UNITED STATES OF AMERICA

DEPARTMENT OF ENERGY

OFFICE OF FOSSIL ENERGY

	)	FE DOCKET NO. 13-69-LNG
VENTURE GLOBAL CALCASIEU PASS, LLC	)	FE DOCKET NO. 14-88-LNG
	)	FE DOCKET NO. 15-25-LNG
	)	(Consolidated)

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

DOE/FE ORDER NO. 4346

MARCH 5, 2019

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FREQUENTLY USED ACRONYMS

AEO	Annual Energy Outlook
APGA	American Public Gas Association
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
NGL	Natural Gas Liquid
Tcf/yr	Trillion Cubic Feet per Year
TRR	Technically Recoverable Resources
VOC	Volatile Organic Compound

I. INTRODUCTION

Venture Global Calcasieu Pass, LLC (Calcasieu Pass) filed separate applications in 2013, 2014, and 2015 (collectively, Applications) with the Department of Energy's Office of Fossil Energy (DOE/FE) in FE Docket Nos. 13-69-LNG, 14-88-LNG, and 15-25-LNG, respectively.[1] At Calcasieu Pass's request, these three Applications and their respective dockets have been consolidated for purposes of this Order. Each of the Applications requests long-term authorization under section 3 of the Natural Gas Act (NGA)[2] to export domestically produced liquefied natural gas (LNG) to: (i) any country with which the United States has entered into a free trade agreement (FTA) requiring national treatment for trade in natural gas (FTA countries), pursuant to NGA section 3(c);[3] and (ii) any other country with which trade is not prohibited by U.S. law or policy (non-FTA countries), pursuant to NGA section 3(a).[4]

Calcasieu Pass requests authority in the Applications to export LNG in a total combined volume equivalent to 620 billion cubic feet per year (Bcf/yr), or 1.7 Bcf per day (Bcf/d), which Calcasieu Pass states is equivalent to 12 million metric tons per annum (mtpa) of LNG, as follows:

- **<u>2013 Application, FE Docket No. 13-69-LNG</u>:** Requests authority to export LNG in a volume equivalent to 243.6 Bcf/yr of natural gas (0.67 Bcf/d) for a term of 25 years, to

[1] Calcasieu Pass was known as Venture Global LNG, LLC at the time it filed the applications in FE Docket Nos. 13-69-LNG and 14-88-LNG, but Calcasieu Pass is now the applicant and authorization holder in all three dockets.
[2] The authority to regulate the imports and exports of natural gas, including liquefied natural gas, under section 3 of the NGA (15 U.S.C. § 717b) has been delegated to the Assistant Secretary for FE in Redelegation Order No. 00-006.02, issued on November 17, 2014.
[3] 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.
[4] *Id*. § 717b(a).

commence on the earlier of the date of first export or eight years from the date of the requested authorization;[5]

- **<u>2014 Application, FE Docket No. 14-88-LNG</u>:** Requests authority to export LNG in a volume equivalent to 243.6 Bcf/yr of natural gas (0.67 Bcf/d) for a term of 25 years, to commence on the earlier of the date of first export or seven years from the date of the requested authorization;[6] and

- **<u>2015 Application, FE Docket No. 15-25-LNG</u>:** Requests authority to export LNG in a volume equivalent to 132.8 Bcf/yr of natural gas (0.36 Bcf/d) for a term of 25 years, to commence on the earlier of the date of first export or seven years from the date of the requested authorization.[7]

In each Application, Calcasieu Pass requests the authorization on its own behalf and as agent for other entities that hold title to the LNG at the time it is exported.[8] Calcasieu Pass submitted updates to the Applications at various times, including most recently on February 25, 2019.[9]

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[5] Venture Global Calcasieu Pass, LLC, Application for Long-Term Authorization to Export Liquefied Natural Gas to Free Trade and Non-Free Trade Agreement Countries, FE Docket No. 13-69-LNG (May 13, 2013) [hereinafter 2013 App.].

[6] Venture Global Calcasieu Pass, LLC, Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Free Trade and Non-Free Trade Agreement Countries for Phase 2 of the Venture Global Project, FE Docket No. 14-88-LNG (May 13, 2014) [hereinafter 2014 App.]. In the cover letter for the 2014 Application, Calcasieu Pass references eight years from the date of the requested authorization for the commencement of its operations. The 2014 Application itself, however, references seven years. *See id*. at 2, 7. For this reason, DOE/FE issued the FTA order for the 2014 Application with a seven-year term for the commencement of operations. Likewise, DOE/FE is construing the 2014 Application to request a seven-year term for the commencement of operations for the requested non-FTA authorization.

[7] Venture Global Calcasieu Pass, LLC, Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Free Trade and Non-Free Trade Agreement Countries, FE Docket No. 15-25-LNG (Feb. 9, 2015) [hereinafter 2015 App.].

[8] *See id*. at 2. For purposes of brevity, we reference herein only the statements and arguments presented in Calcasieu Pass's 2015 Application, unless otherwise noted.

[9] Venture Global Calcasieu Pass, LLC, Update in Support of Pending Non-Free Trade Agreement Authorization, FE Docket Nos. 13-69-LNG, *et al*. (Feb. 25, 2019) [hereinafter 2019 Update].

Calcasieu Pass seeks to export LNG by vessel from the proposed Venture Global Calcasieu Pass Project (Project), a natural gas liquefaction and LNG export terminal to be located in Cameron Parish, Louisiana. On February 21, 2019, the Federal Energy Regulatory Commission (FERC) issued an order authorizing: (i) Calcasieu Pass to site, construct, and operate the Project with a maximum liquefaction capacity of 12 mtpa (equivalent to 620 Bcf/yr of natural gas), and (ii) TransCameron Pipeline, LLC (TransCameron) to construct and operate a lateral pipeline to transport natural gas to the Project.[10]

DOE/FE has previously granted the portion of each Application requesting authority to export LNG to FTA countries under NGA section 3(c). These authorizations were issued in DOE/FE Order Nos. 3345,[11] 3520,[12] and 3662,[13] in a total combined volume of 620 Bcf/yr of natural gas.

DOE/FE published a notice of the non-FTA portion of each Application in the *Federal Register* (Notice of Application).[14] Each Notice of Application provided a 60-day comment period for interested persons to submit protests, motions to intervene, and comments. In

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[10] *Venture Global Calcasieu Pass, LLC, et al.*, Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 166 FERC ¶ 61,144 (Feb. 21, 2019) [hereinafter FERC Order]. *See infra* § VI.C.

[11] *Venture Global Calcasieu Pass, LLC*, DOE/FE Order No. 3345, FE Docket No. 13-69-LNG, Order Granting Long-Term Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Venture Global LNG Project in Cameron Parish, Louisiana, to Free Trade Agreement Nations (Sept. 27, 2013).

[12] *Venture Global Calcasieu Pass, LLC*, DOE/FE Order No. 3520, FE Docket No. 14-88-LNG, Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Venture Global LNG Project in Cameron Parish, Louisiana, to Free Trade Agreement Nations (Oct. 10, 2014).

[13] *Venture Global Calcasieu Pass, LLC*, DOE/FE Order No. 3662, FE Docket No. 15-25-LNG, Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Venture Global Calcasieu Pass LNG Project in Cameron Parish, Louisiana, to Free Trade Agreement Nations (June 17, 2015).

[14] *See* Venture Global LNG, LLC, Application for Long-Term Authorization to Export Liquefied Natural Gas Produced from Domestic Natural Gas Resources to Non-Free Trade Agreement Countries for a 25-Year Period, 79 Fed. Reg. 30,109 (May 27, 2014); Venture Global LNG, LLC, Application for Long-Term Authorization to Export Liquefied Natural Gas Produced from Domestic Natural Gas Resources to Non-Free Trade Agreement Countries for a 25-Year Period, 79 Fed. Reg. 66,707 (Nov. 10, 2014); Venture Global Calcasieu Pass, LLC, Application for Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations for a 25-Year Period, 80 Fed. Reg. 36,977 (June 29, 2015).

response to the Notice of the 2013 and 2014 Applications, DOE/FE received several protests, motions to intervene, and/or comments.[15] The 2015 Application was uncontested, with only one motion to intervene taking no position on that Application.[16]

DOE/FE has reviewed the non-FTA portion of the Applications, as well as the filings supporting and opposing the Applications, DOE's economic and environmental studies, FERC's final EIS and 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 Calcasieu Pass's proposed exports will be inconsistent with the public interest, as would be required to deny any of the Applications under NGA section 3(a). DOE/FE therefore grants the non-FTA portion of each Application in the full volume requested—243.6 Bcf/yr for the 2013 Application, 243.6 Bcf/yr for the 2014 Application, and 132.8 Bcf/yr for the 2015 Application—for a total combined volume of 620 Bcf/yr of natural gas (1.7 Bcf/d).[17] Because the source of LNG for Calcasieu Pass's FTA orders and this Order is the same Project with a maximum liquefaction capacity equivalent to 620 Bcf/yr of natural gas, the FTA and non-FTA volumes are not additive.

Additionally, 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 a final environmental impact statement

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[15] In response to the 2013 Application, DOE/FE received the following: Comments from Ms. Denise Krepp and Mr. Bryar Douglas; a motion to intervene submitted by the American Petroleum Institute (API) taking no position on the Application; a motion for leave to intervene and protest submitted by the American Public Gas Association (APGA); and a motion to intervene, comments, and protest submitted by Sierra Club.

In response to the Notice of the 2014 Application, DOE/FE received: A motion to intervene submitted by API taking no position on the Application; a motion to intervene, motion to suspend, and protest submitted by APGA; a motion to intervene, comments, and protest submitted by Sierra Club; and a motion to intervene, motion to suspend, and protest submitted by the Industrial Energy Consumers of America (IECA). *See infra* § VII.

[16] API moved to intervene in the 2015 Application proceeding. *See id*.

[17] *See infra* §§ VIII-XI.

(EIS) for the Project on October 22, 2018.[18] After an independent review, DOE/FE adopted the final EIS on November 1, 2018 (DOE/EIS-0510),[19] and U.S. Environmental Protection Agency (EPA) published a notice of the adoption on November 9, 2018.[20] As an Appendix to this Order, DOE/FE is issuing the Record of Decision (ROD) under NEPA for the proposed Project. This Order requires Calcasieu Pass's compliance with the 111 environmental conditions recommended in the final EIS and adopted in the FERC Order.[21]

The volume approved in this Order—equivalent to 1.7 Bcf/d of natural gas—brings DOE/FE's cumulative total of approved non-FTA exports of LNG and compressed natural gas to 24.74 Bcf/d of natural gas.[22]

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

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[18] Federal Energy Regulatory Comm'n, Calcasieu Pass Project *Final Environmental Impact Statement*, Docket Nos. CP15-550-000, CP15-551-000, and CP15-551-001 (Oct. 22, 2018) [hereinafter final EIS].
[19] Letter from Amy Sweeney, DOE/FE, to Julie Roemele, U.S. EPA (Nov. 1, 2018) (adoption of final EIS).
[20] U.S. Envtl. Protection Agency, Environmental Impact Statements; Notice of Availability, 83 Fed. Reg. 56,078 (Nov. 9, 2018).
[21] *See infra* § XI (Ordering Para. H); *see also infra* § VI.
[22] *See infra* § VIII.E.

macroeconomic model of the U.S. economy with an emphasis on the energy sector and natural gas in particular. The 2012 NERA Study projected that, across all scenarios studied—assuming either 6 Bcf/d or 12 Bcf/d of LNG export volumes—the United States would experience net economic benefits from allowing LNG exports.

In December 2012, DOE/FE published a notice of availability of the 2012 LNG Export Study in the *Federal Register* for public comment.[23] DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[24]

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.[25] 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.[26]

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

[23] *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).

[24] *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).

[25] 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.

[26] *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).

published in October 2014 (2014 EIA LNG Export Study or 2014 Study).[27] The 2014 Study assessed how specified scenarios of increased natural gas exports could affect domestic energy markets. At DOE's request, this 2014 Study served as an update of EIA's January 2012 study of LNG export scenarios and used baseline cases from EIA's *Annual Energy Outlook 2014* (AEO 2014).[28]

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

In December 2015, DOE/FE published a Notice of Availability of the 2014 and 2015 LNG Export Studies in the *Federal Register*, and invited public comment on those Studies.[30]

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[27] 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*.

[28] 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.

[29] 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.

[30] 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).

DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[31]

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.[32] 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.[33] 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,[34] and concurrently provided notice of the availability of the Study, as discussed below.[35]

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:

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[31] *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).

[32] *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].

