UNITED STATES OF AMERICA

DEPARTMENT OF ENERGY

OFFICE OF FOSSIL ENERGY

VENTURE GLOBAL PLAQUEMINES LNG, LLC	)))	FE DOCKET NO. 16-28-LNG

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

DOE/FE ORDER NO. 4446

OCTOBER 16, 2019

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FREQUENTLY USED ACRONYMS

AEO	Annual Energy Outlook
API	American Petroleum Institute
Bcf/d	Billion Cubic Feet per Day
Bcf/yr	Billion Cubic Feet per Year
CPP	Clean Power Plan
DOE	U.S. Department of Energy
EIA	U.S. Energy Information Administration
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FE	Office of Fossil Energy, U.S. Department of Energy
FERC	Federal Energy Regulatory Commission
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GHG	Greenhouse Gas
LCA	Life Cycle Analysis
LNG	Liquefied Natural Gas
Mcf	Thousand Cubic Feet
MMBtu	Million British Thermal Units
mtpa	Million Metric Tons per Annum
NEPA	National Environmental Policy Act
NERA	NERA Economic Consulting
NETL	National Energy Technology Laboratory
NGA	Natural Gas Act

I. INTRODUCTION

On March 1, 2016, Venture Global Plaquemines LNG, LLC (Plaquemines LNG) filed an Application[1] with the Office of Fossil Energy (FE) of the Department of Energy (DOE) under section 3 of the Natural Gas Act (NGA).[2] Plaquemines LNG requests long-term, multi-contract authorization to export domestically produced liquefied natural gas (LNG) from the proposed Plaquemines LNG Project (the Project)—a planned natural gas liquefaction and LNG export terminal that Plaquemines LNG proposes to site, construct, and operate on the west bank of the Mississippi River, near river mile marker 55, in Plaquemines Parish, Louisiana.[3] Plaquemines LNG seeks to export this LNG by vessel to: (i) any country with which the United States currently has, or in the future will have, a free trade agreement (FTA) requiring national treatment for trade in natural gas (FTA countries);[4] and (ii) any other country with which trade is not prohibited by U.S. law or policy (non-FTA countries).[5]

Plaquemines LNG requests authority to export LNG to both FTA and non-FTA countries in a volume equivalent to 1,240 billion cubic feet (Bcf) per year (Bcf/yr) of natural gas, or 3.40 Bcf per day (Bcf/d)—which it states is equivalent to 24 million metric tons per annum (mtpa) of

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[1] Venture Global Plaquemines LNG, LLC, Application of Venture Global Plaquemines LNG, LLC, for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Free Trade Agreement and Non-Free Trade Agreement Countries, FE Docket No. 16-28-LNG (Mar. 1, 2016) [hereinafter App.].

[2] 15 U.S.C. § 717b. The authority to regulate the imports and exports of natural gas, including liquefied natural gas, under section 3 of the NGA (15 U.S.C. § 717b) has been delegated to the Assistant Secretary for FE in Redelegation Order No. 00-002.04G issued on June 4, 2019.

[3] App. at 1.

[4] 15 U.S.C. §717b(c). The United States currently has FTAs requiring national treatment for trade in natural gas with Australia, Bahrain, Canada, Chile, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, Republic of Korea, and Singapore. FTAs with Israel and Costa Rica do not require national treatment for trade in natural gas.

[5] 15 U.S.C. §717b(a); *see* App. at 1-2.

LNG.[6] On July 21, 2016, in Order No. 3866, DOE/FE granted the FTA portion of the Application in the requested volume of 1,240 Bcf/yr of natural gas.[7]

Plaquemines LNG requests the non-FTA authorization for a term of 25 years, commencing on the earlier of the date of first export or seven years from the date the authorization is granted. Additionally, Plaquemines LNG requests the authorization on its own behalf and as agent for other entities that hold title to the LNG at the time of export.[8]

