²⁰¹

Third, IECA argues that DOE’s LNG export studies, including the 2018 LNG Export Study, “lack integrity and cannot be trusted because they use proprietary economic models that are not reproducible,” allegedly in violation of the Data Quality Act.²⁰² According to IECA, “[o]ne can only assume that this was done so that no one can challenge the findings.”²⁰³

Fourth, IECA maintains that DOE has not addressed several short and long-term risks to consumers and the economy that bear on the public interest.²⁰⁴ These alleged risks include, for example, “existing and future limitations in natural gas pipeline and storage infrastructure capacity and maximum deliverability capacity”²⁰⁵ According to IECA, the 2018 LNG Export Study (and DOE’s prior economic studies) wrongly assume that pipeline and storage capacity will be adequate to support both peak domestic demand and exports of LNG. IECA asserts that capacity constraints on natural gas pipelines already exist, and the ability to build out

¹⁹⁸ *Id.*

¹⁹⁹ *Id.*

²⁰⁰ *Id.* at 6.

²⁰¹ *Id.* at 7.

²⁰² *Id.* at 3.

²⁰³ IECA Pleading at 3.

²⁰⁴ *Id.* at 2, 7-9.

²⁰⁵ *Id.* at 3.

new capacity is threatened by legal and public opposition.²⁰⁶ IECA also argues, among other points, that DOE has failed to consider:

- Price impacts to U.S. natural gas due to state-owned enterprises or government-controlled utilities purchasing U.S. LNG in the greatest volume during peak demand periods in the United States without regard to price (due to automatic cost pass-through provisions);²⁰⁷
- The “uncertain” nature of technically recoverable resources—which IECA asserts may not be economical to produce and warns that “caution is warranted”;²⁰⁸
- Future political decisions, especially by new presidential administrations, that may limit acreage available for drilling or impose regulations to control drilling processes, thus increasing the cost of natural gas production;²⁰⁹
- The fact (according to IECA) that “the majority” of natural gas producers do not have a positive cash flow business, which allegedly means that their businesses are not sustainable long-term without raising the price at which natural gas is sold;²¹⁰ and
- The fact (according to IECA) that the use of U.S. infrastructure by “foreign consumers” of U.S. LNG will increase costs of U.S. natural gas.²¹¹

D. Port Arthur LNG’s Answer

In its Answer responding to IECA’s Pleading, Port Arthur LNG contends that IECA’s arguments are untimely, fail to set out IECA’s interests in a clear and concise manner, are not properly limited to the Amendment, mischaracterize the public interest standard, and contain incorrect, unsupported factual statements.²¹²

²⁰⁶ *Id.*

²⁰⁷ *Id.* at 2, 8.

²⁰⁸ IECA Pleading at 9.

²⁰⁹ *Id.*

²¹⁰ *Id.*

²¹¹ *Id.*

²¹² *See generally*, Port Arthur LNG Answer.

1. Procedural Arguments

Opposing IECA's motion to intervene, Port Arthur states that IECA fails to explain its interest in this proceeding and to set out the facts on which its claim of interest is based.²¹³

Port Arthur LNG further argues that IECA's Pleading is not properly limited to the Amendment and thus is a late-filed protest of the Application without good cause.²¹⁴ Port Arthur LNG cites the Notice of Amendment, which states: "Because the public previously was given the opportunity to intervene in, protest, and comment on Port Arthur LNG's pending application, DOE/FE may disregard comments or protest that do not bear directly on the Amendment—specifically, Port Arthur LNG's proposed increase of its requested non-FTA export volume."²¹⁵ Port Arthur LNG contends, however, that IECA does not directly address this Amendment, and instead challenges Port Arthur LNG's Application generally. According to Port Arthur LNG, "IECA is using the DOE/FE's Notice of Amendment as a backdoor attempt to attack [Port Arthur LNG's] Non-FTA Application rather than limiting its protest and comments to the Design Increase [*i.e.*, the Amendment]."²¹⁶ Port Arthur LNG therefore argues that DOE/FE should not grant IECA's intervention insofar as it relates to the Application, not solely to the Amendment.²¹⁷

Additionally, Port Arthur LNG argues that IECA's Pleading does not provide any factual information or legal arguments relating to the subject of the Amendment to which it is responding—the 181 Bcf/yr design increase. For this reason, Port Arthur LNG urges DOE/FE to reject IECA's protest and to disregard its comments.²¹⁸

²¹³ *Id.* at 3 (citing 10 C.F.R. § 590.303(b)).

²¹⁴ *Id.* at 3-5.

²¹⁵ *Id.* at 4-5 (citing 84 Fed. Reg. at 10,809).

²¹⁶ *Id.* at 3.

²¹⁷ Port Arthur LNG Answer at 4.

²¹⁸ *Id.* at 4-5.

2. Substantive Arguments

Port Arthur LNG argues that IECA mischaracterizes the public interest standard and fails to meet its statutory burden under NGA section 3(a). Port Arthur LNG asserts that, under NGA section 3(a), “the burden is on IECA to make an affirmative showing that the exports are inconsistent with the public interest,” and that Port Arthur LNG fails to meet this burden.²¹⁹

Port Arthur LNG quotes NGA section 3(a) to reiterate that the public interest standard requires a presumption that exports are in the public interest. Addressing IECA’s reference to the Special Counsel’s Report submitted to Congress by U.S. Attorney General William Barr, Port Arthur LNG argues that a “bare citation to a statement from the head of another agency with no bearing whatever on the regulatory issues in this proceeding . . . ignore[s] the basic tenet that DOE must be accorded deference when it is interpreting a statute it is charged with administering.”²²⁰

Next, Port Arthur LNG contends that IECA’s challenge to the Amendment consists of inaccurate, unsupported statements that should be rejected because they do not add to the record of this proceeding. Port Arthur LNG points to IECA’s claim that the only entities that will benefit from the export of LNG are producers and exporters of LNG. Port Arthur LNG contrasts this claim with the 2018 LNG Export Study, which found that increased LNG exports will have only a negligible effect on the growth rate in the chemicals, iron and steel, and other energy-intensive sectors. Port Arthur LNG claims that DOE/FE has already dismissed IECA’s similar arguments in other proceedings including IECA’s comments on the 2018 Study.²²¹ In addition, Port Arthur LNG challenges IECA’s assertion that increased exports will result in a link between

²¹⁹ *Id.* at 6.

²²⁰ *Id.* at 6-7 (citing *Chevron, U.S.A., Inc. v. NRDC*, 467 U.S. 837 (1984)).

²²¹ Port Arthur Answer at 8 (citing IECA Pleading at 5; 2018 LNG Export Study at 70).

the U.S. and international natural gas prices. Port Arthur LNG states that DOE has consistently dismissed this claim explaining that, “[w]hile exports to a market where higher prices may prevail may yield a price advantage to the exporter or seller in that international market, IECA ... [has] not explained why or how the export activity would cause the international price to be adopted within the well-supplied domestic natural gas market.”²²²

Finally, Port Arthur LNG challenges IECA’s remaining “laundry list” of arguments on topics from pipeline and storage capacity to the cash flow of natural gas producers. Port Arthur LNG argues that these arguments are factually unsupported, irrelevant, or outside the scope of this proceeding (and, specifically, that none relate directly to the Amendment).²²³

VIII. DISCUSSION AND CONCLUSIONS

As indicated above, Port Arthur LNG’s Application is uncontested, but the Amendment is contested. In reviewing both, 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:

- The Application and Amendment, the comments opposing the Application, and IECA’s filing opposing the Amendment;
- FERC’s final EIS and April 18, 2019 Order, including the 130 environmental conditions adopted in that Order;
- The Draft Addendum, comments received in response to the Draft Addendum, and the final Addendum;
- The LCA GHG Report (and the supporting NETL document), including comments submitted in response to those documents; and
- The 2018 LNG Export Study, including comments received in response to that Study.