[33] 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.

[34] *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].

[35] *See* 2018 Study Notice.

(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);[36]

(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.[37]

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.[38] 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.[39] 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;

[36] 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.
[37] *See* 2018 Study Notice, 83 Fed. Reg. at 27,316.
[38] *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].
[39] 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).

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.[40]

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.[41]

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.[42]

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.[43] DOE/FE and KeyLogic, Inc. contacted a set of independent experts recommended

[40] *See id*.
[41] *See id*.
[42] *See id*.
[43] *See id*.

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

c. Study Results

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

- 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.[44]

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.[45] 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."[46] 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.[47] Of those, nine comments supported the Study,[48]

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[44] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,255.
[45] *See* 2018 Study Notice.
[46] *Id*. at 27,315.
[47] The public comments are posted on the DOE/FE website at: https://fossil.energy.gov/app/docketindex/docket/index/10.
[48] 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/or exports of LNG,[49] one comment took no position,[50] and one comment was non-responsive.[51]

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.[52] 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.[53]

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.[54] 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.[55] DOE highlighted the following key findings of the Study:

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[49] 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.
[50] Comment of John Young.
[51] Comment of Vincent Burke.
[52] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.
[53] *See id*. at 67,272.
[54] *See id*.
[55] *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."[56]

- "Increased exports of natural gas will improve the U.S. balance of trade and result in a wealth transfer into the United States."[57]

- "Overall [U.S.] GDP improves as LNG exports increase for all scenarios with the same U.S. natural gas supply condition.[58]

- "There is no support for the concern that LNG exports would come at the expense of domestic natural gas consumption."[59]

- "[A] large share of the increase in LNG exports is supported by an increase in domestic natural gas production."[60]

- "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."[61]

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.[62] 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.[63]

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

[56] *Id*. (quoting 2018 LNG Export Study at 55).
[57] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (quoting 2018 LNG Export Study at 64).
[58] *Id*. (quoting 2018 LNG Export Study at 67).
[59] *Id*. (quoting 2018 LNG Export Study at 77).
[60] *Id*.
[61] *Id*. (quoting 2018 LNG Export Study at 70).
[62] 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.
[63] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

interest."[64] 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.[65]

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).[66] 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.[67]

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

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[64] *Id*. (citing 2018 LNG Export Study at 63 & Appx F).
[65] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[66] 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.
[67] 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).[68] DOE/FE also received public comments on the LCA GHG Report and responded to those comments in prior orders.[69]

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*),[70] and three in a consolidated, unpublished opinion issued on November 1, 2017

[68] 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.

[69] *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).

[70] *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*).[71] 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.[72]

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."[73]

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.[74] 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."[75] The Court thus held that, "[u]nder our limited and deferential review, we cannot say that the Department

[71] *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).
[72] *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)
[73] *Sierra Club I,* 867 F.3d at 203.
[74] *Id.* at 192.
[75] *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."[76]

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.[77] 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.[78]

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."[79] 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."[80]

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."[81] 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.[82] The D.C. Circuit's decisions in *Sierra Club I and II* guide our review in this proceeding.

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[76] *Id*. at 201.
[77] *Id*.
[78] *Id*. at 202.
[79] *Sierra Club I,* 867 F.3d at 203.
[80] *Id.*
[81] *Sierra Club II,* 703 Fed. Appx. 1, at *2.
[82] *Id*.

III. PUBLIC INTEREST STANDARD

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

> [N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the [Secretary of Energy[83]] 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.[84]

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.[85] 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.[86] Before reaching a final decision, DOE must also comply with NEPA.

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

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[83] 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.
[84] 15 U.S.C. § 717b(a).
[85] *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)).
[86] *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)).

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.[87] 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.[88]

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.[89]

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.[90] That delegation order directed the regulation of exports of natural gas "based on a consideration of the domestic need for the gas to be exported and such other matters as the Administrator [of the Economic Regulatory Administration] finds in the circumstances of a particular case to be appropriate."[91]

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[87] New Policy Guidelines and Delegations Order Relating to Regulation of Imported Natural Gas, 49 Fed. Reg. 6684 (Feb. 22, 1984) [hereinafter 1984 Policy Guidelines].
[88] *Id*. at 6685.
[89] *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)).
[90] *See id*. at 13 and n.45.
[91] 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

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

Calcasieu Pass is a Delaware limited liability company with its principal place of business in Washington, D.C. Calcasieu Pass is a wholly-owned subsidiary of Venture Global LNG, Inc., and was created for purposes of facilitating the financing and development of the Project.[92]

B. The Venture Global Calcasieu Pass Project

Calcasieu Pass states that its proposed Project will be composed of multiple LNG facility components located on an approximately 828.6-acre site (Site).[93] As approved by FERC, these facilities will include:

- One natural gas gate station;
- Three pretreatment blocks to remove carbon dioxide and water from the natural gas received from the East Lateral pipeline;
- Liquefaction facilities consisting of nine refrigerant blocks;

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)).

[92] *See* 2015 App. at 3-5.

[93] *See* FERC Order at ¶ 6; *see also* 2019 Update at 1 (stating that Calcasieu Pass has acquired legal rights for the Site's total acreage); Venture Global Calcasieu Pass, LLC, FE Docket Nos. 13-69-LNG, *et al.*, Supplement to Applications re: Lease Option Agreements, at 2 (Nov. 2, 2015).

- LNG storage facilities consisting of two full-containment, above-ground LNG storage tanks, each with a capacity of approximately 200,000 cubic meters, four LNG storage tank send-out pumps, one LNG recirculation pump, and cryogenic piping;
- Boil-off, flash, and gas relief systems;
- Two LNG berthing docks, each designed to accommodate LNG carriers of 120,000 to 210,000 cubic meters;
- A 720-megawatt electric power generation facility;
- Safety and security systems; and
- Other appurtenant facilities.[94]

Upon completion of construction, the Project will have a "peak achievable capacity of 12 MTPA under optimal operating conditions."[95]

Calcasieu Pass states that the Site will be located on the east side of the Calcasieu Ship Channel, approximately 1,000 feet north of the Gulf of Mexico in Cameron Parish, Louisiana.[96] The Site extends for approximately 3,700 feet along the Calcasieu Ship Channel and has a maximum width (west to east) of approximately 3,400 feet.[97]

C. Project Pipelines

According to Calcasieu Pass, the Site is located near several interstate and intrastate natural gas pipeline systems, including those of Transcontinental Gas Pipe Line Company LLC and ANR Pipeline Company.[98] Calcasieu Pass states that its Project, as approved by FERC, will include TransCameron's construction of a pipeline that will transport feed gas to the Project Terminal from interconnection points with existing interstate and intrastate pipelines.[99] This

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[94] FERC Order at ¶ 6.
[95] *Id*. ¶ 5.
[96] 2015 App. at 6-7.
[97] *Id.* at 7; *see also* Appendix C to the 2015 App.
[98] *Id*. at 8.
[99] 2019 Update at 1; *see also* FERC Order at ¶ 2 (describing East Lateral).

pipeline, called the East Lateral, will extend approximately 23.4 miles to the east from the Project Terminal to the Grand Cheniere Station in Cameron Parish, where it will interconnect with existing interstate natural gas pipelines.[100]

D. Source of Natural Gas

Calcasieu Pass states that the natural gas to be exported as LNG will be sourced from a variety of supply points on the interstate natural gas pipeline grid. The natural gas will be transported over the pipeline grid to the Project's pipeline lateral, then to the Terminal. According to Calcasieu Pass, access to the pipeline grid will enable both Calcasieu Pass and its customers to purchase natural gas from numerous conventional and non-conventional U.S. production sources.[101]

E. Business Model

Calcasieu Pass 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. Calcasieu Pass states that it will obtain feed gas either in the spot market or through long-term arrangements, and will file all executed long-term contracts to supply natural gas to the Project in accordance with DOE/FE policy.[102]

According to Calcasieu Pass, it has secured binding 20-year sale and purchase agreements for a volume of LNG totaling 8.0 mtpa. These agreements are with the following entities: Shell NA LNG LLC; Edison S.p.A.; BP Gas Marketing Ltd.; Galp Energia E&P B.V.; Repsol LNG Holding, S.A.; POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWOSPÓŁKA AKCYJNA; and Venture Global Commodities, LLC.[103]

[100] *Id*.
[101] 2015 App. at 8-9.
[102] *Id.* at 9, 13.
[103] 2019 Update at 2 (chart summarizing sale and purchase agreements).

Calcasieu Pass states that it will comply with all DOE/FE requirements for exporters and agents, including registration requirements. Calcasieu Pass 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.[104]

V. APPLICANT'S PUBLIC INTEREST ANALYSIS

A. Overview

Calcasieu Pass asserts that its proposed non-FTA exports are consistent with the public interest under NGA section 3(a). In support of this argument, Calcasieu Pass cites DOE/FE's economic studies that were available at the time it filed its 2015 Application (specifically, the 2012 LNG Export Study and the 2014 EIA LNG Export Study, discussed *supra*). Calcasieu Pass further asserts that the favorable conclusions of the DOE/FE studies have been confirmed by other publicly-available studies that considered the impacts of exporting U.S. LNG.[105]

In addition, Calcasieu Pass states that its requested authorization is in the public interest based on the following factors: (i) the domestic need for the LNG to be exported; (ii) domestic energy security and international impacts; (iii) impacts on prices of U.S. natural gas; and (iv) economic benefits.

[104] 2015 App. at 13.
[105] *See* 2015 App. at 16-22. The third-party studies cited by Calcasieu Pass include: Charles Ebinger, *et al.*, "Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas," Brookings Institution (May 2012) [Ebinger/Brookings Study]; Michael Levi, "A Strategy for U.S. Natural Gas Exports," The Hamilton Project, Brookings Institution (June 2012) [Levi/Brookings Study]; Kenneth B. Medlock II, Ph.D., "U.S. Exports: Truth and Consequences," Energy Forum at the James A. Baker Institute for Public Policy, Rice University (Aug. 2012) [Medlock/Baker Study]; Deloitte, "Exploring the American Renaissance: Global Impacts of LNG Exports from the United States" (October 2012) [Deloitte Study]; ICF Internat'l, "U.S. LNG Exports: Impacts on Energy Markets and the Economy" (May 2013) [ICF Study]. Calcasieu Pass states that it incorporates by reference these studies into the record of this proceeding.

B. Domestic Need for the LNG to be Exported

Calcasieu Pass maintains that domestic supplies of natural gas are abundant, affordable, and sufficient to meet both domestic consumption demand and any expected level of long-term LNG exports, including those proposed in the Applications.[106] Calcasieu Pass points to other long-term non-FTA LNG export authorizations, in which DOE/FE has found that there are adequate natural gas resources to meet demand associated with LNG exports based on three measures of natural gas supply: future production, proved reserves, and technically recoverable resources (TRR).[107]

First, citing EIA's projections in the *Annual Energy Outlook 2014* (AEO 2014)—the EIA projections available at the time of the 2015 Application—Calcasieu Pass notes that EIA has forecast continued increases in natural gas production through 2040. On the basis of these projections, Calcasieu Pass contends that, "[t]he growing surplus of gas production over consumption sets the stage for the U.S. to become a net export[er] of [natural] gas before 2020."[108] We take administrative notice that the United States, in fact, became a net exporter of natural gas on an annual basis even earlier than anticipated, in 2017.[109]

Second, as to proved reserves, Calcasieu Pass cites EIA data from 2014 in asserting that the increase in U.S. natural gas reserves in recent years has been "even more dramatic" than the growth in production.[110]

Third, with regard to TRR, Calcasieu Pass refers specifically to a prior order in which DOE/FE found that TRR equates to nearly 90 years of natural gas supply at the 2013 domestic

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[106] *See id*. at 23.
[107] *See id*.
[108] *See id*. at 24 n.37 (citing AEO 2014 at MT-22 and Figure MT-24).
[109] U.S. Energy Info. Admin., U.S. Natural Gas Summary (Annual) (Jan. 31, 2019), *available at*: https://www.eia.gov/dnav/ng/ng_sum_lsum_dcu_nus_a.htm (2017 data).
[110] *See* 2015 App. at 25.

consumption level of 26.04 Tcf. In that order, DOE/FE concluded that granting the requested authorization was unlikely to adversely affect the availability of natural gas supplies to domestic consumers such as would negate the net economic benefits to the United States.[111] Calcasieu Pass maintains that the same conclusion applies to its proposal.