On June 8, 2016, DOE/FE published a notice of the non-FTA portion of the Application in the *Federal Register* (Notice of Application).[9] The Notice of Application called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by August 8, 2016.[10] DOE/FE received a motion to intervene and comments in support of the Application, submitted by the American Petroleum Institute (API).[11] No protests or motions to intervene in opposition to the Application were filed, and therefore the Application is uncontested.[12]

On September 30, 2019, the Federal Energy Regulatory Commission (FERC) issued an order authorizing Plaquemines LNG to site, construct, and operate the Project in the requested

[6] App. at 1.
[7] *Venture Global Plaquemines LNG, LLC*, DOE/FE Order No. 3866, FE Docket No. 16-28-LNG, Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Plaquemines LNG Terminal in Plaquemines Parish, Louisiana, to Free Trade Agreement Nations (July 21, 2016). At Plaquemines LNG's request, the FTA authorization is for a term of 25 years.
[8] App. at 2.
[9] Venture Global Plaquemines LNG, LLC; Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations; Notice of Application, 81 Fed. Reg. 36,903 (June 8, 2016) [hereinafter Notice of Application].
[10] DOE finds that the requirement for public notice of applications in 10 C.F.R. Part 590 is applicable only to non-FTA applications under NGA section 3(a).
[11] American Petroleum Inst., Motion to Intervene and Comments in Support, FE Docket No. 16-28-LNG (Aug. 8, 2016) [hereinafter API Mot.]; *see infra* § VII.
[12] 10 C.F.R. § 590.102(b).

production capacity of 24 mtpa.[13] FERC also authorized Plaquemine LNG's affiliate, Venture Global Gator Express, LLC (Gator Express), to construct and operate the proposed Gator Express Pipeline Project. The Gator Express Pipeline Project will consist of two short pipeline laterals to transport natural gas from interconnections with existing interstate pipeline systems to the Project for liquefaction and export.[14]

DOE/FE has reviewed the non-FTA portion of the Application, API's comments supporting the Application, DOE's economic and environmental studies, the final environmental impact statement (EIS) for the Project prepared by FERC staff, the FERC Order, and the most recent projections of the U.S. Energy Information Administration (EIA), among other evidence discussed below. On the basis of this substantial administrative record, DOE/FE has determined that it has not been shown that Plaquemines LNG's proposed exports will be inconsistent with the public interest, as would be required to deny the Application under NGA section 3(a). DOE/FE therefore grants the non-FTA portion of the Application in the volume requested—1,240 Bcf/yr of natural gas.[15] Because the export volumes authorized in Plaquemines LNG's FTA order (DOE/FE Order No. 3866) and this Order each reflect the planned liquefaction capacity of the Project as approved by FERC, the FTA and non-FTA volumes are not additive.

Additionally, as discussed below, DOE/FE participated as a cooperating agency in FERC's environmental review of the Plaquemines LNG Project under the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321 *et seq*. FERC issued the final EIS

[13] *Venture Global Plaquemines LNG, LLC & Venture Global Gator Express, LLC,* Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 168 FERC ¶ 61,204, at ¶¶ 1, 3, 5 (Sept. 30, 2019) [hereinafter FERC Order]; *see also infra* § VI.
[14] *Id*. at ¶¶ 2, 3, 5; *see also infra* §§ IV.C, VI.
[15] *See infra* §§ IX-XI.

for the Project on May 3, 2019.[16] After an independent review, DOE/FE adopted the final EIS on May 17, 2019 (DOE/EIS-0539),[17] and the U.S. Environmental Protection Agency (EPA) published a notice of the adoption on May 24, 2019.[18] As an Appendix to this Order, DOE/FE is issuing the Record of Decision (ROD) under NEPA for the proposed Project. This Order requires Plaquemines LNG's compliance with the mitigation measures recommended in the final EIS, which FERC adopted as 128 environmental conditions.[19]

The volume approved for export in this Order—3.40 Bcf/d of natural gas—brings DOE/FE's cumulative total of approved non-FTA exports of LNG and compressed natural gas to 38.06 Bcf/d of natural gas.[20]

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.