²²² *Id.* at 9 (citing *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 2961, FE Docket No. 10-111-LNG, Opinion and Order Conditionally Granting Long-Term Authorization to Export Liquefied Natural Gas from Sabine Pass LNG Terminal to Non-Free Trade Agreement Nations, at 34 (May 20, 2011)).

²²³ See Port Arthur LNG Answer at 11-13.

A. Motions to Intervene

API's motion to intervene in response to the Notice of Application was granted by operation of law under 10 C.F.R. § 590.303(g), when Port Arthur LNG did not oppose or otherwise answer the motion.²²⁴

Additionally, we find good cause to grant the motion to intervene submitted by IECA in response to the Notice of Amendment. Port Arthur LNG filed an Answer opposing the motion on the basis that (among other reasons) IECA failed to demonstrate an interest in this proceeding, failed to tailor its arguments to the Amendment, and failed to provide affirmative evidence to show the economic impact of authorizing the proposed exports.

However, we find that the evidence presented in this proceeding, as well as in the 2018 LNG Export Study, indicate that the economic consequences of granting the Application and Amendment could be far-reaching and could affect the interests of IECA and its members. In addition, IECA raises issues that are relevant to the public interest. Port Arthur LNG was afforded an opportunity to respond to IECA's motion pursuant to 10 C.F.R. § 590.304(f), and did so. Accordingly, we will grant IECA's motion.²²⁵

B. Non-Environmental Issues

1. Public Interest Standard

NGA section 3(a) requires DOE to consider whether a proposed export of natural gas will be "consistent with the public interest."²²⁶ IECA asserts that DOE/FE may not rely on the 1984 Policy Guidelines in evaluating the public interest in this proceeding, as those Guidelines were

²²⁴ See *infra* § XI (Ordering Para. Q).

²²⁵ See *infra* § XI.R.

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

promulgated for natural gas imports rather than exports.²²⁷ IECA further contends that Congress was “referring to cumulative LNG export volumes” in the NGA section 3(a) public interest standard, “not incremental volumes.”²²⁸ Additionally, IECA states that DOE/FE must conduct a rulemaking to “define the public interest” under NGA section 3(a).²²⁹

We disagree with IECA’s arguments regarding the public interest standard in NGA section 3(a) and DOE/FE’s 1984 Policy Guidelines. We begin by noting that, in *Sierra Club I*, the D.C. Circuit observed that “Congress enacted the Natural Gas Act with the ‘principal purpose’ of ‘encourag[ing] the orderly development of plentiful supplies of . . . natural gas at reasonable prices.’”²³⁰ The Court also made clear that the public interest standard in NGA section 3(a) contains a general presumption in favor of exports.²³¹ Further, we understand that a public interest standard in a statute is an “instrument for the exercise of discretion by the expert body which Congress has charged to carry out its legislative policy.”²³²

In dozens of LNG export proceedings to date, DOE/FE has reasonably exercised this discretion by considering a range of relevant factors in evaluating the public interest. DOE’s review of an application to export U.S. LNG has generally focused on: (i) the domestic need for the natural gas proposed to be exported, (ii) whether the proposed exports pose a threat to the security of domestic natural gas supplies, (iii) whether the arrangement is consistent with DOE’s policy of promoting market competition, and (iv) any other factors bearing on the public interest,

²²⁷ IECA Pleading at 4.

²²⁸ *Id.*

²²⁹ *Id.* at 7.

²³⁰ *Sierra Club I*, 867 F3d. at 202 (quoting *NAACP v. Fed. Power Comm’n*, 425 U.S. 662, 669-70 (1976)) (acknowledging other “subsidiary purposes”).

²³¹ *Id.* at 203 (citations omitted).

²³² *See, e.g., Federal Comm. Comm’n v. WNCN Listeners Guild, et al.*, 450 U.S. 582, 593 (1981) (quoting *Federal Comm. Comm’n v. Pottsville Broadcasting Co.*, 309 U.S. 134, 308 (1940)).

as determined by DOE.²³³ Contrary to IECA’s comments, DOE/FE previously determined that the goals of the 1984 Policy Guidelines—to minimize federal control and involvement in energy markets and to promote a balanced and mixed energy resource system—apply to exports of natural gas, as well as to imports.²³⁴ Additionally, although we disagree with IECA’s statement as to Congress’s intent in NGA section 3(a),²³⁵ we note that DOE/FE does, in fact, consider both the cumulative export volumes approved to date *and* the incremental volume requested in each long-term export proceeding.²³⁶ In *Sierra Club I* and *II*, the D.C. Circuit upheld DOE/FE’s decision-making on the basis of this statutory and regulatory framework.²³⁷

IECA does not acknowledge the numerous issues and potential impacts that DOE/FE considers in LNG export proceedings under NGA section 3(a).²³⁸ The 2018 LNG Export Study (like DOE’s prior economic studies) is one essential part of that analysis. EIA’s most recent projections on natural gas supply and demand are another. Although IECA expresses its disagreement with DOE/FE’s analysis of the public interest, it neither acknowledges the *Sierra Club I* and *II* precedent, nor explains why DOE/FE’s analysis of the public interest in this proceeding should be different than DOE/FE’s analysis upheld in those 2017 decisions.

Accordingly, we reject IECA’s argument that DOE/FE should not rely on the 1984 Policy Guidelines—and DOE/FE’s long-standing regulatory framework—in reviewing LNG export applications, including Port Arthur LNG’s Application. Moreover, because Congress has

²³³ See *supra* § III.

²³⁴ See *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; see also *supra* § III.

²³⁵ IECA Pleading at 4.

²³⁶ See *infra* § VIII.E.

²³⁷ See *Sierra Club I*, 867 F3d. at 193-94, 202-03; *Sierra Club II*, 703 Fed. Appx. 1, at *2-3.

²³⁸ Relevant to IECA’s arguments, for example, the 2018 Study determined that chemical industry subsectors of the economy that rely heavily on natural gas for energy and as a feedstock will continue to exhibit robust growth even at higher LNG export levels, and that this growth is only insignificantly slower than cases with lower LNG export levels. See 2018 Study Response to Comments, 83 Fed. Reg. at 67,259. However, IECA does not address (or dispute) these findings.

entrusted DOE/FE to reasonably exercise its discretion in reviewing the public interest, we also reject IECA's contention that DOE/FE needs to undertake a rulemaking to "define" the public interest.

Next, IECA argues that DOE/FE "has not addressed vital short and long-term risks to consumers and the economy that are core issues in considering whether an LNG export application is consistent with the public interest."²³⁹ IECA identifies several such "risks" and contends that DOE/FE "has failed to consider" them in evaluating the public interest under NGA section 3(a).²⁴⁰ This proceeding, however, is not an open-ended rulemaking on the possible factors or policies to be considered by DOE/FE as part of its LNG export program—regardless of IECA's desire for such an outcome. Rather, DOE/FE is adjudicating Port Arthur LNG's Application and Amendment under the well-established framework described above.

For example, IECA asserts that consumers of U.S. LNG are principally "foreign-controlled" entities that have the ability to buy LNG from the U.S. at any price—even during peak winter demand.²⁴¹ According to IECA, this indicates that the global LNG market is "not a free market," and therefore it is "prudent" of DOE/FE and in the public interest "to limit exports of LNG."²⁴² Likewise, IECA urges that "[c]aution is warranted" by DOE/FE because technically recoverable resources may be "uncertain."²⁴³ IECA also warns that the decisions of a new Presidential administration could change the political landscape and affect aspects of natural gas production.²⁴⁴ These sentiments are not only speculative, but advisory. They demonstrate that IECA is attempting to counsel DOE/FE on IECA's own concerns and policy preferences, rather

²³⁹ IECA Pleading at 7.