In sum, Calcasieu Pass maintains that projected U.S. natural gas production is ample to supply both domestic needs and LNG exports.[112]

Next, Calcasieu Pass asserts that an increased demand for the export of natural gas as LNG will stimulate additional natural gas production. According to Calcasieu Pass, this is borne out by the finding in the 2014 LNG Export Study that increased natural gas production will satisfy 61% to 84% of the increase in natural gas demand from LNG exports.[113] Citing the ICF Study, Calcasieu Pass states that this increased natural gas production will have the added benefit of increasing the production of natural gas liquids (NGLs).[114] According to Calcasieu Pass, the increased natural gas and NGL production are important public benefits associated with U.S. LNG exports. For all of these reasons, Calcasieu Pass submits that the proposed LNG exports are unlikely to affect the availability of natural gas to domestic consumers and, to the contrary, will provide a net economic benefit to the United States regardless of the amount of LNG that is exported.[115]

C. Domestic Energy Security and International Impacts

Calcasieu Pass points out that, in prior LNG export authorizations, DOE/FE has considered the international consequences of its LNG export decisions—including the ability of

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[111] *Id.* at 26 (citation omitted).
[112] *See id*. at 25-26.
[113] *See id*. 26-27.
[114] *Id*. (citing ICF Study).
[115] *See id*. at 27.

U.S. exports to assist in diversifying global LNG supplies and improving energy security.[116] Likewise, Calcasieu Pass asserts that increased access to U.S. natural gas would not only provide new supplies to U.S. allies around the world, but would also position the United States as an alternative to traditional suppliers such as Russia and countries in the Middle East.[117] Calcasieu Pass maintains that exports of U.S. LNG may provide relief to European countries that are both dependent on Russian natural gas and face high natural gas prices. Additionally, Calcasieu Pass states that the export of U.S. LNG to Caribbean nations could reduce reliance on more expensive carbon-intensive fuels, such as diesel and fuel oil.[118]

Citing the Medlock/Baker Study (*supra* note 105), Calcasieu Pass asserts that increased natural gas production will help to improve U.S. national security and stability in numerous ways, including by lessening U.S. dependence on foreign energy sources and reducing the possibility of a "natural gas OPEC."[119]

Finally, as noted above, Calcasieu Pass states that LNG exports will support the use of more environmentally-friendly natural gas for the generation of electricity by some foreign countries. Calcasieu Pass notes that U.S. LNG exports may substitute for diesel or heavy fuel oil, thereby allowing the United States to share the environmental benefits of natural gas with other nations.[120]

D. Price Impacts

Calcasieu Pass asserts that, once DOE/FE has determined that the proposed exports will not jeopardize domestic supply during the term of the authorization, the public interest analysis

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[116] *See* 2015 App. at 27.
[117] *Id*. at 27-28.
[118] *See id*. at 28.
[119] *Id.* at 28 n.55 and 29.
[120] *See id.* at 30-31.

under NGA section 3(a) is satisfied. Nonetheless, Calcasieu Pass states that, even if DOE/FE were to consider the potential impacts of the proposed exports on domestic natural gas prices, the record evidence in other DOE/FE proceedings demonstrates that LNG exports are consistent with the public interest.[121] In support of this argument, Calcasieu Pass cites the findings of DOE/FE's 2012 and 2014 LNG Export Studies, as well as a study by the Deloitte Center for Energy Solutions and Deloitte Market Point, LLC.[122] According to Calcasieu Pass, these studies point to the conclusion that LNG exports are likely to have no more than a very modest effect on domestic natural gas prices.[123]

E. Other Economic Benefits

Calcasieu Pass asserts that its Project will benefit the economy by creating jobs, increasing tax revenues, and reducing the nation's trade deficit.[124] Calcasieu Pass states, for example, that its Project will employ up to 1,500 construction workers, approximately 100 full-time staff, and hundreds of off-site workers.[125] Calcasieu Pass further argues that, even though domestic natural gas prices may increase marginally due to LNG exports, the value of those exports will also rise so that there is a net gain for the U.S. economy. Calcasieu Pass points to DOE/FE's economic studies, as well as to studies by the Brookings Institute and ICF (*supra* note 105), in asserting that both U.S. gross domestic product (GDP) and job growth will increase with increased exports of U.S. LNG.[126]

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[121] *See id*. at 31.
[122] *See id.* at 32 n.69 (citing Deloitte Center for Energy Solutions and Deloitte Market Point LLC, "Made in America—The Economic Impact of LNG Exports from the United States" (2011)).
[123] 2015 App. at 32-33.
[124] *See id.* at 33.
[125] *Id*.
[126] *See id*. at 33-34.

Calcasieu Pass also states that the increased jobs associated with its proposed LNG exports are supportive of the National Export Initiative, which seeks to increase exports and remove trade barriers abroad.[127] Additionally, Calcasieu Pass contends that its exports will help to realign the U.S. balance of trade by reducing the U.S. trade deficit.[128]

VI. FERC PROCEEDING

A. FERC's Pre-Filing Procedures

Authorizations issued by FERC permitting the siting, construction, and operation of LNG export terminals are reviewed under NGA section 3(a) and (e), 15 U.S.C. § 717b(a), (e). FERC's approval process for such an application consists of a mandatory pre-filing process during which the environmental review required by NEPA commences,[129] and a formal application process that starts no sooner than 180 days after issuance of a notice that the pre-filing process has commenced.[130]

On October 7, 2014, FERC began its pre-filing review of Calcasieu Pass's Project and Pipeline Expansion Project.[131] FERC established pre-filing Docket No. PF15-2-000 to place information related to the Project into the public record.[132] On January 20, 2015, FERC issued a Notice of Intent to Prepare an Environmental Impact Statement for the proposed project.[133] DOE agreed to participate as a cooperating agency in FERC's environmental review.[134]

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[127] *See id*. at 34-35 (citing National Export Initiative, 75 Fed. Reg. 12,433 (Mar. 16, 2010)).
[128] *See* 2015 App. at 35.
[129] 18 C.F.R. § 157.21.
[130] *Id*. § 157.21(a)(2)(i-ii).
[131] Final EIS at 1-9.
[132] *See id*.
[133] *See id*. at 2.
[134] *See id.* at 1, 1-1.

B. FERC's Environmental Review

On September 4, 2015, Calcasieu Pass and TransCameron Pipeline, LLC (TransCameron) jointly filed an application with FERC under sections 3 and 7 of the NGA to site, construct, and operate the Calcasieu Pass Project and the associated pipeline system.[135] FERC assigned Docket No. CP15-550-000 to Calcasieu Pass's proposal to site, construct, and operate the Project's export terminal and facilities. FERC assigned Docket No. CP15-551-000 to TransCameron's proposal to site, construct, and operate a new interstate natural gas pipeline system consisting of two segments (the East and West Laterals), capable of supplying natural gas to support the Project's proposed liquefaction and export operations.[136] Subsequently, in 2016, TransCameron filed an amendment to its application, removing the West Lateral from the Project and modifying the capacity of the East Lateral.[137]

In compliance with NEPA, FERC staff issued a Notice of Availability of a Draft Environmental Impact Statement on June 22, 2018, and placed the draft EIS into the public record.[138] On October 22, 2018, FERC staff issued the final EIS for the Project.[139] 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.[140]

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[135] Venture Global Calcasieu Pass, LLC and TransCameron Pipeline, LLC, Application for Authorizations Under Section 3 and Section 7 of the Natural Gas Act, FERC Docket Nos. CP15-550-000 and CP15-551-000 (Sept. 4, 2015).
[136] *See* FERC Order at ¶¶ 1-2.
[137] *Id.* at ¶ 2.
[138] *Id.* at ¶ 75 (citation omitted); *see also* final EIS at 2 (describing public involvement).
[139] *Id.* at ¶ 76; *see* Federal Energy Regulatory Comm'n, Venture Global Calcasieu Pass, LLC; TransCameron Pipeline, LLC; Notice of Availability of the Final Environmental Impact Statement for the Proposed Calcasieu Pass Project; 83 Fed. Reg.54,586 (Oct. 30, 2018).
[140] *See* final EIS at ES-2 to ES-14; FERC Order at ¶¶ 76-119.

Based on its environmental analysis, FERC staff concluded in the final EIS that, "[i]f the proposed Project is constructed and operated in accordance with applicable laws and regulations, the mitigating measures discussed in this EIS, and our recommendations, all of the adverse environmental impacts would be reduced to less than significant levels."[141] FERC staff developed 111 site-specific environmental mitigation measures, which it recommended that FERC attach as conditions to any authorization of the Project.[142]

C. FERC's Order Granting Authorization

On February 21, 2019, FERC issued its Order authorizing Calcasieu Pass to site, construct, and operate the Project (called the Terminal by FERC) with a liquefaction capacity of up to 12 mtpa of LNG. FERC also authorized TransCameron to construct and operate the associated East Lateral pipeline.[143]

In granting the authorization, FERC cited the final EIS in stating that "most of the direct environmental impacts from construction of the proposed facilities are expected to be temporary or short term."[144] FERC further concluded that "[a]ll 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 the environmental mitigation measures recommended in the final EIS and adopted by this order."[145] On this basis, FERC found that Calcasieu Pass's proposal is not inconsistent with the public interest and that TransCameron's East Lateral pipeline is in the public convenience and necessity, pursuant to NGA sections 3 and

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[141] Final EIS-5-1; *see also* FERC Order at ¶ 76.
[142] Final EIS 5-1, 5-35- to 5-52 (list of mitigation measures).
[143] FERC Order at ¶ 3.
[144] *Id*. at ¶ 16 (citing final EIS at 1-16).
[145] *Id*. (citing final EIS at 15).

7(c), respectively.[146] FERC also adopted the 111 environmental mitigation measures recommended in the final EIS and included them as conditions in the appendix of the Order.[147]

FERC reviewed and addressed the major environmental issues addressed in the final EIS.[148] In addressing greenhouse gas emissions (GHG), for example, FERC pointed to the final EIS's estimate that "operation of the Calcasieu Pass LNG terminal, including the terminal power plant facility, may result in emissions of up to 3,906,336 metric tons per year of carbon dioxide equivalent (CO_2e)."[149] FERC further stated that the "direct operational emissions of the LNG terminal could potentially increase CO_2e emissions based on the 2016 levels by 0.07% at the national level."[150]

On the basis of these estimates, FERC acknowledged the finding in the final EIS that "the quantified greenhouse gas emissions from the construction and operation of the project will contribute incrementally to climate change."[151] 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 therefore "concluded it could not determine whether a project's contribution to climate change would be significant."[152]

Additionally, FERC considered the cumulative impacts of the Project with other projects or actions in the same geographic and temporal scope.[153] Citing the final EIS, FERC observed that "for resources where a level of impact could be ascertained, the project's contribution to cumulative impacts on resources affected by the projects would not be significant, and … the

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[146] *See id*. at ¶ 118.
[147] *See id*. at ¶ 117 and Appx.
[148] *See generally* FERC Order at ¶¶ 75-119.
[149] *Id*. at ¶ 112 (citing final EIS at Tables 4.11.1.3-1 and 4.11.1.5-1).
[150] FERC Order at ¶ 112 (citing EPA, 2018, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016).
[151] *Id*. at ¶ 113 (citing final EIS at 4-299).
[152] *Id*. (citations omitted).
[153] *Id*. at ¶ 115 (citing final EIS at 14 and 4-270).

potential cumulative impacts of the projects and the other projects considered would be minor or insignificant."[154]

In sum, FERC agreed with "the conclusions presented in the final EIS" and found that "the [Calcasieu Pass and TransCameron] projects, if constructed and operated as described in the final EIS, are environmentally acceptable actions."[155]

VII. CURRENT PROCEEDING BEFORE DOE/FE

A. Overview

In response to the Notice of the 2013 Application, DOE/FE received the following filings:

- Comments from Denise Krepp, conditionally supporting the Application;
- Comments from Bryar Douglas opposing the Application;
- API's motion to intervene, taking no position on the Application;
- APGA's motion to intervene and protest, including a request to suspend the proceeding; and
- Sierra Club's motion to intervene, comments, and protest.

On July 10, 2014, Calcasieu Pass filed an answer in response to the Sierra Club and APGA pleadings. On July 25, 2014, Sierra Club filed a renewed motion to reply and reply in response to Calcasieu Pass's answer.

In response to the Notice of the 2014 Application, DOE/FE received the following filings:

- API's motion to intervene, taking no position on the Application;
- APGA's motion to intervene, motion to suspend, and protest;
- Sierra Club's motion to intervene, comments, and protest; and

[154] *Id*. (citing final EIS at 14, 5-33; *see also* 4-298 to 4-299).
[155] *Id.* at ¶ 118.