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[16] Federal Energy Regulatory Comm'n, *Final Environmental Impact Statement for the Plaquemines LNG and Gator Express Pipeline Project*, Docket Nos. CP 17-66-000 and CP17-67-000 (May 3, 2019), *available at*: https://www.ferc.gov/industries/gas/enviro/eis/2019/05-03-19-FEIS/05-03-19-FEIS.pdf [hereinafter final EIS].
[17] Letter from Amy Sweeney, DOE/FE, to Julie Roemele, U.S. EPA (May 17, 2019) (adoption of final EIS).
[18] U.S. Envtl. Protection Agency, Environmental Impact Statements; Notice of Availability, 84 Fed. Reg. 24,134, 24,135 (May 24, 2019).
[19] The final EIS recommended 125 mitigation measures, which FERC adopted in the form of 128 environmental conditions after minor modifications. *See* FERC Order at ¶ 67 & n.86 (describing numbering changes); *see also infra* § XI (Ordering Para. H).
[20] *See infra* § VIII.D.

The second part, performed by NERA under contract to DOE, evaluated the macroeconomic impact of LNG exports on the U.S. economy. NERA used a general equilibrium macroeconomic model of the U.S. economy with an emphasis on the energy sector and natural gas in particular. The 2012 NERA Study projected that, across all scenarios studied—assuming either 6 Bcf/d or 12 Bcf/d of LNG export volumes—the United States would experience net economic benefits from allowing LNG exports.

In December 2012, DOE/FE published a notice of availability of the 2012 LNG Export Study in the *Federal Register* for public comment.[21] DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[22]

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.[23] 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.[24]

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[21] *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).

[22] *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).

[23] 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.

[24] *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* (memorandum from FE to EIA) (May 29, 2014), *available at*: http://energy.gov/fe/downloads/request-update-eia-s-january-2012-study-liquefied-natural-gas-export-scenarios.

DOE/FE commissioned two new macroeconomic studies. The first, *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets*, was performed by EIA and published in October 2014 (2014 EIA LNG Export Study or 2014 Study).[25] 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).[26]

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).[27] 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.

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[25] 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.

[26] 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.

[27] 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.

In December 2015, DOE/FE published a Notice of Availability of the 2014 and 2015 Studies in the *Federal Register*, and invited public comment on those Studies.[28] DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[29]

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.[30] 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.[31] 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,[32] and concurrently provided notice of the availability of the Study, as discussed below.[33]

[28] 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).

[29] *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).

[30] *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].

[31] 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.

[32] *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].

[33] *See* 2018 Study Notice.

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

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

(ii) Includes LNG exports in all 54 scenarios that are market-determined levels, including the three alternative baseline scenarios that are based on the projections in EIA's *Annual Energy Outlook 2017* (AEO 2017);[34]

(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.[35]

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.[36] 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

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[34] 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.
[35] *See* 2018 Study Notice, 83 Fed. Reg. at 27,316.
[36] *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].

EIA projections available at the time), with varying assumptions about U.S. natural gas supply.[37] The three cases for U.S. natural gas supply derived from AEO 2017 are:

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

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

iii. Low Oil and Gas Resource and Technology (LOGR) case, which provides less optimistic resource development estimates than the Reference case.[38]

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.[39]

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

[37] 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).
[38] *See id*.
[39] *See id*.

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.[40]

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

c. Study Results

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

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

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

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

- 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.[42]

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.[43] 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

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

and future non-FTA application proceedings."[44] 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.[45] Of those, nine comments supported the Study,[46] eight comments opposed the 2018 Study and exports of LNG,[47] one comment took no position,[48] and one comment was non-responsive.[49]

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.[50] 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.[51]

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.

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[44] *Id*., 83 Fed. Reg. at 27,315.
[45] The public comments are posted on the DOE/FE website at: https://fossil.energy.gov/app/docketindex/docket/index/10.
[46] 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.
[47] 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.
[48] Comment of John Young.
[49] Comment of Vincent Burke.
[50] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.
[51] *See id*. at 67,272.