²⁴⁰ *Id.* at 7-9.

²⁴¹ *Id.* at 9.

²⁴² *Id.* at 2.

²⁴³ *Id.* at 9.

²⁴⁴ *Id.* at 6-7.

than to provide evidence to show that Port Arthur LNG's proposed exports are inconsistent with the public interest (as would be required to deny Port Arthur LNG's Application and Amendment).

In sum, we agree with Port Arthur LNG that IECA's residual arguments as to the topics for DOE/FE to consider in the public interest analysis are outside the scope of this proceeding.²⁴⁵ We further find that IECA has not shown that DOE/FE's analysis of factors in evaluating the public interest is unreasonable as applied to this proceeding.

2. Significance of the 2018 LNG Export Study

As discussed above, DOE/FE commissioned the 2018 LNG Export Study and invited public comments on the Study. DOE/FE analyzed this material in its Response to Comments published in the *Federal Register* on December 28, 2018. On the basis of the 2018 Study, DOE/FE concluded that the United States will experience net economic benefits from the issuance of authorizations to export domestically produced LNG.²⁴⁶ 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.²⁴⁷

We take administrative notice of EIA's recent authoritative projections for natural gas supply, demand, and prices, set forth in the *Annual Energy Outlook 2019* (AEO 2019), issued on January 24, 2019.²⁴⁸ DOE/FE has assessed AEO 2019 to evaluate any differences from AEO

²⁴⁵ IECA also argues (at 7-9) that certain issues—such as pipeline and storage infrastructure capacity and the “cash flow business” status of natural gas producers—were not considered in DOE's economic studies, such as the 2018 LNG Export Study. In addition to those allegations being outside the scope of this proceeding, we note that IECA failed to raise those arguments in its comments submitted on the 2018 LNG Export Study proceeding, where such comments would have been properly evaluated.

²⁴⁶ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,272; see also *supra* § II.A.3.

²⁴⁷ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

²⁴⁸ U.S. Energy Info. Admin., *Annual Energy Outlook 2019* (Jan. 24, 2019), available at: <https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf>.

2017, which formed the basis for the 2018 LNG Export Study. The Reference case for AEO 2017 includes the effects of the Clean Power Plan (CPP) final rule, which was intended to reduce GHG emissions from the power sector.²⁴⁹ AEO 2017 also included a Reference case without implementation of the CPP. Both AEO 2017 Reference cases show natural gas production levels that favor exports, but that also have lower net LNG exports in 2050 (12.0 Bcf/d for the Reference case with the CPP and 12.5 Bcf/d for the Reference case without the CPP), compared with AEO 2019 that shows net LNG exports of 13.8 Bcf/d in 2050. As discussed below, AEO 2019—which does not include the CPP in its Reference case—is even more supportive of exports than both Reference cases for AEO 2017.

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

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

²⁴⁹ U.S. Env’tl. Prot. Agency, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule, 80 Fed. Reg. 64,662 (Oct. 23, 2015). On February 9, 2016, the U.S. Supreme Court issued a stay of the effectiveness of the CPP final rule pending review by the D.C. Circuit in consolidated cases challenging the rule. *See Chamber of Commerce, et al. v. EPA, et al.*, No. 15A787, Order in Pending Case (U.S. Feb. 9, 2016). The litigation over the CPP final rule pending in the D.C. Circuit has been held in abeyance as the U.S. Environmental Protection Agency (EPA) reviews the CPP and considers an alternative regulatory approach. *See West Virginia, et al. v. EPA, et al.*, Case Nos. 15-1363 *et al.*, Per Curiam Order (D.C. Cir. Apr. 5, 2019); *see also West Virginia, et al. v. EPA, et al.*, Case Nos. 15-1363 *et al.*, EPA Status Report, at 2-3 (D.C. Cir. Mar. 11, 2019) (describing status of EPA’s rulemaking activities).

3. Port Arthur LNG's Application and Amendment

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

First, Port Arthur LNG points to DOE's 2018 LNG Export Studies (and prior economic studies), as well as older third-party studies, 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, based on more recent projections and analyses. Specifically, we find that the 2018 LNG Export Study and AEO 2019 continue to project robust domestic supply conditions that are more than adequate to satisfy both domestic needs and exports of LNG, including those proposed in the Application and Amendment.²⁵⁰ We, therefore, reject IECA's claim that forecasted demand for natural gas, including the demand related to the proposed export of LNG, will outstrip new resources.

Second, the 2018 LNG Export Study indicates that exports of LNG will generate net economic benefits to the broader U.S. economy.²⁵¹ 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.²⁵² Therefore, we reject IECA's contention that the net economic benefits projected in DOE/FE's 2018 LNG Export Study (and in its prior economic studies) will be limited to producers and exporters of natural gas. We likewise reject IECA's argument that the proposed exports likely will have a negative impact on the U.S. economy by substantially increasing the price of natural gas (discussed below)²⁵³ and

²⁵⁰ See, e.g., 2018 Study Response to Comments, 83 Fed. Reg. at 67,262.

²⁵¹ *Id.*

²⁵² See 2018 Study Response to Comments, 83 Fed. Reg. at 67,268-69 (citing 2018 LNG Export Study at 67, 70).

²⁵³ IECA Pleading at 1-5.

causing leading manufacturers to lose the competitive advantage of relatively low natural gas prices, leading to serious long-term implications for the manufacturing sector and associated jobs and investment.²⁵⁴

Third, in response to IECA's concerns about the costs of LNG exports falling on American citizens such that U.S. consumers will be "damaged" by the export of LNG,²⁵⁵ we note that in the *Sierra Club II* case, the D.C. Circuit rejected Sierra Club's argument that DOE "erred by failing to consider distributional impacts" when evaluating the public interest under NGA section 3(a).²⁵⁶ The Court upheld DOE/FE's conclusion that "given that exports will benefit the economy as a whole and absent stronger record evidence on the distributional consequences, [DOE/FE] could not say that ... exports were inconsistent with the public interest on these grounds."²⁵⁷ On this basis, the Court held that DOE/FE had "adequately addressed" concerns regarding distributional impacts.²⁵⁸ Likewise, in this proceeding, IECA has not provided a quantitative analysis of the distributional consequences of authorizing LNG exports at the household level. Given the evidence of broad net macroeconomic benefits and absent stronger record evidence on the alleged distributional consequences, we cannot say that increased LNG exports are inconsistent with the public interest on these grounds.

Fourth, over the 20-year term of the authorization, the proposed exports will improve the United States' ties with its trading partners and make a positive contribution to the United States' trade balance. Other benefits of this international trade are discussed below. For these reasons,

²⁵⁴ *Id.* at 5.

²⁵⁵ *Id.* at 1.

²⁵⁶ See *Sierra Club II*, 703 Fed. Appx. at *3 (discussed *supra* § II.C).

²⁵⁷ *Id.* (internal quotations omitted and alteration in original).

²⁵⁸ *Id.*

we agree with Port Arthur LNG that its proposed exports are consistent with the interests of the United States.²⁵⁹

On review, DOE/FE finds that the record evidence showing that the proposed exports will be in the public interest outweighs IECA's concerns. DOE/FE has considered and rejected IECA's economic arguments in earlier proceedings based on the 2012, 2014, and 2015 LNG Export Studies and, more recently, in the 2018 LNG Export Study proceeding. The 2018 Study showed, for example, that "[o]verall GDP improves as LNG exports increase for all scenarios with the same U.S. natural gas supply conditions."²⁶⁰ The 2018 Study also showed that energy intensive industries will continue to grow robustly even at higher levels of LNG exports, albeit at slightly lower rates of increase than they would at lower levels.²⁶¹

Accordingly, based on the 2018 Study and the more recent data in AEO 2019, DOE/FE finds that the market will be capable of sustaining the level of exports requested in Port Arthur LNG's Amendment (698 Bcf/yr) over the authorization term without negative economic impacts, including domestic price impacts (discussed below).