- IECA's motion to intervene, motion to suspend, and protest.

On January 26, 2015, Calcasieu Pass filed an answer in response to the pleadings filed by APGA, Sierra Club, and IECA.

In response to the Notice of the 2015 Application, DOE/FE received only one motion to intervene submitted by API. As with the 2013 and 2014 Applications, API took no position on the 2015 Application. Therefore, the 2015 Application is uncontested.

B. 2013 Application, FE Docket No. 13-69-LNG

1. Non-Intervenor Comments

Denise Krepp filed comments conditionally supporting the 2013 Application.[156] Ms. Krepp, who identifies herself as former Chief Counsel of the U.S. Maritime Administration, states that the 2013 Application should be granted, provided that the authorization is linked to the use of U.S. vessels and U.S. crews to export the LNG.[157]

Bryar Douglas submitted comments opposing the 2013 Application. Mr. Douglas argues that the requested 25-year term of the "contract" (*i.e.*, export authorization) is "too long … regarding something as uncertain as gas."[158] Mr. Douglas asks DOE/FE to limit the authorization to a three-to-five-year term. Alternately, Mr. Douglas urges DOE/FE to hold the authorization holder "100% accountable for any accidents" related to the exports, so that taxpayers (especially the poor and middle-class) will not be forced to live with damage from accidents. Mr. Douglas expresses concern generally with environmental damage due to fossil fuel accidents, particularly in Louisiana.[159]

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[156] Comments of Denise Krepp, FE Docket No. 13-69-LNG (May 27, 2014).
[157] *See id*.
[158] Comments of Bryar Douglas, FE Docket No. 13-69-LNG (June 26, 2014).
[159] *See id*.

2. API's Motion to Intervene

API timely filed its motion to intervene on June 26, 2014.[160] API states that it is a national trade association representing more than 600 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 all along 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.[161]

3. APGA's Motion to Intervene and Protest

On June 26, 2014, APGA timely filed a motion for leave to intervene and protest.[162] APGA asserts that it is the national, non-profit association of publicly-owned natural gas distribution systems, with approximately 700 members in 36 states. APGA states that its membership covers 950 not-for-profit retail distribution entities that are owned by, and accountable to, the citizens they serve, including municipal gas distribution systems, public utility districts, county districts, and other public agencies that have natural gas distribution facilities. APGA maintains that its members are active participants in the domestic market for natural gas where they secure the supplies of natural gas to serve their end users. APGA states

[160] American Petroleum Inst., Motion to Intervene, FE Docket No. 13-69-LNG (June 26, 2014).
[161] *See id*. at 2.
[162] American Public Gas Ass'n, Motion to Intervene and Protest, FE Docket No. 13-69-LNG (June 26, 2014) [hereinafter APGA Mot.].

that it has a direct and substantial interest in this proceeding that cannot be adequately represented by any other party.[163]

In protesting the 2013 Application, APGA asserts that Calcasieu Pass's request for authority to export domestic LNG to non-FTA nations is inconsistent with the public interest and should be denied. APGA argues that the proposed exports will increase domestic natural gas prices, burdening households and jeopardizing potential growth in the U.S. manufacturing sector, as well as the nation's transition away from more environmentally damaging fossil fuels.[164] APGA maintains that the 2012 EIA Study concluded that LNG exports will increase prices, with higher volumes causing more drastic increases. APGA also maintains that the 2012 NERA Study found that exports would yield net economic benefits but would raise domestic natural gas prices. According to APGA, this would burden the U.S. consumers who can least afford the increase and disadvantage domestic manufacturing.[165] APGA argues that DOE/FE must go beyond the 2012 EIA and NERA studies to consider the tradeoffs entailed by exporting an increasingly valuable U.S. fuel, rather than supporting and enhancing the use of natural gas domestically.[166]

APGA states that the current increased production of natural gas and resulting low prices of natural gas in the United States provides the nation with an unprecedented opportunity to pursue energy independence and sustained economic growth through a manufacturing renaissance grounded in plentiful, low cost natural gas. APGA contends that price increases due to LNG exports will both: (i) jeopardize the viability of natural gas as a "bridge fuel" in the transition away from carbon-intensive and otherwise environmentally problematic coal-fired

[163] *Id*. at 3.
[164] *Id*.
[165] *Id*.
[166] *Id*. at 4.

electric generation, and (ii) inhibit efforts to foster natural gas as a major transportation fuel. AGPA claims that these steps are necessary to wean the United States from its historic, high-risk dependence on foreign oil.[167]

At the same time, APGA contends that Calcasieu Pass's plan to export natural gas will not prove economically viable.[168] APGA believes that economically recoverable domestic natural gas may prove less robust than projected, especially given associated environmental costs and concerns regarding the long-term productivity of shale gas wells. APGA further states that foreign alternatives will soon remove the price arbitrage opportunity that Calcasieu Pass seeks to take advantage of, as natural gas reserves from shale formations and export capacity expand around the world.[169]

4. Sierra Club's Motion to Intervene, Protest, and Comments

In support of its motion to intervene, Sierra Club states that its members live and work throughout the area that will be affected by the Calcasieu Pass Project, including in the regions of Louisiana that will be affected by the associated infrastructure. Additionally, Sierra Club states that its members live in the domestic natural gas fields that will likely see increased production as a result of Calcasieu Pass's exports, and that its members everywhere will be affected by increased natural gas prices resulting from the proposed exports.[170] Sierra Club states that, as of April 2014, it had 2,954 members in Louisiana and 632,604 members overall. Sierra Club states that its members have vital economic, aesthetic, spiritual, personal, and professional interests in the proposed Calcasieu Pass Project.[171]

[167] *See id*. at 4-5.
[168] *See* APGA Mot. at 5.
[169] *See id*. at 5-6.
[170] *See* Sierra Club Mot. at 2.
[171] *Id*. at 3.

In protesting the Application, Sierra Club contends that exports from the Calcasieu Pass Project are not in the public interest and are not supported by adequate environmental and economic analysis, as is required to satisfy the NGA and NEPA. Sierra Club argues that: (i) the construction and operation of the Project, the proposed pipeline lateral, and other infrastructure will directly impact the environment; (ii) exports from the Project will induce additional natural gas production—primarily the hydraulic fracturing of unconventional natural gas sources—with associated environmental harms; and (iii) exports from the Project will result in increased natural gas prices and an increase in coal-fired electricity generation, thereby increasing emissions of greenhouse gases, as well as emissions of conventional and toxic air pollutants.[172] Below, we summarize Sierra Club's principal arguments.

a. Public Interest Analysis

Sierra Club argues that the NGA and NEPA impose obligations upon DOE that must be considered before it can authorize the proposed exports. In this regard, Sierra Club argues that DOE/FE must reject its position that domestic need is the only factor to be considered in the public interest analysis under NGA section 3(a). Sierra Club also contends that DOE/FE may not rely on the 1984 Policy Guidelines in evaluating the public interest, as those Guidelines dealt with natural gas imports rather than exports.

b. Alleged Need for Programmatic EIS

Sierra Club maintains that DOE/FE's analysis must not be confined only to the local, direct effects of the Application, but must also consider the indirect and cumulative effects from Calcasieu Pass's proposal and all other LNG export proposals currently pending before DOE/FE and FERC.

[172] *See id*. at 4.

Sierra Club further contends that a programmatic EIS is appropriate here.[173] In support of this argument, Sierra Club states that LNG exports will induce additional natural gas production that potentially will emit millions of tons of methane pollution, emit thousands of tons of volatile organic compounds (VOCs) and hazardous pollutants, and require hundreds of millions of tons of fresh water each year.[174] For these reasons, Sierra Club contends that there is a "substantial question" regarding the severity of the environmental impacts of the Calcasieu Pass Project.[175] Sierra Club argues that DOE/FE can best conduct this analysis in the context of a programmatic EIS that considers the impacts of all pending non-FTA export proposals together.[176]

c. Alleged Environmental Impacts of the Requested Authorization, Including Induced Natural Gas Production

Sierra Club asserts that construction and operation of the Project will impose a range of significant local environmental impacts, including but not limited to air pollution, disruption of aquatic habitat, increased noise and light pollution, and impacts on fish and wildlife.[177]

Addressing potential air pollution, Sierra Club contends that construction and operation of the Calcasieu Pass Project will emit harmful quantities of carbon monoxide, nitrogen oxides, VOCs, and GHGs, and also will likely emit harmful sulfur dioxides and particulate matter. Sierra Club asserts that each of these types of emissions will have injurious environmental and health impacts.[178]

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[173] *Id.* at 11-12, 14.
[174] *Id*.
[175] *Id.*
[176] Sierra Club Mot. at 14-18.
[177] *Id.* at 21.
[178] *See id*. at 21-24.

Next, Sierra Club argues that the Project will cause environmental impacts greater than the local impacts because the planned exports will induce additional natural gas production in the United States.[179] Sierra Club asserts that the impacts of induced natural gas production are reasonably foreseeable, and that NEPA and the NGA require DOE/FE to consider the effects of this additional natural gas production.[180] In the context of this proceeding, Sierra Club states that the requested authorization "will induce an additional 0.46 Bcf/d of production."[181] Sierra Club asserts that much of the induced production will come from shale gas and other unconventional sources.

Sierra Club maintains that available tools enable DOE/FE and Calcasieu Pass to predict where this increased natural gas production will occur. According to Sierra Club, the most likely sources of natural gas for the proposed exports are "from across the Gulf Shore region."[182] Sierra Club cites EIA's National Energy Modeling System (NEMS) (used in the 2012 EIA Study) in arguing that models can provide more sophisticated predictions as to where production supplying additional exports from the Project would occur.

Sierra Club states that NEPA regulations, applicable case law, and recent EPA scoping comments call for DOE/FE to consider the environmental effects of induced natural gas production because "induced production is not only an effect of the project—it is "part of the justification offered for it" and "is therefore plainly a 'reasonably foreseeable' effect" that DOE/FE must analyze and consider.[183]

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[179] *Id.* at 25.
[180] *Id.* at 27-31.
[181] *Id*. at 26.
[182] *Id*.
[183] *See* Sierra Club Mot. at 28.

Moreover, Sierra Club contends that "[n]atural gas production—from both conventional and unconventional sources—is a significant air pollution source, can disrupt ecosystems and watersheds, leads to industrialization of entire landscapes, and presents challenging waste disposal issues."[184] Sierra Club asserts that the proposed Project will induce significant production-related air emissions. Specifically, Sierra Club asserts that, assuming a 1.0 percent leak rate, the new natural gas demand caused by the requested authorization allegedly will be responsible for the incremental emission of 35,112 tons per year (tpy) of methane, 5,123 tpy of VOCs, and 372 tpy of hazardous air pollutants (HAPs).[185]

Sierra Club argues that natural gas production also poses risks to ground and surface water. Sierra Club notes that most of the increased production will involve hydraulic fracturing, a process of injecting various chemicals into gas-bearing formations at high pressures to fracture rock and release natural gas. According to Sierra Club, each step of this process requires large quantities of water that could drastically impact aquatic ecosystems and human communities. Sierra Club also contends that hydraulic fracturing poses a serious risk of groundwater contamination from the chemicals added to the drilling mud and fracturing fluid and from naturally occurring chemicals in deeper formations mobilized during the hydraulic fracturing process. Sierra Club asserts that hydraulic fracturing has resulted in groundwater contamination in numerous documented instances.

Sierra Club states that natural gas production, particularly hydraulic fracturing, produces liquid and solid wastes, including drilling mud, drill cuttings, "flowback," and produced water. Sierra Club states that these wastes are often stored on site in open pits that can have harmful air emissions and can leach into shallow groundwater. Sierra Club also notes that flowback and

[184] *Id.* at 31.
[185] *Id*. at 46.

produced water must be disposed offsite, with a common method being underground injection wells. Sierra Club claims that underground injection of hydraulic fracturing wastewater appears to have induced earthquakes in several regions—a phenomenon known as induced seismicity.[186]

In addition to the air and water pollution impacts of natural gas, Sierra Club argues that increased natural gas production will transform the landscape of regions overlying shale gas plays, bringing industrialization to previously rural landscapes and significantly affecting ecosystems, plants, and animals.

Sierra Club further asserts that, in addition to the above-described production-related impacts, exports from the Project will increase air pollution by increasing the amount of coal used for domestic electricity production.