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.[52] 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.[53] DOE highlighted the following key findings of the Study:

- "Increasing U.S. LNG exports under any given set of assumptions about U.S. natural gas resources and their production leads to only small increases in U.S. natural gas prices."[54]
- "Increased exports of natural gas will improve the U.S. balance of trade and result in a wealth transfer into the United States."[55]
- "Overall [U.S.] GDP improves as LNG exports increase for all scenarios with the same U.S. natural gas supply condition.[56]
- "There is no support for the concern that LNG exports would come at the expense of domestic natural gas consumption."[57]
- "[A] large share of the increase in LNG exports is supported by an increase in domestic natural gas production."[58]
- "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."[59]

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.[60] DOE/FE

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[52] *See id*.
[53] *See id*.
[54] *Id*. (quoting 2018 LNG Export Study at 55).
[55] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (quoting 2018 LNG Export Study at 64).
[56] *Id*. (quoting 2018 LNG Export Study at 67).
[57] *Id*. (quoting 2018 LNG Export Study at 77).
[58] *Id*.
[59] *Id*. (quoting 2018 LNG Export Study at 70).
[60] 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.

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.[61]

For all of these reasons, DOE/FE found that "the 2018 LNG Export Study is fundamentally sound and supports the proposition that exports of LNG from the lower-48 states, in volumes up to and including 52.8 Bcf/d of natural gas, will not be inconsistent with the public interest."[62] 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.[63]

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).[64] DOE/FE received public

[61] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[62] *Id*. (citing 2018 LNG Export Study at 63 & Appendix F).
[63] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[64] 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.

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.[65]

Second, DOE/FE commissioned the National Energy Technology Laboratory (NETL), a DOE applied research laboratory, to conduct an analysis calculating the life cycle greenhouse gas (GHG) emissions for LNG exported from the United States. The purpose of this analysis was to determine: (i) how domestically-produced LNG exported from the United States compares with regional coal (or other LNG sources) for electric power generation in Europe and Asia from a life cycle GHG perspective, and (ii) how those results compare with natural gas sourced from Russia and delivered to the same markets via pipeline. DOE/FE published NETL's report entitled, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States* (LCA GHG Report).[66] DOE/FE also received public comments on the LCA GHG Report and responded to those comments in prior orders.[67]

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.[68]

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[65] 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.

[66] 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.

[67] *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).

[68] We note that, on September 19, 2019, DOE/FE gave notice of an update to the LCA GHG Report, and that proceeding is on-going. *See* U.S. Dep't of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update, 84 Fed. Reg. 49,278 (Sept. 19, 2019).

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*),[69] and three in a consolidated, unpublished opinion issued on November 1, 2017 (*Sierra Club II*).[70] 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.[71]

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

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[69] *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*.).

[70] *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).

[71] *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)

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."[72]

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.[73] 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."[74] The Court thus held that, "[u]nder our limited and deferential review, we cannot say that the Department failed to fulfill its obligation under NEPA by declining to make specific projections about environmental impacts stemming from specific levels of export-induced [natural] gas production."[75]

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.[76] 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.[77]

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."[78] Having "already rejected

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

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."[79]

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."[80] 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.[81] The D.C. Circuit's decisions in *Sierra Club I and II* guide our review in this proceeding.

III. PUBLIC INTEREST STANDARD

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

> [N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the [Secretary of Energy[82]] 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.[83]

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.[84] Accordingly, DOE will conduct an informal adjudication and grant a non-FTA application unless

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[79] *Id.*
[80] *Sierra Club II,* 703 Fed. Appx. 1, at *2.
[81] *Id*.
[82] 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.
[83] 15 U.S.C. § 717b(a).
[84] *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)).

DOE finds that the proposed exportation will not be consistent with the public interest.[85] Before reaching a final decision, DOE must also comply with NEPA.

Although NGA section 3(a) establishes a broad public interest standard and a presumption favoring export authorizations, the statute does not define "public interest" or identify criteria that must be considered in evaluating the public interest. In prior decisions, DOE has identified a range of factors that it evaluates when reviewing an application for export authorization. These factors include economic impacts, international impacts, security of natural gas supply, and environmental impacts, among others. To conduct this review, DOE looks to record evidence developed in the application proceeding.