4. Price Impacts

IECA alleges that higher volumes of LNG exports, including Port Arthur LNG's proposed exports, will lead to large increases in domestic prices of natural gas.²⁶² We disagree. As discussed above, the 2018 LNG Export Study projects the economic impacts of LNG exports in a range of scenarios, including scenarios that exceed the current amount of LNG exports authorized in the final non-FTA export authorizations to date (equivalent to a total of 32.27 Bcf/d

²⁵⁹ App. at 12-14.

²⁶⁰ 2018 Study Response to Comments, 83 Fed. Reg. at 67,259.

²⁶¹ *Id.*

²⁶² IECA Pleading at 2, 5-8.

of natural gas with the issuance of today’s orders). 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.”²⁶³

We further note IECA’s assertion, without citation, that the 2018 LNG Export Study “confirms that market determined U.S. LNG exports will connect U.S. prices to higher global LNG prices.”²⁶⁴ This is an inaccurate characterization of the 2018 Study. IECA and other commenters raised this issue in the 2018 LNG Export Study proceeding, and DOE/FE examined it thoroughly—concluding that “the 2018 Study shows that U.S. natural gas prices *will not* rise to the same levels as global natural gas prices as a result of increased LNG exports.”²⁶⁵ DOE/FE added that “[t]his result is consistent with the 2015 Study’s analysis of the linkages between U.S. and global natural gas prices, as DOE/FE previously discussed.”²⁶⁶

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

²⁶³ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,258 (citing 2018 LNG Export Study at 55).

²⁶⁴ IECA Pleading at 7.

²⁶⁵ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,268 (emphasis added).

²⁶⁶ *Id.*

the Reference case with the CPP and 17% for the Reference case without the CPP. Table 1 below shows these comparisons:

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

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

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

For these reasons, and as explained in DOE/FE's Response to Comments on the 2018 Study, we find that arguments concerning domestic price increases are not supported by the record evidence.²⁶⁷

5. Benefits of International Trade

We have not limited our review to the 2018 LNG Export Study and data from AEO 2019, but have considered the international consequences of our decision. The United States is committed to free trade because an efficient, transparent international market for natural gas with diverse sources of supply provides both economic and strategic benefits to the United States and its 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 the United States' key trading partners. To the extent U.S. exports can diversify global LNG supplies and increase the volumes of LNG available globally, these exports will improve energy security for many U.S. allies and trading partners. As such, we agree with Port Arthur LNG that authorizing its exports may advance the public interest for reasons that are distinct from and additional to the economic benefits identified in the 2018 LNG Export Study.

C. Environmental Issues

In reviewing the potential environmental impacts of Port Arthur LNG'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.

²⁶⁷ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,267-69 (§ VI.G) (DOE/FE's response to comments on natural gas price impacts). Additionally, we note that IECA has made no attempt to explain how Port Arthur LNG's increased export volume requested in the Amendment (a difference of 181 Bcf/yr) could produce the harms it asserts—including increased prices of natural gas.

1. Adoption of FERC's Final EIS

DOE/FE participated in FERC's environmental review of the proposed Project as a cooperating agency. Because DOE was a cooperating agency, DOE/FE is permitted to adopt without recirculating the final EIS, provided that DOE/FE has conducted an independent review of the final EIS and determines that its comments and suggestions have been satisfied.²⁶⁸ For the reasons set forth below, DOE/FE has not found that the arguments raised in the FERC proceeding, the current proceeding, or the 2018 LNG Export Study proceeding detract from the reasoning and conclusions contained in the final EIS. Accordingly, DOE has adopted the final EIS (DOE/EIS-0517) (see *supra* § I), and hereby incorporates the reasoning contained in the final EIS in this Order. Additionally, in the Appendix to this Order, DOE/FE is issuing the Record of Decision (ROD) under NEPA for the proposed Project.

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.²⁶⁹ Nevertheless, a decision by DOE/FE to authorize exports to non-FTA nations could accelerate that development by some increment. As discussed above, the Addendum reviewed the academic and technical literature covering the most significant issues associated with unconventional gas production, including impacts to water resources, air quality, greenhouse gas emissions, induced seismicity, and land use.

The Addendum shows that there are potential environmental issues associated with unconventional natural gas production that need to be carefully managed, especially with respect

²⁶⁸ See 40 C.F.R. § 1506.3(c).

²⁶⁹ Addendum at 2.

to emissions of volatile organic compounds and methane, and the potential for groundwater contamination. These environmental concerns do not lead us to conclude, however, that exports of natural gas to non-FTA nations should be prohibited. Rather, we believe the public interest is better served by addressing these environmental concerns directly—through federal, state, or local regulation, or through self-imposed industry guidelines where appropriate—rather than by prohibiting exports of natural gas. Unlike DOE, environmental regulators have the legal authority to impose requirements on natural gas production that appropriately balance benefits and burdens, and to update these regulations from time to time as technological practices and scientific understanding evolve.

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 environmental issues.

For these reasons, we conclude that the environmental concerns associated with natural gas production do not establish that exports of natural gas to non-FTA nations are inconsistent with the public interest. We note that the D.C. Circuit in *Sierra Club I* rejected Sierra Club’s arguments on this basis, and we find that the Court’s conclusions and reasoning control in this proceeding.²⁷⁰

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

²⁷⁰ 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.

studies) expressed concern that exports of natural gas could have a negative effect on the GHG intensity and total amount of energy consumed in foreign nations.

The LCA GHG Report estimated the life cycle GHG emissions of U.S. LNG exports to Europe and Asia, compared with certain other fuels used to produce electric power in those importing countries.²⁷¹ The key findings for U.S. LNG exports to Europe and Asia are summarized in Figures 1 and 2 below:

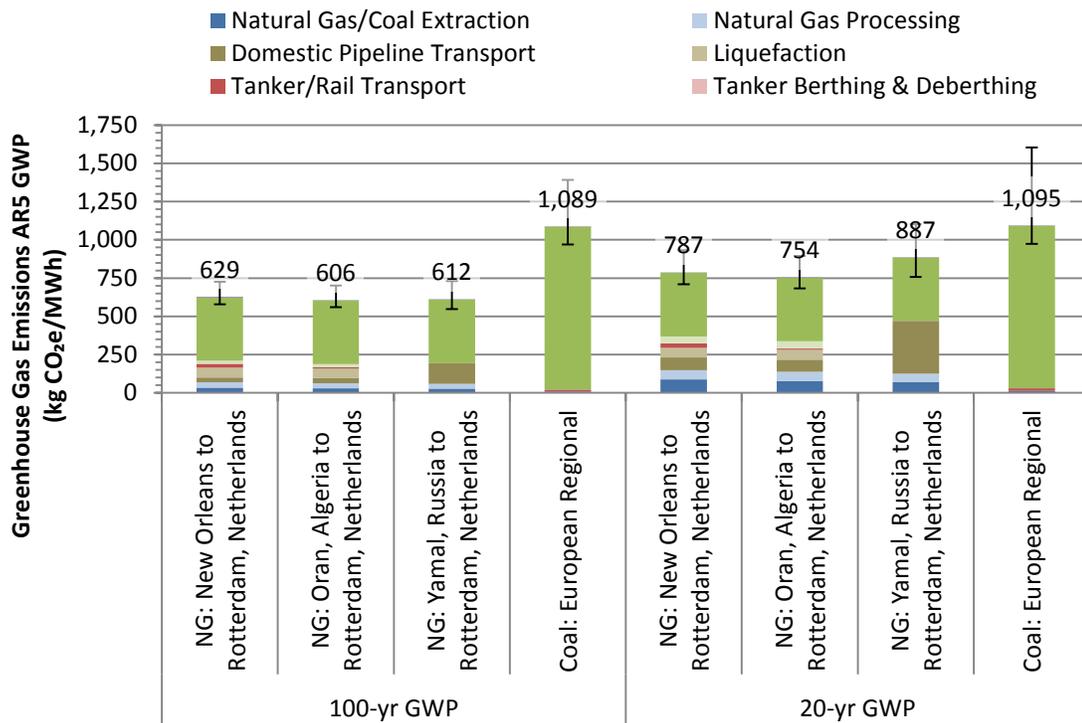


Figure 1: Life Cycle GHG Emissions for Natural Gas and Coal Power in Europe²⁷²

²⁷¹ See *supra* § II.B.