Additionally, Sierra Club argues that LNG exports will increase GHG emissions both domestically and globally. Sierra Club contends that a 2012 study by the International Energy Agency predicts that international trade in LNG will lead many countries to use natural gas in place of renewable energy (instead of displacing fossil fuels).[187] Even assuming importing countries substitute natural gas for coal or fuel oil, Sierra Club claims that the liquefaction, transportation, and regasification process is energy intensive and increases the lifecycle GHG emissions of LNG compared to methods of consumption where the natural gas remains in a gaseous phase. Sierra Club argues that, for these reasons, U.S. LNG has little, if any, advantage over coal, and thus it is unlikely that LNG exports will reduce global GHG emissions.[188]

[186] *See id*. at 55-56.
[187] *Id.* at 60.
[188] *See id.* at 61-63.

d. Alleged Economic Impacts

Turning to economic harms, Sierra Club broadly contends that the proposed exports will increase domestic natural gas prices, and that those price increases will harm the majority of the American public by decreasing real wages and reducing employment in energy-intensive industries.[189]

Sierra Club observes that the 2012 EIA Study shows that, as natural gas exports increase, so do domestic gas prices. According to Sierra Club, because the 2012 EIA and NERA Studies understate the volume of likely LNG exports, those Studies also understate the price increases that will arise due to the increased demand for natural gas.

Sierra Club further contends that DOE/FE cannot look at price impacts in isolation, but must consider the effect of the price increases on the public. In this regard, Sierra Club maintains that the 2012 NERA Study's broad conclusion that the United States will experience net economic benefits from LNG exports is incorrect. Even if environmental impacts are excluded, Sierra Club asserts that LNG exports will cause net economic harm. When environmental impacts are included, Sierra Club states that the proposed exports are clearly contrary to the public interest.[190]

The most immediate and dramatic economic effect of exports, according to Sierra Club, will be job losses in energy intensive industries, such as manufacturing.[191] Sierra Club adds that even gas-producing regions likely will be worse off in the long term, despite short-term job growth as a result of increased natural gas production. Sierra Club states that "resource curse" effects are well documented, showing that the jobs added in resource extraction industries are

[189] Sierra Club Mot. at 63.
[190] *Id.* at 66-67.
[191] *Id.* at 67.

typically short-term jobs whereas the manufacturing and energy-intensive industry jobs that exports will eliminate are typically stable and long-term.[192] Sierra Club further faults the 2012 NERA Study for failing to give adequate weight to the negative economic impacts of LNG exports on wage-earning households and for assuming (incorrectly, in Sierra Club's view) that "consumers" in general will derive benefits from owning equity stakes in companies within the natural gas industry.[193]

Beyond the local and regional impacts of LNG exports, Sierra Club states that NERA's conclusion of net positive economic impacts rests on a faulty forecast of net GDP growth. Sierra Club asserts that the negative environmental impacts from LNG exports can be monetized and this "social cost" must be considered by DOE in its review of LNG export proposals. If properly calculated and considered, Sierra Club maintains, these social costs will largely wipe out any economic benefits of LNG exports.[194]

In sum, Sierra Club asserts that the Calcasieu Pass Project, alone or considered in tandem with other export approvals, will increase natural gas prices, lower wages, lower employment, and remove wealth from most of the economy, concentrating any gains within the narrow sector of the American economy that owns LNG and natural gas capital.

5. Calcasieu Pass's Answer

In responding to the filings of Sierra Club and APGA, Calcasieu Pass first asserts that DOE/FE should not grant them intervention because neither organization has demonstrated a particularized interest in this proceeding.[195] Calcasieu Pass states that both Sierra Club and

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[192] *Id.* at 68.
[193] *Id.* at 69.
[194] *Id.* at 71-72.
[195] Venture Global Calcasieu Pass, LLC, Answer to Motions to Intervene and Protests, FE Docket No. 13-69-LNG (June 26, 2014), at 1, 12-13 [hereinafter Calcasieu Pass Answer].

APGA base their opposition to the Applications on a general opposition to LNG exports and, in the case of Sierra Club, to that organization's opposition to increased natural gas production, particularly unconventional gas production involving hydraulic fracturing.[196] Calcasieu Pass argues that the general claims of interest asserted by Sierra Club and APGA do not allow Calcasieu Pass or DOE to determine the nature and basis of the claims. Therefore, Calcasieu Pass contends that the motions to intervene should be denied.

Turning to the arguments in opposition to the Application, Calcasieu Pass contends that neither Sierra Club nor APGA has rebutted the record evidence of economic benefits that will result from the Project. Calcasieu Pass states that these benefits include job creation, increased tax revenues, and a reduced national trade deficit. Calcasieu Pass maintains that these benefits are confirmed in the 2012 LNG Export Study; the update to the 2012 NERA Study; and other studies that Calcasieu Pass incorporated in the record in these proceedings in the 2015 Application.[197]

Calcasieu Pass disputes the protestors' arguments that the 2012 LNG Export Study underestimated the price impacts of LNG exports. Calcasieu Pass maintains that any price impacts will be modest.[198] Additionally, Calcasieu Pass states that other independent analyses have likewise found only modest price impacts due to LNG exports.[199]

Calcasieu Pass argues that the protestors largely ignore increasing natural gas supply availability. According to Calcasieu Pass, "[m]odest price increases from current low price

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[196] *Id.* at 12-13.
[197] *Id.* at 14-16. These studies are also identified and incorporated by reference in the record in these proceedings in Calcasieu's 2015 App. in FE Docket No. 15-25-LNG. *See supra* § V.
[198] *Id*. at 8-9, 20-21.
[199] *See*, *e.g.*, Calcasieu Pass Answer at 21 n.39 (citing the Deloitte MarketPoint Study).

levels will still leave [natural] gas prices much lower than they were prior to the recent tremendous growth in production."[200]

Next, Calcasieu Pass contests APGA's assertion that LNG exports in the long-run will prove uneconomical because prices in U.S. and international natural gas markets will converge. First, Calcasieu Pass states that the competitive viability of its Project is demonstrated by the high level of interest expressed by prospective international purchasers of LNG from the Calcasieu Pass Project. Second, Calcasieu Pass states that the successful completion of environmental review prior to issuance of the requested export authorizations will help to ensure that the Project is viable. Third, while the 2012 NERA Study indicates that LNG exports from the United States will exert downward pressure on the price of LNG in foreign markets, Calcasieu Pass maintains that the Study also shows that the price of natural gas within the United States will always be lower than international prices.[201]

Calcasieu Pass also contests Sierra Club's argument that the scope of NEPA review should include the environmental impacts of unconventional natural gas exploration and production activities, particularly hydraulic fracturing. Calcasieu Pass states that the law requires a review of only those environmental impacts that are both caused by and reasonably foreseeable effects of a contemplated action. According to Calcasieu Pass, the environmental impacts of upstream production activities have neither been shown to be caused by nor a reasonably foreseeable effect of the proposed exports.[202]

Finally, Calcasieu Pass rejects Sierra Club's call for DOE/FE to produce a programmatic EIS that covers all proposed LNG projects in a single document. Calcasieu Pass maintains that

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[200] *Id.* at 23.
[201] *Id.* at 24-26.
[202] *Id*. at 27-30.

DOE/FE's decisions on unrelated LNG projects do not constitute a discrete programmatic action requiring a programmatic EIS.[203]

6. Sierra Club's Renewed Motion to Reply and Reply

Sierra Club filed a Renewed Motion to Reply and Reply (Reply) on July 25, 2014.[204] Sierra Club notes that it had requested leave to reply to Calcasieu Pass' Answer in its motion to intervene in FE Docket No. 13-69-LNG, and Calcasieu Pass did not oppose that request.[205] In its Reply, Sierra Club presents arguments including the following:

- DOE/FE has an obligation to conduct a "searching inquiry" to determine whether Calcasieu Pass's export proposal is consistent with the public interest. Therefore, an environmental review under NEPA must be included in DOE/FE's public interest analysis.[206]

- Additional natural gas production is induced by LNG exports, and Calcasieu Pass does not dispute this fact.[207] Sierra Club maintains that environmental risks will rise with increases in natural gas production activities.[208]

- Because export authorizations induce natural gas production, DOE/FE has the authority and duty to consider environmental impacts of induced natural gas production in its decision-making.[209]

- The 2012 LNG Export Study underestimates the price impacts of LNG exports by understating the total volume of exports and the rate at which exports will be brought online.

[203] *Id.* at 31.
[204] Sierra Club's Renewed Motion to Reply and Reply, FE Docket No. 13-69-LNG (July 25, 2014) [hereinafter Sierra Club Renewed Mot.].
[205] *Id.* at 1.
[206] *Id.*
[207] *Id.* at 5.
[208] *Id.* at 6.
[209] *Id.* at 7.

- The EIA and NERA Studies also have underestimated the negative economic impacts of LNG exports by not considering the cost of adverse environmental impacts.[210]

C. 2014 Application, FE Docket No. 14-88-LNG

1. API's Motion to Intervene

In its motion to intervene filed on January 9, 2015, API restates the basis for its intervention offered in its motion to intervene in response to the 2013 Application.[211]

2. APGA's Motion to Intervene, Motion to Suspend, and Protest

In its January 9, 2015 filing, APGA makes the same arguments in substance as those submitted in its filing on the 2013 Application.[212] APGA adds a "Motion to Suspend Consideration of the Application." Specifically, APGA asks that DOE reconsider its current practice and set comment dates for LNG export applications only after each project has completed or substantially completed the required NEPA review process.[213] APGA argues that this change would be both more efficient and consistent with DOE's revised procedures for LNG export applications, issued in August 2014.[214]

3. Sierra Club's Motion to Intervene, Protest, and Comments

In its January 9, 2015 filing, Sierra Club makes the same arguments as those submitted in its filing on the 2013 Application.[215]

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[210] Sierra Club Renewed Mot. at 8.
[211] American Petroleum Instit., Motion to Intervene, FE Docket No. 14-88-LNG (Jan. 9, 2015).
[212] American Public Gas Ass'n, Motion to Intervene, Motion to Suspend, and Protest, FE Docket No. 14-88-LNG (Jan. 9, 2015).
[213] *Id*. at 3-5.
[214] *Id*. at 5.
[215] Sierra Club, Motion to Intervene, Protest, and Comments, FE Docket No. 14-88-LNG (Jan. 9, 2015).

4. IECA's Motion to Intervene, Motion to Suspend, and Protest

IECA filed its motions and protest on January 9, 2015.[216] 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, over 2,900 facilities nationwide, and more than 1.4 million employees worldwide. IECA's stated purpose is to promote the interests of manufacturing companies. IECA submits that it has a substantial interest in U.S. domestic supplies and prices of natural gas, and that the 2014 Application could affect those interests. IECA states that no other party to these proceedings can adequately represent its interests and those of its member companies.[217]

In support of its Motion to Suspend Consideration of the Application, IECA makes the same arguments as APGA above.

In protesting the Application, IECA asserts that NGA section 3(a) contains four elements that DOE is required to follow in its review of non-FTA export applications. These include: (i) a workable definition of "public interest," (ii) policy guidance designed for exports; (iii) analytical methods free of bias; and (iv) a commitment to an ongoing process of monitoring and adjustment of LNG export authorizations.[218]

First, with respect to defining the public interest in NGA section 3(a), IECA maintains that DOE is improperly using the 2012 NERA Study as a "proxy" for a definition of public interest. IECA argues that the public interest should be defined on the basis of "objective standards" with the aim of yielding "that which produces the most good for the most people."[219]

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[216] Industrial Energy Consumers of America, Motion for Leave to Intervene, Motion to Suspend, and Protest, FE Docket No. 14-88-LNG (Jan. 9, 2015) [hereinafter IECA Mot.].
[217] *Id.* at 3.
[218] *Id.* at 6.
[219] *Id*. at 8.

IECA urges DOE/FE to consider factors including: (i) the value added to the U.S. economy by exporting a commodity (LNG) versus the value added by exporting a finished manufactured good that uses natural gas and (ii) the impact on net permanent U.S. jobs by producing and exporting natural gas (and importing manufactured goods).[220]

Second, IECA contends that DOE/FE should not rely upon the 1984 Policy Guidelines in reviewing LNG export applications. IECA argues that the Guidelines were drafted to address natural gas imports, and that impacts on supply and prices are reversed in export scenarios—particularly for energy intensive and trade exposed (EITE) industries that cannot use any fuel other than natural gas. IECA therefore argues that DOE should undertake a rulemaking to identify policy considerations relevant to export scenarios.[221]

Third, IECA contends that DOE/FE should not rely on "biased" EIA forecasts—specifically, "data that are not more recent than 2010," when the U.S. manufacturing industry was experiencing a slowdown.[222]

Fourth, IECA argues that DOE/FE should monitor cumulative impacts of LNG exports and, if necessary, issue supplemental orders to adjust the approved levels. IECA criticizes DOE/FE for stating that "once it issues an Order regarding LNG exports, it will not alter them." IECA disputes EIA's projections of U.S. supply of natural gas and argues that, because "these forecasts … will all be wrong," it would be inconsistent with the NGA for DOE/FE to insist that it will "never revisit or revise" a long-term LNG export authorization.[223]

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[220] *Id.* at 8-9.
[221] *Id.* at 9-11.
[222] IECA Mot. at 11-12.
[223] *Id*. at 13-15.