DOE's prior decisions have also looked to certain principles established in its 1984 Policy Guidelines.[86] 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.[87]

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[85] *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)).
[86] New Policy Guidelines and Delegations Order Relating to Regulation of Imported Natural Gas, 49 Fed. Reg. 6684 (Feb. 22, 1984) [hereinafter 1984 Policy Guidelines].
[87] *Id*. at 6685.

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.[88]

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.[89] 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."[90]

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

Plaquemines LNG is a Delaware limited liability company with its principal place of business in Washington, D.C. Plaquemines LNG is a wholly-owned subsidiary of Venture Global LNG, Inc. (Venture Global LNG), which is a Delaware corporation with its principal

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[88] *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)).

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

[90] DOE Delegation Order No. 0204-111 (Feb. 22, 1984), at 1 (¶ (b)); *see also* 1984 Policy Guidelines, 49 Fed. Reg. at 6690 (incorporating DOE Delegation Order No. 0204-111). In February 1989, the Assistant Secretary for Fossil Energy assumed the delegated responsibilities of the Administrator of the Economic Regulatory Administration. *See* Applications for Authorization to Construct, Operate, or Modify Facilities Used for the Export or Import of Natural Gas, 62 Fed. Reg. 30,435, 30,437 n.15 (June 4, 1997) (citing DOE Delegation Order No. 0204-127, 54 Fed. Reg. 11,436 (Mar. 20, 1989)).

place of business in Washington, D.C. Venture Global LNG is also the parent company of Venture Global Calcasieu Pass, LLC, which has received both FTA and non-FTA authorizations allowing it to export LNG from the proposed Venture Global Calcasieu Pass Project to be located in Cameron Parish, Louisiana.[91]

Plaquemines LNG states that Venture Global Partners, LLC currently owns approximately 74.29% of the common stock of Venture Global LNG, while approximately 25.71% of the common stock is owned by a group of institutional investors and related investors. Venture Global Partners, LLC is 50% owned and controlled by each of Robert B. Pender and Michael A. Sabel.[92]

B. Plaquemines LNG Project

Plaquemines LNG states that the proposed Project will be located near river mile marker 55 on the west bank of the Mississippi River in Plaquemines Parish, Louisiana, just south of the town of Myrtle Grove. The Project will be located on an approximately 632-acre site, which is zoned for heavy industrial uses.[93] Plaquemines LNG states that it has secured the project site pursuant to a lease option agreement with the owner of the site, the Plaquemines Port Harbor & Terminal District. The lease option agreement grants Plaquemines LNG the exclusive option to lease the project site for up to 70 years.[94]

As approved by FERC, the Project will have a peak achievable capacity of 24 mtpa of LNG under optimal operating conditions, which Plaquemines LNG states is equivalent to 1,240

[91] App. at 3; *see id*. at 4 (describing the Venture Global Calcasieu Pass Project and associated DOE/FE proceedings); *see also infra* at 46 (Venture Global Calcasieu Pass non-FTA order).
[92] App. at 4.
[93] *See id.* at 6; *see also* FERC Order at ¶ 16. The location maps and a site plan are attached to the Application as Appendix A.
[94] App. at 6; *see also id.* at Appendix B (lease option agreement); *see also* FERC Order at ¶ 5 & n.7.

Bcf/yr of natural gas.[95] The Project will be constructed in two phases, each with a peak achievable capacity of 12 mtpa. The Project will consist of liquefaction facilities, four LNG storage tanks, marine facilities, and associated infrastructure and support facilities.[96] Three marine loading berths, to be located on the Mississippi River, will be capable of receiving ocean-going LNG carriers.[97]

C. Project Pipelines

As noted above, FERC has authorized Plaquemine LNG's affiliate, Gator Express, to develop the proposed Gator Express Pipeline Project in conjunction with the Plaquemines LNG Project.[98] The Gator Express Pipeline Project will consist of two new parallel pipelines (totaling 15.1 miles) to transport natural gas for liquefaction and export. The pipelines will extend from new interconnections with Tennessee Gas Pipeline Company, LLC and Texas Eastern Transmission, LP, respectively, to the Plaquemines LNG Project.[99]