²⁷² LCA GHG Report at 9 (Figure 6-1).

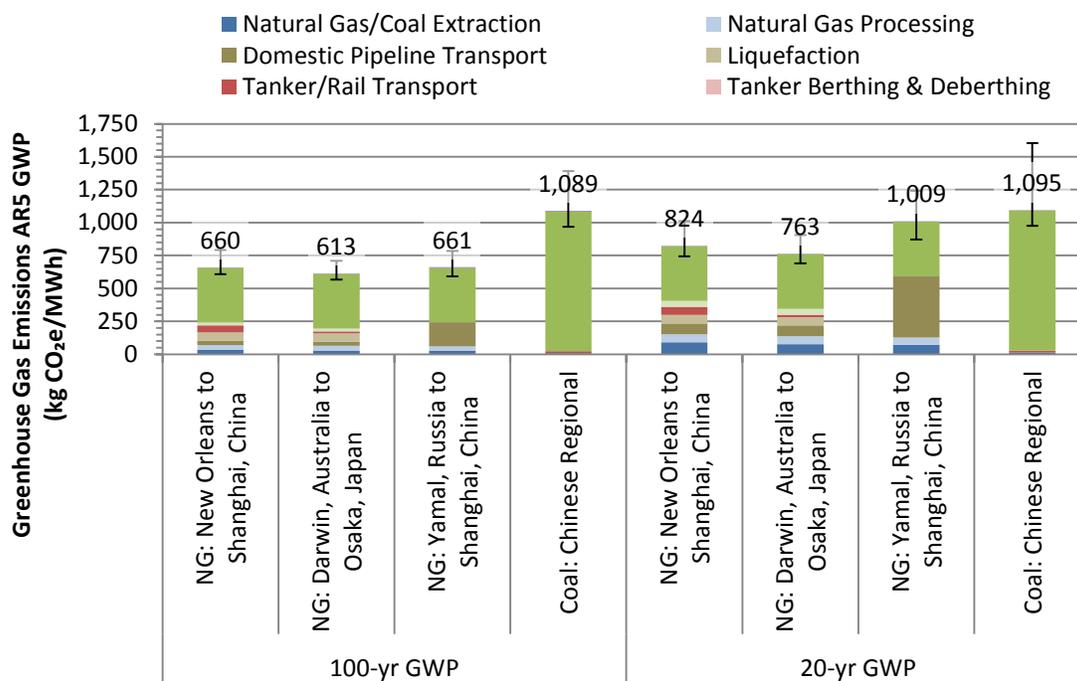


Figure 2: Life Cycle GHG Emissions for Natural Gas and Coal Power in Asia²⁷³

While acknowledging substantial uncertainty, the LCA GHG Report shows that to the extent U.S. LNG exports are preferred over coal in LNG-importing nations, U.S. LNG exports are likely to reduce global GHG emissions. Further, to the extent U.S. LNG exports are preferred over other forms of imported natural gas, they are likely to have only a small impact on global GHG emissions.²⁷⁴

The LCA GHG Report does not answer the ultimate question whether authorizing exports of natural gas to non-FTA nations will increase or decrease global GHG emissions, because regional coal and imported natural gas are not the *only* fuels with which U.S.-exported LNG would compete. U.S. LNG exports may also compete with renewable energy, nuclear energy, petroleum-based liquid fuels, coal imported from outside East Asia or Western Europe, indigenous natural gas, synthetic natural gas derived from coal, and other resources, as well as

²⁷³ LCA GHG Report at 10 (Figure 6-2).

²⁷⁴ *Id.* at 9, 18.

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

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

Finally, we note that, in *Sierra Club I*, the D.C. Circuit ruled in DOE's favor on the argument that DOE/FE should have evaluated additional variables in the LCA GHG Report, such as the potential for LNG to compete with renewable energy sources in certain import markets. The D.C. Circuit rejected Sierra Club's argument, saying it fell "under the category of flyspecking" and that the Court "[saw] nothing arbitrary about the Department's decision."²⁷⁵ We find that the Court's conclusions and reasoning control in this proceeding, and we therefore decline to address them further.

²⁷⁵ *Sierra Club I*, 867 F.3d at 202 (internal quotations and citation omitted).

D. Other Considerations

The conclusion of the 2018 LNG Export Study is that the United States will experience net economic benefits from the export of domestically produced LNG. Nonetheless, our decision in this Order is not premised on an uncritical acceptance of that Study. Certain public comments received on the 2018 Study identify significant uncertainties and even potential negative impacts from LNG exports. The economic impacts of higher natural gas prices and potential increases in natural gas price volatility are two of the factors that we view most seriously. Yet we also have taken into account factors that could mitigate these impacts, such as the current oversupply and data indicating that the natural gas industry would increase natural gas supply in response to increasing exports. Further, we note that it is far from certain that all or even most of the proposed LNG export projects will ever be realized because of the time, difficulty, and expense of commercializing, financing, and constructing LNG export terminals, as well as the uncertainties inherent in the global market demand for LNG.

More generally, DOE/FE continues to subscribe to the principle set forth in our 1984 Policy Guidelines²⁷⁶ 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.²⁷⁷ Given

²⁷⁶ 1984 Policy Guidelines, 49 Fed. Reg. 6684.

²⁷⁷ Some commenters previously asked DOE to clarify the circumstances under which the agency would exercise its authority to revoke (in whole or in part) previously issued LNG export authorizations. In past orders, 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.

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

E. 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 Port Arthur LNG's proposed exports will be inconsistent with the public interest. We further find that IECA—the intervenor-protestor challenging the Amendment—has failed to overcome the statutory presumption that the proposed export authorization is in 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. With the issuance of this Order and the other non-FTA authorization being issued today for Driftwood LNG LLC, there are currently 34 final non-FTA authorizations in a cumulative volume of exports totaling 32.27 Bcf/d of natural gas, or approximately 11.8 Tcf/yr, as follows: Sabine Pass Liquefaction, LLC (2.2 Bcf/d),²⁷⁸ Carib Energy (USA) LLC (0.04 Bcf/d),²⁷⁹ Cameron LNG, LLC (1.7 Bcf/d),²⁸⁰ FLEX I (1.4 Bcf/d),²⁸¹ FLEX II (0.4 Bcf/d),²⁸² Dominion Cove Point LNG, LP (0.77

²⁷⁸ *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).

²⁷⁹ *Carib Energy (USA) LLC*, DOE/FE Order No. 3487, FE Docket No. 11-141-LNG, Final Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers by Vessel to Non-Free Trade Agreement Nations in Central America, South America, or the Caribbean (Sept. 10, 2014).

²⁸⁰ *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).

²⁸¹ *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).

²⁸² *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).