5. Calcasieu Pass's Answer

As in the 2013 proceeding, Calcasieu Pass asserts that DOE/FE should not grant intervention to Sierra Club or APGA because neither organization has demonstrated a particularized interest in this proceeding.[224]

Calcasieu Pass's responses to the Sierra Club and APGA protests are substantially similar to its responses in the 2013 proceeding. However, Calcasieu Pass also responds to IECA's protest.[225] First, as to IECA's argument that DOE should more clearly define the public interest under NGA section 3(a) based on new criteria, Calcasieu Pass states that DOE/FE has set forth the range of factors relevant to the public interest and weighed those factors in its determinations. This is a "perfectly reasonable" approach, according to Calcasieu Pass. Second, Calcasieu Pass observes that DOE/FE has previously rejected IECA's argument that the 1984 Policy Guidelines—originally applied to natural gas import applications—should not be applied to LNG export proposals. Calcasieu Pass maintains that the 1984 Policy Guidelines are as equally applicable to exports as imports. Third, Calcasieu Pass contends that IECA's claim of bias in EIA's studies of the impacts of LNG exports has been addressed in prior DOE/FE decisions. Fourth, Calcasieu Pass opposes IECA's proposal that DOE/FE should modify or rescind prior authorizations if production forecasts turn out to be wrong. Instead, Calcasieu Pass supports the position that DOE/FE will issue supplemental orders modifying or rescinding its prior approvals of LNG export applications only in extraordinary circumstances.

D. 2015 Application, FE Docket No. 15-25-LNG

In its motion to intervene, API restates the basis for its intervention described above.[226]

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[224] Calcasieu Pass at 12-13.
[225] Calcasieu Pass at 8-9.
[226] American Petroleum Instit., Motion to Intervene, FE Docket No. 15-25-LNG (Aug. 28, 2015).

VIII. DISCUSSION AND CONCLUSIONS

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

- Calcasieu Pass's three Applications, and the filings made in response thereto;
- FERC's final EIS and February 21, 2019 Order, including the 111 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.

A. Procedural Matters

1. Motions to Intervene

First, we note that API's motions to intervene in each of the current proceedings were granted by operation of law under 10 C.F.R. § 590.303(g), when Calcasieu Pass did not oppose or otherwise answer the motions.[227]

Next, we find good cause to grant the motions to intervene submitted by APGA, Sierra Club, and IECA, as well as Sierra Club's motion to reply to Calcasieu Pass's Answer in the 2013 proceeding. We have considered the Answers filed by Calcasieu Pass in the 2013 and 2014 proceedings. But, based on the evidence of record, we find that the economic consequences of granting each of the Applications could be far-reaching and could affect the public interest

[227] *See infra* § XI (Ordering Para. Q).

generally and, specifically, the interests of the proposed intervenors and their members. These facts alone are good cause to grant their intervention, as well as Sierra Club's motion to reply to Calcasieu Pass's Answer in the 2013 proceeding.[228]

2. Motions to Suspend

In the 2014 proceeding, APGA and IECA each filed a Motion to Suspend Consideration of the Application. These motions were denied by operation of law pursuant to 10 C.F.R. § 590.302(c), when DOE/FE did not act on the motions within 30 days.[229]

B. Non-Environmental Issues

1. Public Interest Standard

As a preliminary matter, IECA argues that DOE/FE is improperly using the 2012 LNG Export Study as a "proxy" for a definition of public interest and asserts that the public interest instead should be defined on the basis of "objective standards."[230] Sierra Club and IECA also contend that DOE/FE may not rely on the 1984 Policy Guidelines in evaluating the public interest, as those Guidelines were promulgated for natural gas imports rather than exports.

As discussed above (*supra* § 3), NGA section 3(a) requires DOE to find that a proposed export of natural gas will be consistent with the public interest.[231] A public interest standard in a statute is understood to be an "'instrument for the exercise of discretion by the expert body which Congress has charged to carry out its legislative policy.'"[232] Accordingly, in prior proceedings, DOE/FE has identified a range of factors that it considers in evaluating the public interest. DOE's review of applications to export U.S. LNG focuses on: (i) the domestic need for

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[228] *See infra* § XI (Ordering Paras. Q, R).
[229] *See infra* (Ordering Para. S).
[230] IECA Mot. at 3-8.
[231] 15 U.S.C. § 717b(a).
[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)).

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. 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 imports.[233] 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.[234]

The 2018 LNG Export Study (like DOE's prior economic studies) is an essential part of DOE/FE's analysis, as are EIA's projections on natural gas supply and demand on which the Study is based. 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.[235] These findings of the 2018 Study, as well as the others described herein, demonstrate that DOE/FE considers a wide range of issues and potential impacts to ensure that the proposed exports are consistent with the public interest. Further, DOE considers each application based on the administrative record compiled in each individual proceeding. Neither intervenor-protestor has shown that DOE/FE's analysis of these factors in evaluating the public interest is unreasonable as applied to this proceeding.[236]

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[233] *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.
[234] *See, e.g., Sierra Club I,* 867 F3d. at 193-94, 203.
[235] 2018 Study Response to Comments, 83 Fed. Reg. at 67,259.
[236] We further find that IECA's other arguments are moot (concerning 2010-era EIA projections) or lack a factual basis (in the case of its arguments that natural gas forecasts "will all be wrong," thus requiring periodic remedial action by DOE/FE). *See* IECA Mot. at 11-15.

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.[237] 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.[238]

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.[239] DOE/FE has assessed AEO 2019 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study. The Reference case for AEO 2017 includes the effects of the Clean Power Plan (CPP) final rule, which was intended to reduce GHG emissions from the power sector.[240] 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

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

[238] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

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

[240] U.S. Envtl. Prot. Agency, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule, 80 Fed. Reg. 64,662 (Oct. 23, 2015). On February 9, 2016, the U.S. Supreme Court issued a stay of the effectiveness of the CPP final rule pending review by the D.C. Circuit in consolidated cases 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.*, EPA Status Report, at 2-3 (D.C. Cir. Feb. 8, 2019) (describing the proposed "Affordable Clean Energy Rule"). That rulemaking is on-going, and EPA has asked for the consolidated cases to remain in abeyance pending the conclusion of the rulemaking. *See* EPA Status Report at 3.

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 Calcasieu Pass's proposed authorization will not be inconsistent with the public interest.

3. Calcasieu Pass's Applications

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

First, due to the vintage of the Applications, Calcasieu Pass points to DOE's 2012 and 2014 LNG Export 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 Applications.[241]

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

Second, the 2018 LNG Export Study indicates that exports of LNG will generate net economic benefits to the broader U.S. economy.[242] 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.[243]

Third, as discussed below, over the 20-year term of the authorization, the proposed exports will improve the liquidity of international natural gas markets and will make a positive contribution to the United States' trade balance. For these reasons, we agree with Calcasieu Pass that its proposed exports are consistent with U.S. policy.[244]

Sierra Club, APGA, and IECA argue that the requested authorization has not been shown to be consistent with the public interest. They contend that the net economic benefits projected in the original 2012 NERA Study will be limited to a relatively small, affluent segment of the population. They argue that, independent of the distributional economic impacts of LNG exports, the proposed exports likely will have a negative impact on the U.S. economy by increasing the price of natural gas and eliminating jobs in energy intensive industries. Sierra Club further asserts that, although some regions may benefit from job growth because of additional natural gas production, the benefits will be temporary and will be overtaken by a "boom-bust" cycle characteristic of economies built on extractive industries.

On review, DOE/FE finds that the record evidence showing that the proposed exports will be in the public interest outweighs the intervenor-protestors' concerns. DOE has considered and rejected each of the arguments raised by the intervenors in earlier proceedings based on the 2012, 2014, and 2015 LNG Export Studies and, more recently, in the 2018 LNG Export Study

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[242] *Id*.
[243] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,268-69 (citing 2018 LNG Export Study at 67, 70).
[244] 2015 App. at 34-35.

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."[245] 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.[246]

In response to Sierra Club's claim that the proposed exports will physically exhaust existing resources (resulting in a "bust"), we refer to the findings of the 2018 Study and EIA's projections in AEO 2019 indicating there will be substantial natural gas supply available into the foreseeable future. To the extent Sierra Club alleges that "bust" cycles will be brought on by price declines that render existing natural gas resources uneconomical to produce, we do not see compelling evidence that the exports will exacerbate this risk. If anything, we agree with Calcasieu Pass that it is more likely that Calcasieu Pass's ability to export to non-FTA countries will deepen and diversify the market for U.S.-produced natural gas, diminishing the potential for a precipitous price-driven downturn in production activities.[247]

Finally, we note that in the consolidated *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).[248] 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

[245] 2018 Study Response to Comments, 83 Fed. Reg. at 67,259.
[246] *Id*.
[247] We also note that none of the intervenor-protestors offered specific evidence to rebut Calcasieu Pass's evidence of the local and regional economic benefits associated with the Project.
[248] *See Sierra Club v. U.S. Dep't of Energy,* Nos. 16-1186, 16-1252, 16-1253, 703 Fed. Appx. 1, at *3 (D.C. Cir. Nov. 1, 2017) (*Sierra Club II*), discussed *supra* § II.C.

inconsistent with the public interest on these grounds."[249] On this basis, the Court held that DOE/FE had "adequately addressed" Sierra Club's concerns regarding distributional impacts.[250]

Likewise, in these proceedings, none of the intervenor-protestors advancing this argument have provided a quantitative analysis of the distributional consequences of authorizing LNG exports at the household level. Absent stronger record evidence on these alleged distributional consequences, we cannot say that increased LNG exports are inconsistent with the public interest on these grounds.

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

4. Price Impacts

APGA, IECA, and Sierra Club allege that higher volumes of LNG exports, including Calcasieu Pass's proposed exports, will lead to large increases in domestic prices of natural gas. We disagree, based on both the data available at the time the intervenors raised these concerns and the most recent data available today. 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 24.74 Bcf/d of natural gas with the issuance of this Order). The 2018 Study found that, "[i]ncreasing U.S. LNG exports under any given set of assumptions about

[249] *Id*. (internal quotations omitted and alteration in original).
[250] *Id*.

U.S. natural gas resources and their production leads to only small increases in U.S. natural gas prices."[251]

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

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

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

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

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

For these reasons, and as explained in DOE/FE's Response to Comments on the 2018 Study, we find that the intervenors' arguments concerning domestic price increases are not supported by the record evidence.[252]

[252] *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).

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. As discussed above, we review applications to export LNG to non-FTA nations under section 3(a) of the NGA. The United States' commitment to free trade is one factor bearing on that review.

Additionally, an efficient, transparent international market for natural gas with diverse sources of supply provides both economic and strategic benefits to the United States and our allies. Indeed, increased production of domestic natural gas has significantly reduced the need for the United States to import LNG. In global trade, LNG shipments that would have been destined to U.S. markets have been redirected to Europe and Asia, improving energy security for many of our key trading partners. To the extent U.S. exports can diversify global LNG supplies and increase the volumes of LNG available globally, these exports will improve energy security for many U.S. allies and trading partners. As such, we agree with Calcasieu Pass 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 Calcasieu Pass's proposal to export LNG, DOE/FE has considered both its obligations under NEPA and its obligation under NGA section 3(a) to ensure that the proposal is not inconsistent with the public interest.

1. 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 EIS and determines that its comments and suggestions have been satisfied.[253] 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-0510) (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. Scope of NEPA Review

Sierra Club's protest is based principally on its argument that, under NEPA, DOE/FE must consider the potential for increased domestic natural gas production and associated increased environmental impacts resulting from the proposed Project. In particular, Sierra Club maintains that DOE/FE cannot grant the requested authorization without taking a "hard look" at the effects of induced natural gas production attributable to the Project. Since the time that Sierra Club filed its protests on the 2013 and 2014 Applications, however, the D.C. Circuit has unanimously ruled in DOE's favor in the *Sierra Club I* and *II* cases, denying Sierra Club's petitions for review with respect to this argument.[254] The Court held that DOE "offered a reasoned explanation as to why it believed the indirect effects pertaining to increased gas production were not reasonably foreseeable" under NEPA.[255] We find that the Court's conclusions and reasoning control Sierra Club's similar arguments in this proceeding, and we therefore decline to address them further.