Bcf/d),²⁸³ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),²⁸⁴ Sabine Pass Liquefaction, LLC Expansion Project (1.38 Bcf/d),²⁸⁵ American Marketing LLC (0.008 Bcf/d),²⁸⁶ Emera CNG, LLC (0.008 Bcf/d),²⁸⁷ Floridian Natural Gas Storage Company, LLC,²⁸⁸ Air Flow North American Corp. (0.002 Bcf/d),²⁸⁹ Bear Head LNG Corporation and Bear Head LNG (USA), LLC (0.81 Bcf/d),²⁹⁰ Pieridae Energy (USA) Ltd.,²⁹¹ Sabine Pass Liquefaction,

²⁸³ *Dominion Cove Point LNG, LP*, DOE/FE Order No. 3331-A, FE Docket No. 11-128-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas from the Cove Point LNG Terminal in Calvert County, Maryland, to Non-Free Trade Agreement Nations (May 7, 2015).

²⁸⁴ *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).

²⁸⁵ *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).

²⁸⁶ *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).

²⁸⁷ *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).

²⁸⁸ *Floridian Natural Gas Storage Co., LLC*, DOE/FE Order No. 3744, FE Docket No. 15-38-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers Loaded at the Proposed Floridian Facility in Martin County, Florida, and Exported by Vessel to Non-Free Trade Agreement Nations (Nov. 25, 2015).

²⁸⁹ *Air Flow North American Corp.*, DOE/FE Order No. 3753, FE Docket No. 15-206-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers Loaded at the Clean Energy Fuels Corp. LNG Production Facility in Willis, Texas, and Exported by Vessel to Non-Free Trade Agreement Nations in Central America, South America, the Caribbean, or Africa (Dec. 4, 2015).

²⁹⁰ *Bear Head LNG Corporation and Bear Head LNG (USA)*, DOE/FE Order No. 3770, FE Docket No. 15-33-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export U.S.-Sourced Natural Gas by Pipeline to Canada for Liquefaction and Re-Export in the Form of Liquefied Natural Gas to Non-Free Trade Agreement Countries (Feb. 5, 2016).

²⁹¹ *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).

LLC Design Increase (0.56 Bcf/d),²⁹² Cameron LNG, LLC Design Increase (0.42 Bcf/d),²⁹³ Cameron LNG, LLC Expansion Project (1.41 Bcf/d),²⁹⁴ Lake Charles Exports, LLC (2.0 Bcf/d),²⁹⁵ Lake Charles LNG Export Company, LLC,²⁹⁶ Carib Energy (USA), LLC (0.004),²⁹⁷ Magnolia LNG, LLC (1.08 Bcf/d),²⁹⁸ Southern LNG Company, L.L.C. (0.36 Bcf/d),²⁹⁹ the FLEX Design Increase (0.34 Bcf/d),³⁰⁰ Golden Pass Products LLC (2.21 Bcf/d),³⁰¹ Delfin LNG LLC (1.8 Bcf/d),³⁰² the Lake Charles LNG Export Company, LLC Design Increase (0.33 Bcf/d),³⁰³ the

²⁹² *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).

²⁹³ *Cameron LNG, LLC*, DOE/FE Order No. 3797, FE Docket No. 15-167-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Cameron Terminal Located in Cameron and Calcasieu Parishes, Louisiana, to Non-Free Trade Agreement Nations (Mar. 18, 2016).

²⁹⁴ *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).

²⁹⁵ *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).

²⁹⁶ *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).

²⁹⁷ *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).

²⁹⁸ *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).

²⁹⁹ *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).

³⁰⁰ *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).

³⁰¹ *Golden Pass Products LLC*, DOE/FE Order No. 3978, FE Docket No. 12-156-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Golden Pass LNG Terminal Located in Jefferson County, Texas, to Non-Free Trade Agreement Nations (Apr. 25, 2017).

³⁰² *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).

³⁰³ *Lake Charles LNG Export Co., LLC*, DOE/FE Order No. 4010, FE Docket No. 16-109-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Lake Charles Terminal in Calcasieu Parish, Louisiana, to Non-Free Trade Agreement Nations (June 29, 2017).

Lake Charles Exports, LLC Design Increase,³⁰⁴ Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),³⁰⁵ Mexico Pacific Limited LLC (1.7 Bcf/d),³⁰⁶ Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),³⁰⁷ Energía Costa Azul, S. de R.L. de C.V. (Mid-Scale Project) (0.44 Bcf/d),³⁰⁸ Energía Costa Azul, S. de R.L. de C.V. (Large-Scale Project) (1.3 Bcf/d),³⁰⁹ Driftwood LNG LLC (3.88 Bcf/d),³¹⁰ and this Order.

On February 5, 2019, DOE/FE vacated a non-FTA authorization previously issued to Flint Hills Resources, LP, in a volume of 0.01 Bcf/d, at the company's request.³¹¹ Additionally, we note that the volumes authorized for export in the *Lake Charles Exports* and *Lake Charles LNG Export* orders are both 2.0 Bcf/d and 0.33 Bcf/d, respectively, yet are not additive to one another because the source of LNG approved under all of those orders is the Lake Charles Terminal. Likewise, the *Carib* and *Floridian* orders are both 14.6 Bcf/yr of natural gas (0.04

³⁰⁴ *Lake Charles Exports, LLC*, DOE/FE Order No. 4011, FE Docket No. 16-110-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Lake Charles Terminal in Calcasieu Parish, Louisiana, to Non-Free Trade Agreement Nations (June 29, 2017).

³⁰⁵ *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).

³⁰⁶ 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).

³⁰⁷ *Venture Global Calcasieu Pass, LLC*, DOE/FE Order No. 4346, FE Docket Nos. 13-69-LNG, 14-88-LNG, 15-25-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (March 5, 2019).

³⁰⁸ *Energía Costa Azul, S. de R.L. de C.V.*, DOE/FE Order No. 4364, FE Docket No. 18-144-LNG, Opinion and Order Granting Long-Term Authorization to Re-Export U.S.-Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Non-Free Trade Agreement Countries (ECA Mid-Scale Project) (Mar. 29, 2019).

³⁰⁹ *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).

³¹⁰ *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).

³¹¹ *Flint Hills Resources, LP*, DOE/FE Order Nos. 3809-A and 3829-A, FE Docket No. 15-168-LNG, Order Granting Request to Vacate Long-Term, Multi-Contract Authorizations to Export LNG to Free Trade Agreement Nations and to Non-Free Trade Agreement Nations (Feb. 5, 2019) (vacating, in relevant part, DOE/FE Order No. 3829 authorizing the export of 0.01 Bcf/d of natural gas to non-FTA countries).

Bcf/d), yet are not additive to one another because the source of LNG approved under both orders is from the Floridian Facility.³¹² 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.³¹³

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.³¹⁴

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,

³¹² See *Floridian Natural Gas Storage Co., LLC*, DOE/FE Order No. 3744, at 22 (stating that the quantity of LNG authorized for export by Floridian in DOE/FE Order No. 3744 “will be reduced by the portion of the total approved volume of 14.6 Bcf/yr that is under firm contract directly or indirectly to Carib Energy (USA), LLC”); see also *id.* at 21 (Floridian “may not treat the volumes authorized for export in the [*Carib* and *Floridian*] proceedings as additive to one another.”).

³¹³ 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.”).

³¹⁴ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (citing 2018 LNG Export Study at 63 & Appendix F).

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.

IX. FINDINGS

On the basis of the findings and conclusions set forth above, DOE/FE grants Port Arthur LNG's Application and Amendment in FE Docket No. 15-96-LNG, subject to the Terms and Conditions and Ordering Paragraphs set forth below.

X. TERMS AND CONDITIONS

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

A. Term of the Authorization

Port Arthur LNG requests a 20-year term for the authorization. In imposing this condition, we are mindful that LNG export facilities are capital intensive and that, to obtain financing for such projects, there must be a reasonable expectation that the authorization will continue for a term sufficient to support repayment. We find that a 20-year term is likely sufficient to achieve this result. Accordingly, the 20-year term will begin on the date when Port Arthur LNG commences commercial export of domestically sourced LNG from the Project, but not before.

B. Commencement of Operations

Port Arthur LNG requests that this authorization commence on the earlier of the date of first export or seven years from the date of the issuance of this Order. Consistent with our final

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

C. Commissioning Volumes

Port Arthur LNG will be permitted to apply for short-term export authorizations to export Commissioning Volumes prior to the commencement of the first commercial export of domestically sourced LNG from the Project. “Commissioning Volumes” are defined as the volume of LNG produced and exported under a short-term authorization during the initial start-up of each LNG train, before each LNG train has reached its full steady-state capacity and begun its commercial exports pursuant to Port Arthur LNG’s long-term contracts.³¹⁵ The Commissioning Volumes will not be counted against the maximum level of volumes previously authorized in Port Arthur LNG’s FTA authorization or in this Order.

D. Make-Up Period

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

The Make-Up Period does not affect or modify the total volume of LNG previously authorized in Port Arthur LNG’s FTA authorization or in this Order. Insofar as Port Arthur LNG

³¹⁵ For additional discussion of Commissioning Volumes and the Make-Up Period referenced below, *see Freeport LNG Expansion, L.P., et al.*, DOE/FE Order Nos. 3282-B & 3357-A, FE Docket Nos. 10-161-LNG & 11-161-LNG, Order Amending DOE/FE Order Nos. 3282 and 3357, at 4-9 (June 6, 2014).

may seek to export additional volumes not previously authorized for export, it will be required to obtain appropriate authorization from DOE/FE.

E. Transfer, Assignment, or Change in Control

DOE/FE's natural gas regulations prohibit authorization holders from transferring or assigning authorizations to import or export natural gas without specific authorization by the Assistant Secretary for Fossil Energy.³¹⁶ DOE/FE has found that this requirement applies to any change in 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.³¹⁷ 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.³¹⁸

F. Agency Rights

Port Arthur LNG requests authorization to export LNG on its own behalf and as agent for other entities that hold title to the LNG at the time of export, pursuant to long-term contracts.

DOE/FE previously has determined that, in LNG export orders in which Agency Rights have

³¹⁶ 10 C.F.R. § 590.405.

³¹⁷ 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).

³¹⁸ See *id.*

been granted, DOE/FE shall require registration materials filed for, or by, an LNG title-holder (Registrant) to include the same company identification information and long-term contract information of the Registrant as if the Registrant had filed an application to export LNG on its own behalf.³¹⁹

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

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

DOE/FE will require that Port Arthur LNG file or cause to be filed with DOE/FE any relevant long-term commercial agreements, including liquefaction tolling agreements, pursuant to which Port Arthur LNG 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).³²⁰

In addition, DOE/FE finds that section 590.202(c) of DOE/FE’s regulations³²¹ requires that Port Arthur LNG file, or cause to be filed, all long-term contracts associated with the long-

³¹⁹ 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).

³²⁰ 10 C.F.R. § 590.202(b).

³²¹ *Id.* § 590.202(c).

term supply of natural gas to the Project, whether signed by Port Arthur LNG or the Registrant, within 30 days of their execution.

DOE/FE recognizes that some information in Port Arthur LNG's or a Registrant's long-term commercial agreements associated with the export of LNG, and/or long-term contracts associated with the long-term supply of natural gas to the Project, may be commercially sensitive. DOE/FE therefore will provide Port Arthur LNG the option to file or cause to be filed either unredacted contracts, or in the alternative (A) Port Arthur LNG 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.³²²

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

H. Export Quantity

This Order grants Port Arthur LNG's Application and Amendment in the full volume requested for a total volume of 698 Bcf/yr of natural gas.

³²² *Id.* § 590.202(e) (allowing confidential treatment of information in accordance with 10 C.F.R. § 1001.471).

I. Combined FTA and Non-FTA Export Authorization Volumes

The volume of LNG authorized for export in Port Arthur LNG's FTA authorization (DOE/FE Order No. 3698-A) and this Order reflect the planned liquefaction capacity of the Project, as approved by FERC. Accordingly, Port Arthur LNG may not treat the FTA and non-FTA export volumes as additive to one another.

XI. ORDER

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

A. Port Arthur LNG, LLC (Port Arthur LNG) is authorized to export domestically produced LNG by vessel from the proposed Port Arthur LNG Project to be located in Port Arthur, Texas, in a volume up to the equivalent of 698 Bcf/yr of natural gas. This authorization is for a term of 20 years to commence from the date of first commercial export, but not before. Port Arthur LNG is authorized to export the LNG on its own behalf and as agent for other entities who hold title to the natural gas, pursuant to one or more long-term contracts (a contract greater than two years).

B. Port Arthur LNG may 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 volumes previously authorized in Port Arthur LNG's FTA authorization or in this Order.

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

authorization from DOE/FE.

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

E. The LNG export quantity authorized in this Order is equivalent to 698 Bcf/yr of natural gas.

F. This LNG may be exported to any country with which the United States does not have a FTA requiring national treatment for trade in natural gas, which currently has or in the future develops the capacity to import LNG, and with which trade is not prohibited by U.S. law or policy.

G. Port Arthur LNG shall ensure that all transactions authorized by this Order are permitted and lawful under U.S. laws and policies, including the rules, regulations, orders, policies, and other determinations of the Office of Foreign Assets Control of the U.S. Department of the Treasury and FERC. Failure to comply with these requirements could result in rescission of this authorization and/or other civil or criminal penalties.

H. Port Arthur LNG shall ensure compliance with all terms and conditions established by FERC, including the 130 environmental conditions adopted in the FERC Order issued on April 18, 2019. Additionally, this authorization is conditioned on Port Arthur LNG's on-going compliance with any other preventative and mitigative measures at the Project imposed by federal or state agencies.

I. (i) Port Arthur LNG 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 LNG as agent for other entities from the Project. The non-redacted

copies must be filed within 30 days of their execution and may be filed under seal, as described above.

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

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

Customer or purchaser acknowledges and agrees that it will resell or transfer LNG, purchased hereunder for delivery only to countries identified in Ordering Paragraph F of DOE/FE Order No. 4372, issued May 2, 2019, in FE Docket No. 15-96-LNG, and/or to purchasers that have agreed in writing to limit their direct or indirect resale or transfer of such natural gas or LNG to such countries. Customer or purchaser further commits to cause a report to be provided to Port Arthur LNG, LLC that identifies the country (or countries) into which the LNG was actually delivered, and to include in any resale contract for such LNG the necessary conditions to ensure that Port Arthur LNG, LLC is made aware of all such actual destination countries.

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

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

N. With respect to any change in control of the authorization holder, Port Arthur LNG must comply with DOE/FE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.³²³

O. Monthly Reports: With respect to the exports authorized by this Order, Port Arthur LNG shall file with the Office of Regulation, Analysis, and Engagement, within 30 days following the last day of each calendar month, a report on Form FE-746R indicating whether exports of LNG have been made. The first monthly report required by this Order is due not later

³²³ See 79 Fed. Reg. at 65,541-42.

than the 30th day of the month following the month of first export. In subsequent months, if exports have not occurred, a report of “no activity” for that month must be filed. If exports of LNG have occurred, the report must give the following details of each LNG cargo: (1) the name(s) of the authorized exporter registered with DOE/FE; (2) the name of the U.S. export terminal; (3) the name of the LNG tanker; (4) the date of departure from the U.S. export terminal; (5) the country (or countries) into which the LNG was actually delivered; (6) the name of the supplier/seller; (7) the volume in thousand cubic feet (Mcf); (8) the price at point of export per million British thermal units (MMBtu); (9) the duration of the supply agreement; and (10) the name(s) of the purchaser(s).