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[253] *See* 40 C.F.R. § 1506.3(c).
[254] *See Sierra Club I*, 867 F.3d at 198; *see generally id*. at 196-200; *see also Sierra Club II,* 703 Fed. Appx. 1, *2-3 ("Given the speculative and nonspecific nature of the additional information about the location of incremental gas production, it was neither arbitrary nor capricious for the Department not to engage in a more localized analysis.").
[255] *See Sierra Club I*, 867 F.3d at 198.

3. 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.[256] Nevertheless, a decision by DOE/FE to authorize exports to non-FTA nations could accelerate that development by some increment. As discussed above, the Addendum reviewed the academic and technical literature covering the most significant issues associated with unconventional gas production, including impacts to water resources, air quality, greenhouse gas emissions, induced seismicity, and land use.

The Addendum shows that there are potential environmental issues associated with unconventional natural gas production that need to be carefully managed, especially with respect to emissions of volatile organic compounds (VOCs) 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

[256] Addendum at 2.

would have little more than a modest, incremental impact on the environmental issues identified by intervenors.

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.[257]

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

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

The LCA GHG Report estimated the life cycle GHG emissions of U.S. LNG exports to Europe and Asia, compared with certain other fuels used to produce electric power in those importing countries.[258] The key findings for U.S. LNG exports to Europe and Asia are summarized in Figures 1 and 2 below:

[257] *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.
[258] *See supra* § II.B.

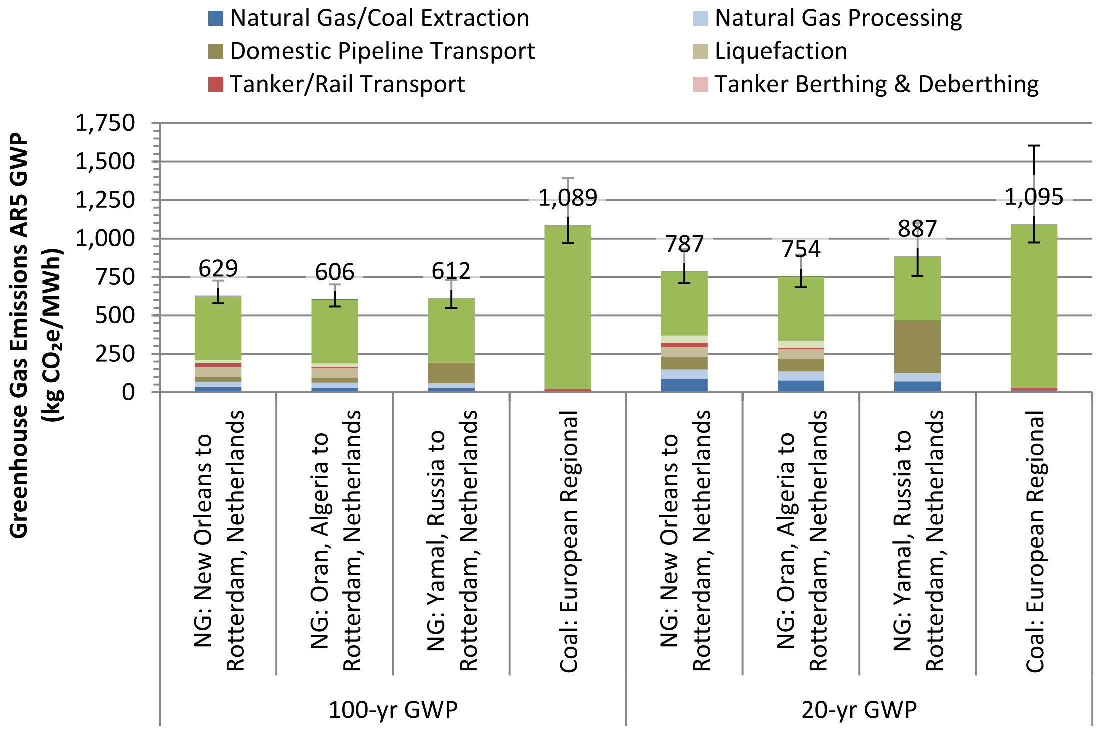

Figure 1: Life Cycle GHG Emissions for Natural Gas and Coal Power in Europe[259]

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

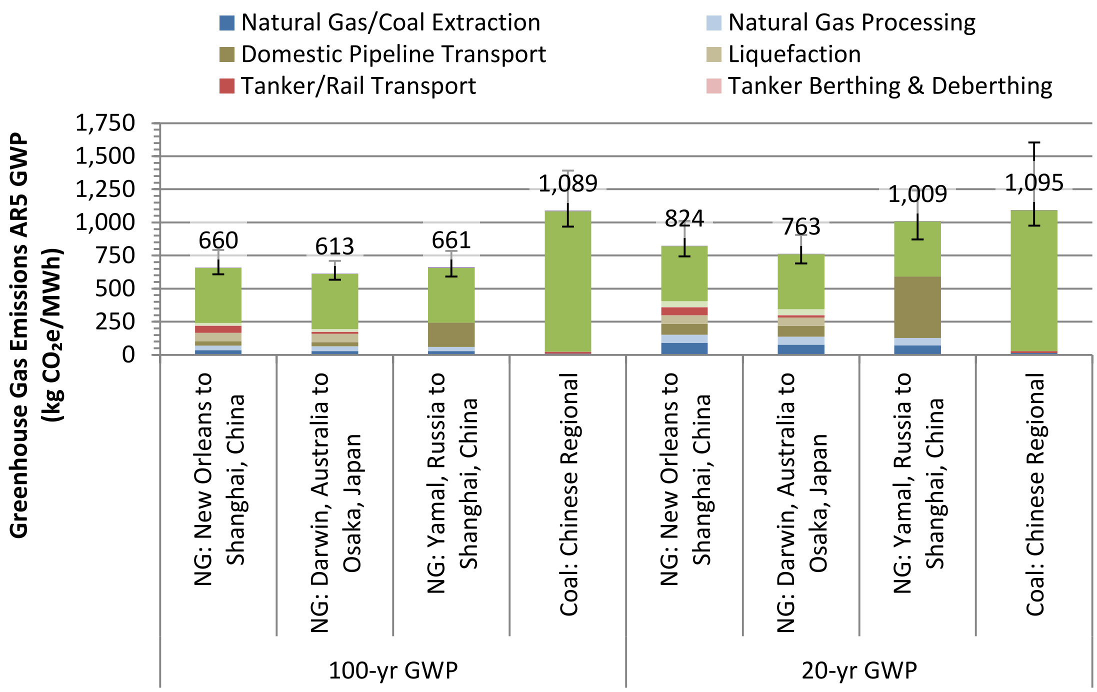

Figure 2: Life Cycle GHG Emissions for Natural Gas and Coal Power in Asia[260]

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.[261]

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

[260] LCA GHG Report at 10 (Figure 6-2).
[261] *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."[262] We find that the Court's conclusions and reasoning control Sierra Club's similar arguments in this proceeding, and we therefore decline to address them further.

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[262] *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 situation and data indicating that the natural gas industry would increase natural gas supply in response to increasing exports. Further, we note that it is far from certain that all or even most of the proposed LNG export projects will ever be realized because of the time, difficulty, and expense of commercializing, financing, and constructing LNG export terminals, as well as the uncertainties inherent in the global market demand for LNG.

More generally, DOE/FE continues to subscribe to the principle set forth in our 1984 Policy Guidelines[263] 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.[264] Given

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[263] 1984 Policy Guidelines, 49 Fed. Reg. 6684.

[264] 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 Calcasieu Pass's proposed exports will be inconsistent with the public interest. We further find that the intervenor-protestors in this proceeding—Sierra Club, APGA, and IECA—have failed to overcome the statutory presumption that the proposed export authorization is not consistent with the public interest.

In deciding whether to grant a final non-FTA export authorization, we also consider the cumulative impacts of the total volume of all non-FTA export authorizations. With the issuance of this Order, there are currently 30 final non-FTA authorizations in a cumulative volume of exports totaling 24.74 Bcf/d of natural gas, or approximately 9.03 Tcf per year, as follows: Sabine Pass Liquefaction, LLC (2.2 Bcf/d),[265] Carib Energy (USA) LLC (0.04 Bcf/d),[266] Cameron LNG, LLC (1.7 Bcf/d),[267] FLEX I (1.4 Bcf/d),[268] FLEX II (0.4 Bcf/d),[269] Dominion

[265] *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).

[266] *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).

[267] *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).

[268] *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).

[269] *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).

Cove Point LNG, LP (0.77 Bcf/d),[270] Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),[271] Sabine Pass Liquefaction, LLC Expansion Project (1.38 Bcf/d),[272] American Marketing LLC (0.008 Bcf/d),[273] Emera CNG, LLC (0.008 Bcf/d),[274] Floridian Natural Gas Storage Company, LLC,[275] Air Flow North American Corp. (0.002 Bcf/d),[276] Bear Head LNG Corporation and Bear Head LNG (USA), LLC (0.81 Bcf/d),[277] Pieridae Energy (USA) Ltd.,[278] Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),[279] Cameron LNG, LLC Design

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[270] *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).
[271] *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).
[272] *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).
[273] *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).
[274]*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).
[275] *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).
[276] *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).
[277] *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).
[278] *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).
[279] *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).

Increase (0.42 Bcf/d),[280] Cameron LNG, LLC Expansion Project (1.41 Bcf/d),[281] Lake Charles Exports, LLC (2.0 Bcf/d),[282] Lake Charles LNG Export Company, LLC,[283] Carib Energy (USA), LLC (0.004),[284] Magnolia LNG, LLC (1.08 Bcf/d),[285] Southern LNG Company, L.L.C. (0.36 Bcf/d),[286] the FLEX Design Increase (0.34 Bcf/d),[287] Golden Pass Products LLC (2.21 Bcf/d),[288] Delfin LNG LLC,[289] the Lake Charles LNG Export Company, LLC Design Increase (0.33

[280] *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).
[281] *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).
[282] *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).
[283] *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).
[284] *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).
[285] *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).
[286] *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).
[287] *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).
[288] *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).
[289] *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).

Bcf/d),[290] the Lake Charles Exports, LLC Design Increase,[291] Eagle LNG Partners Jacksonville II LLC,[292] Mexico Pacific Limited LLC,[293] 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.[294] Additionally, we note that the volumes authorized for export in the *Lake Charles Exports* and *Lake Charles LNG Export* orders are both 2.0 Bcf/d and 0.33 Bcf/d, respectively, yet are not additive to one another because the source of LNG approved under all of those orders is the Lake Charles Terminal. Likewise, the *Carib* and *Floridian* orders are both 14.6 Bcf/yr of natural gas (0.04 Bcf/d), yet are not additive to one another because the source of LNG approved under both orders is from the Floridian Facility.[295] 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

[290] *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).
[291] *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).
[292] *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).
[293] *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).
[294] *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).
[295] *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.").

0.81 Bcf/d to reflect the current capacity of the Maritimes Northeast Pipeline at the U.S.-Canadian border.[296]

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.[297]

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

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

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[296] *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.").
[297] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (citing 2018 LNG Export Study at 63 & Appx F).

IX. FINDINGS

On the basis of the findings and conclusions set forth above, DOE/FE grants Calcasieu Pass's Applications in FE Dockets No. 13-69-LNG, 14-88-LNG, and 15-25-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. Calcasieu Pass must abide by each Term and Condition or face appropriate sanction.

A. Term of the Authorization

In each of the three Applications, Calcasieu Pass requests a 25-year term for the authorization. However, consistent with the final non-FTA authorizations issued to date, we believe that caution recommends limiting this authorization to no longer than a 20-year term beginning from the date of first export. 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 Calcasieu Pass commences commercial export of domestically sourced LNG from the Project, but not before.

B. Commencement of Operations

In the 2013 Application, Calcasieu Pass requests that this authorization commence on the earlier of the date of first export or eight years from the date of the issuance of this Order. In the 2014 and 2015 Applications, Calcasieu Pass 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 Calcasieu Pass 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

Calcasieu Pass will be permitted to apply for short-term export authorizations to export Commissioning Volumes prior to the commencement of the first commercial exports of domestically sourced LNG from the 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 Calcasieu Pass's long-term contracts.[298] The Commissioning Volumes will not be counted against the maximum level of volumes previously authorized in Calcasieu Pass's FTA authorizations or in this Order.