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

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

Q. The motion to intervene submitted by API was granted by operation of law.³²⁴

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

Issued in Brussels, Belgium, on May 2, 2019.



Rick Perry
U.S. Secretary of Energy

³²⁴ 10 C.F.R. § 590.303(g).

APPENDIX: RECORD OF DECISION

The Department of Energy’s Office of Fossil Energy (DOE/FE) prepared this Record of Decision (ROD) and Floodplain Statement of Findings pursuant to the National Environmental Policy Act of 1969 (NEPA),³²⁵ and in compliance with the Council on Environmental Quality (CEQ) implementing regulations for NEPA,³²⁶ DOE’s implementing procedures for NEPA,³²⁷ and DOE’s “Compliance with Floodplain and Wetland Environmental Review Requirements.”³²⁸ As discussed above, DOE/FE participated as a cooperating agency with FERC in preparing an environmental impact statement (EIS) analyzing the potential environmental impacts of Port Arthur LNG’s proposed Port Arthur Liquefaction Project (Project), Texas Connector Project, and Louisiana Connector Project. The EIS would be used to support the export authorization sought from DOE/FE.³²⁹ In accordance with 40 C.F.R. § 1506.3, DOE/FE adopted the EIS on February 8, 2019 (DOE/EIS-0517),³³⁰ and EPA published a notice of the adoption on February 15, 2019.³³¹

A. Alternatives

The EIS assessed alternative methods that could be used to achieve Port Arthur LNG’s project objectives. The range of alternatives analyzed included the No-Action Alternative, system alternatives, alternative terminal facility sites, alternative pipeline routes, and alternative

³²⁵ 42 U.S.C. § 4321 *et seq.*

³²⁶ *Id.* § 1500-08.

³²⁷ 10 C.F.R. § 1021.

³²⁸ *Id.* § 1022.

³²⁹ Federal Energy Regulatory Comm’n, Port Arthur Liquefaction Project, Texas Connector Project, and Louisiana Connector Project *Final Environmental Impact Statement*, Docket Nos. CP17-20-000, CP17-21-000, CP17-21-001, and CP18-7-000 (Jan. 31, 2019) [hereinafter EIS].

³³⁰ Letter from Amy Sweeney, DOE/FE, to Julie Roemele, U.S. EPA (February 8, 2019) (adoption of final EIS).

³³¹ U.S. Env’tl. Protection Agency, Environmental Impact Statements; Notice of Availability, 84 Fed. Reg. 4463 (Feb. 15, 2019).

above ground facility sites.³³² Alternatives were evaluated and compared to the Project to determine if the alternatives were environmentally preferable.

In analyzing the No-Action Alternative, the EIS reviewed the effects and actions that could result if the Project was not constructed. The EIS determined that, with or without the No-Action Alternative, other LNG export projects could be developed in the Gulf Coast region or elsewhere in the United States that could result in both adverse and beneficial environmental impacts.³³³ Terminal and pipeline expansions of similar scope and magnitude to the Project would likely result in environmental impacts of comparable significance, especially those projects in a similar regional setting. FERC staff concluded that the No-Action Alternative was not reasonable to meet the objectives of the Project.³³⁴

The EIS evaluated system alternatives for the Project and for the Texas and Louisiana Connector Projects by reviewing existing, modified, proposed, or planned facilities that meet the stated objectives of the Projects. Twenty-three Gulf Coast facilities met these criteria. Based on this evaluation, the EIS concluded that each of the potential alternatives lacked significant environmental advantages over the Project.³³⁵

The EIS also evaluated three terminal site alternatives. The EIS analyzed the feasibility of constructing the terminal based on a number of criteria, including access to a deep water channel, access to safety and security infrastructure, sufficient size and practicability, access to major roads and barge traffic, and availability of utilities. The EIS determined that the alternatives would have a greater impact on wetlands and/or aquatic life than the proposed site.

³³² Final EIS at 3-1 to 3-24.

³³³ *Id.* at 3-2.

³³⁴ *Id.*

³³⁵ *Id.* at 3-3 to 3-10.

In addition, the EIS determined that two of the alternative sites lacked necessary infrastructure. The EIS therefore concluded that the proposed terminal site is the preferred alternative.³³⁶

Additionally, the EIS evaluated three alternative pipeline routes considered by Port Arthur LNG. It determined that alternative routes, which would likely be longer between other points of interconnection, would not offer any environmental advantage. The EIS thus concluded that the proposed route was the preferred alternative.³³⁷

Finally, the EIS declined to consider alternative above ground facility sites for the Texas Connector and Louisiana Connector Projects. It noted that there were no significant environmental concerns associated with the proposed sites, and that the proposed site met relevant engineering and hydraulic constraints. No comments on or objections to the proposed sites were received.³³⁸

B. Environmentally Preferred Alternative

When compared against the alternatives assessed in the EIS, the Project—as modified by the mitigation measures recommended in the EIS—is the environmentally preferred alternative that can best achieve the Project’s objectives. Although the No-Action Alternative would avoid the environmental impacts identified in the EIS, the adoption of this alternative would not meet the objectives of the Project.³³⁹

C. Decision

DOE/FE has decided to issue Order No. 4372 authorizing Port Arthur LNG to export domestically produced LNG by vessel from the proposed Project to non-FTA countries in a volume equivalent to 698 Bcf/d of natural gas for a term of 20 years. DOE/FE’s decision is

³³⁶ *Id.* at 3-10 to 3-17.

³³⁷ *Id.* at 3-17 to 3-24.

³³⁸ *Id.* at 3-24.

³³⁹ *Id.* at ES-9.

based on: (i) the analysis of potential environmental impacts presented in the EIS; and (ii) DOE's determination in the Order that the opponents of Port Arthur LNG's Application and Amendment have failed to show that the proposed exports will be inconsistent with the public interest, as would be required to deny the Application and Amendment under NGA section 3(a).³⁴⁰ DOE also considered the Addendum, which summarizes available information on potential upstream impacts associated with unconventional natural gas activities, such as hydraulic fracturing.

D. Mitigation

As a condition of its decision to issue Order No. 4372, DOE/FE is imposing requirements that will avoid or minimize the environmental impacts of the Project. These conditions include the 130 environmental conditions adopted by FERC in its order authorizing the Project on April 18, 2019.³⁴¹ Mitigation measures beyond those included in DOE/FE Order No. 4372 that are enforceable by other federal and state agencies are additional conditions of DOE/FE Order No. 4372. With these conditions, DOE/FE has determined that all practicable means to avoid or minimize environmental harm from the Project have been adopted.

E. Floodplain Statement of Findings

DOE/FE prepared this Floodplain Statement of Findings in accordance with DOE's regulations, entitled "Compliance with Floodplain and Wetland Environmental Review Requirements."³⁴² The required floodplain assessment was conducted during development and

³⁴⁰ 15 U.S.C. § 717b(a).

³⁴¹ *Port Arthur LNG, LLC, et al.*, Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 167 FERC ¶ 61,052 (April 18, 2019). We note that, although the EIS recommended 131 environmental conditions, the FERC Order identified 130 conditions because FERC combined two of the conditions (numbers 25 and 26) from the EIS into a single condition (number 25).

³⁴² 10 C.F.R. § 1022.

preparation of the EIS.³⁴³ The EIS determined that portions of the Project would be located in the 100-year and 500-year flood plain with base flood elevations.³⁴⁴ While the placement of these facilities within floodplains would be unavoidable, DOE/FE has determined that the current design for the Project minimizes floodplain impacts to the extent practicable.

³⁴³ Final EIS at 4-7 to 4-9.

³⁴⁴ *Id.* at 4-9 and 4-289.