D. Make-Up Period

Calcasieu Pass 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 Calcasieu Pass's FTA authorizations or in this Order. Insofar as Calcasieu Pass

[298] 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.[299] DOE/FE has found that this requirement applies to any change of control of the authorization holder. This condition was deemed necessary to ensure that DOE/FE will be given an adequate opportunity to assess the public interest impacts of such a transfer or change.

DOE/FE construes a change in control to mean a change, directly or indirectly, of the power to direct the management or policies of an entity whether such power is exercised through one or more intermediary companies or pursuant to an agreement, written or oral, and whether such power is established through ownership or voting of securities, or common directors, officers, or stockholders, or voting trusts, holding trusts, or debt holdings, or contract, or any other direct or indirect means.[300] 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.[301]

F. Agency Rights

Calcasieu Pass requests authorization to export LNG on its own behalf and as agent for other entities that hold title to the LNG at the time of export, pursuant to long-term contracts. DOE/FE previously has determined that, in LNG export orders in which Agency Rights have

[299] 10 C.F.R. § 590.405.
[300] *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).
[301] *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.[302]

To ensure that the public interest is served, this authorization shall be conditioned to require that where Calcasieu Pass 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 Calcasieu Pass file or cause to be filed with DOE/FE any relevant long-term commercial agreements, including liquefaction tolling agreements, pursuant to which Calcasieu Pass 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).[303]

In addition, DOE/FE finds that section 590.202(c) of DOE/FE's regulations[304] requires that Calcasieu Pass file, or cause to be filed, all long-term contracts associated with the long-term

[302] *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).
[303] 10 C.F.R. § 590.202(b).
[304] *Id*. § 590.202(c).

supply of natural gas to the Project, whether signed by Calcasieu Pass or the Registrant, within 30 days of their execution.

DOE/FE recognizes that some information in Calcasieu Pass's or a Registrant's long-term commercial agreements associated with the export of LNG, and/or long-term contracts associated with the long-term supply of natural gas to the Project, may be commercially sensitive. DOE/FE therefore will provide Calcasieu Pass the option to file or cause to be filed either unredacted contracts, or in the alternative (A) Calcasieu Pass may file, or cause to be filed, long-term contracts under seal, but it also will file either: i) a copy of each long-term contract with commercially sensitive information redacted, or ii) a summary of all major provisions of the contract(s) including, but not limited to, the parties to each contract, contract term, quantity, any take or pay or equivalent provisions/conditions, destinations, re-sale provisions, and other relevant provisions; and (B) the filing must demonstrate why the redacted information should be exempted from public disclosure.[305]

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 the non-FTA portion of Calcasieu Pass's three Applications in the full volume requested (243.6 Bcf/yr, 243.6 Bcf/yr, and 132.8 Bcf/yr, respectively), for a combined total volume of 620 Bcf/yr of natural gas.

[305] *Id*. § 590.202(e) (allowing confidential treatment of information in accordance with 10 C.F.R. § 1004.11).

I. Combined FTA and Non-FTA Export Authorization Volumes

The volumes of LNG authorized for export in Calcasieu Pass's FTA authorizations (DOE/FE Order No. 3345, 3520, and 3662) and this Order reflect the planned liquefaction capacity of the Project, as approved by FERC. Accordingly, Calcasieu Pass 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. Venture Global Calcasieu Pass, LLC (Calcasieu Pass) is authorized to export domestically produced LNG by vessel from the proposed Venture Global Calcasieu Pass Project (Project) to be located in Cameron Parish, Louisiana, in a volume up to the equivalent of 620 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. Calcasieu Pass 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. Calcasieu Pass 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 Calcasieu Pass's FTA authorizations or in this Order.

C. Calcasieu Pass 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 Calcasieu Pass's FTA authorizations or in this Order. Insofar as Calcasieu Pass may seek to export additional volumes not previously authorized, it will be required to obtain appropriate authorization from DOE/FE.

D. Calcasieu Pass 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 620 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. Calcasieu Pass shall ensure that all transactions authorized by this Order are permitted and lawful under U.S. laws and policies, including the rules, regulations, orders, policies, and other determinations of the Office of Foreign Assets Control of the U.S. Department of the Treasury and FERC. Failure to comply with these requirements could result in rescission of this authorization and/or other civil or criminal penalties.

H. Calcasieu Pass shall ensure compliance with all terms and conditions established by FERC in the final EIS, including the 111 environmental conditions adopted in the FERC Order issued on February 21, 2019. Additionally, this authorization is conditioned on Calcasieu Pass's on-going compliance with any other preventative and mitigative measures at the Project imposed by federal or state agencies.

I. (i) Calcasieu Pass shall file, or cause others to file, with the Office of Regulation, Analysis, and Engagement a non-redacted copy of <u>all executed long-term contracts associated with the long-term export of LNG</u> as agent for other entities from the Project. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described above.

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

J. Calcasieu Pass 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 Calcasieu Pass with all information necessary to permit Calcasieu Pass 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. Calcasieu Pass, or others for whom Calcasieu Pass 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. 4346, issued March 5, 2019, in FE Docket Nos. 13-69-LNG, 14-88-LNG, and 15-25-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 Venture Global Calcasieu Pass, 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 Venture Global Calcasieu Pass, LLC is made aware of all such actual destination countries.

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

M. Calcasieu Pass 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, Calcasieu Pass must comply with DOE/FE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.[306]

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

[306] *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 in each Application proceeding was granted by operation of law.[307] The motions to intervene submitted by APGA and Sierra Club in FE Docket Nos. 13-69-LNG and 14-88-LNG are granted. The motion to intervene submitted by IECA in FE Docket No. 14-88-LNG is also granted.

R. Sierra Club's motion to reply to Calcasieu Pass's Answer in FE Docket No. 13-69-LNG is granted.

[307] 10 C.F.R. § 590.303(g).

S. The Motions to Suspend submitted by APGA and IECA in FE Docket No. 14-88-LNG were denied by operation of law.[308]

Issued in Washington, D.C., on March 5, 2019.

Steven E. Winberg
Assistant Secretary
Office of Fossil Energy

[308] *Id.* § 590.302(c).

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),[309] and in compliance with the Council on Environmental Quality (CEQ) implementing regulations for NEPA,[310] DOE's implementing procedures for NEPA,[311] and DOE's "Compliance with Floodplain and Wetland Environmental Review Requirements."[312]

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 the proposed Venture Global Calcasieu Pass Project (and associated pipeline) that would be used to support the export authorization sought from DOE/FE.[313] In accordance with 40 C.F.R. § 1506.3, DOE/FE adopted the final EIS on November 1, 2018 (DOE/EIS-0510),[314] and EPA published a notice of the adoption on November 9, 2018.[315]

A. Alternatives

The EIS assessed alternative methods that could be used to achieve Calcasieu Pass's Project objectives. The range of alternatives analyzed included the No-Action Alternative, system alternatives, alternative terminal facility sites, alternative terminal configurations, alternative dredge disposal locations, alternative pipeline routes, and process alternatives.[316] Alternatives were evaluated and compared to the Project to determine if the alternatives were

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[309] 42 U.S.C. § 4321, *et seq*.
[310] *Id*. § 1500-08.
[311] 10 C.F.R. § 1021.
[312] *Id*. § 1022.
[313] Federal Energy Regulatory Comm'n, Calcasieu Pass Project *Final Environmental Impact Statement,* Docket Nos. CP15-550-000, CP15-551-000, and CP15-551-001 (Oct. 22, 2018).
[314] Letter from Amy Sweeney, DOE/FE, to Julie Roemele, U.S. EPA (Nov. 1, 2018) (adoption of final EIS).
[315] U.S. Envtl. Protection Agency, Environmental Impact Statements; Notice of Availability, 83 Fed. Reg. 56,078 (Nov. 9, 2018).
[316] Final EIS at 3-1 to 3-17.

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.[317] 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.[318]

The EIS evaluated system alternatives for the Project's LNG export terminal by reviewing six existing LNG terminal sites with approved, proposed, and/or planned expansions to export to FTA countries (10 expansions total) and 13 new LNG terminals that have been approved, proposed, and/or planned on greenfield sites. Based on this evaluation, the EIS concluded that each of the potential alternatives lacked significant environmental advantages over the Project.[319]

The EIS also evaluated several terminal site alternatives. The EIS analyzed the feasibility of constructing the terminal based on a number of criteria, including availability of land for purchase or lease, size of parcel, frontage on the Calcasieu River Ship Channel, and other factors. The limited size of the alternative sites made them infeasible. In addition, the EIS determined that all alternative sites that could meet the Project objectives likely would have a similar level of impact on environmental resources as the proposed site. The EIS therefore

[317] *Id*. at 3-2.
[318] *Id.*
[319] *Id*. at 3-5.

concluded that the proposed site is the preferred alternative.[320]

For alternative terminal configurations, the EIS noted that facility design and configuration within the terminal site is subject to the siting requirements of 49 C.F.R. § 193 and other industry or engineering standards, and that the selected location of each of the components of the terminal was based on the relevant regulations, codes, and guidelines.[321] FERC staff evaluated the proposed configuration and project specification changes in three supplemental and addendum filings relative to impacts on wetlands and other sensitive resources. FERC staff did not identify any alternative configurations that could both meet the required regulations, codes, and guidelines and reduce environmental impacts.[322]

Calcasieu Pass continues to discuss dredge disposal options with various agencies. Beneficial reuse of some dredged material is proposed, as well as mitigation measures to compensate for wetland impacts.[323]

Additionally, the EIS evaluated the proposed pipeline lateral route and an alternative route that Calcasieu Pass had considered. The location of the lateral pipeline would be constrained between two features, the Sabine National Wildlife Refuge and the Calcasieu River Ship Channel. For this reason, no additional pipeline route alternatives were identified, and FERC staff determined that the evaluation of additional major route alternatives was not necessary.[324] The EIS determined that the proposed route offers significant environmental advantages compared to the alternative route, particularly as it relates to collocation, additional setbacks from the shoreline, and reduced wetlands impacts. The EIS thus concluded that the

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[320] *Id.* at 3-10.
[321] *Id*.
[322] Final EIS at 3-11.
[323] *Id.*
[324] *Id*. at 3-12.

proposed route was the preferred alternative.[325]

Finally, Calcasieu Pass considered several different liquefaction process technologies currently available, and ultimately selected the GE Oil & Gas SMR Process as the design best suited to the Project. FERC staff concluded that none of the alternative processes offered any significant environmental advantages over the proposed technology.[326]

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 final EIS, the adoption of this alternative would not meet the objectives of the Project.[327]

C. Decision

DOE/FE has decided to issue Order No. 4346 authorizing Calcasieu Pass to export domestically produced LNG by vessel from the proposed Calcasieu Pass Project to non-FTA countries in a volume equivalent to 620 Bcf/d of natural gas for a term of 20 years. DOE/FE's decision is based on: (i) the analysis of potential environmental impacts presented in the final EIS; and (ii) DOE's determination in the Order that the opponents of Calcasieu Pass's Applications have failed to show that the proposed exports will be inconsistent with the public interest, as would be required to deny the Applications under NGA section 3(a).[328] DOE also considered the Addendum, which summarizes available information on potential upstream impacts associated with unconventional natural gas activities, such as hydraulic fracturing.

[325] *Id*. at 3-15.
[326] *Id.* at 3-17.
[327] *Id*. at 14-15; FERC Order at ¶ 116.
[328] 15 U.S.C. § 717b(a).

D. Mitigation

As a condition of its decision to issue Order No. 4346, DOE/FE is imposing requirements that will avoid or minimize the environmental impacts of the Project. These conditions include the 111 environmental conditions recommended in the final EIS and adopted by FERC in its order authorizing the Project on February 21, 2019.[329] Mitigation measures beyond those included in DOE/FE Order No. 4346 that are enforceable by other Federal and state agencies are additional conditions of DOE/FE Order No. 4346. 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."[330] The required floodplain assessment was conducted during development and preparation of the final EIS.[331] The final EIS determined that portions of the Project, including the pipeline lateral, would be located in the 100-year and 500-year flood plain with base flood elevations.[332] 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.

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[329] *Venture Global Calcasieu Pass, LLC, et al.*, Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 166 FERC ¶ 61,144, at ¶¶ 117-18 & Appx. (Feb. 21, 2019).
[330] 10 C.F.R. § 1022.
[331] Final EIS at 4-4; 4-189 to 4-216.
[332] *Id*. at 4-199.