D. Source of Natural Gas

Plaquemines LNG states that the Project will have the capability to access the integrated national gas pipeline system through various interconnections. Plaquemines LNG further states that natural gas may be sourced from "any of a multitude of production areas," including conventional Gulf Coast production regions, as well as shale gas plays in the Haynesville, Barnett, and Bossier formations and in the Marcellus and Utica regions.[100]

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[95] FERC Order at ¶ 5; App. at 8.
[96] FERC Order at ¶ 6 (describing project features); *see also* App. at 7-8.
[97] App. at 7.
[98] FERC Order at ¶ 8.
[99] *Id*. at ¶¶ 2, 8-10; *see also* App. at 8-9.
[100] App. at 9.

E. Business Model

Plaquemines LNG requests authorization to export LNG on its own behalf and as agent for other entities who hold title to the LNG at the time of export. Plaquemines LNG states that it will comply with all DOE/FE requirements for exporters and agents. Plaquemines LNG further states that, when acting as agent, it will register with DOE/FE each LNG title holder for which it seeks to export LNG as agent, and will comply with other registration requirements as set forth in recent DOE/FE orders.[101]

Plaquemines LNG states that it has not yet entered into any binding contracts with prospective customers, but it states that it will file all long-term agreements, once executed, as required by DOE/FE regulations.[102]

V. APPLICANT'S PUBLIC INTEREST ANALYSIS

A. Overview

Plaquemines LNG asserts that its requested non-FTA authorization is consistent with and will advance the public interest under NGA section 3(a).[103] In support of this position, Plaquemines LNG addresses the following factors: (i) impacts on domestic natural gas supply and demand; (ii) the economic impacts of the proposed exports, including regional benefits; and (iii) international benefits.

B. Impacts on Domestic Natural Gas Supply and Demand

Plaquemines LNG maintains that, during the period of its requested authorization, domestic natural gas resources will be available to meet projected future domestic needs and any expected level of LNG exports, including its proposed exports.[104] Citing projections by EIA,

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[101] *Id*. at 4, 10-11.
[102] *Id*. at 9-10.
[103] *Id.* at 15.
[104] *Id*. at 20; *see also id*. at 22-23.

DOE/FE's 2012, 2014, and 2015 LNG Export Studies, and DOE/FE's findings in prior orders, Plaquemines LNG asserts that its proposed exports are "unlikely to affect the availability of natural gas to domestic consumers."[105] Plaquemines LNG also points to EIA's projection that growth in natural gas production will outpace growth in consumption, thereby "set[ting] the stage for the U.S. to become a net export[er] of gas beginning in 2017."[106]

Plaquemines LNG further argues that an increased demand for natural gas to be exported as LNG will stimulate additional natural gas production, as well as the production of natural gas liquids. Plaquemines LNG states that this production is an important public benefit of U.S. LNG exports.[107]

C. Economic Benefits

Plaquemines LNG asserts that its Project will benefit the economy in numerous ways, including through macroeconomic benefits, increased employment, increased tax revenues, and reductions in the U.S. trade deficit.[108]

First, Plaquemines LNG cites DOE's 2012, 2014, and 2015 LNG Export Studies (as well as third-party studies) in asserting that LNG exports will not result in significant adverse price impacts to U.S. consumers.[109] Plaquemines LNG points to these Studies in stating that LNG exports are projected to provide an economic benefit to the U.S. economy as a whole, including an increase in GDP, economic welfare, and higher levels of employment.[110]

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[105] *Id.* at 25; *see also id*. at 20-24 (citations omitted).
[106] App. at 22 (citation omitted). We take administrative notice that the United States, in fact, became a net exporter of natural gas on an annual basis in 2017. 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).
[107] App. at 25.
[108] *Id.* at 32; *see also id*. at 35.
[109] *Id.* at 30-33.
[110] *Id*.

Next, Plaquemines LNG states that its proposed Project will produce regional economic benefits. Plaquemines LNG states that the Project will generate approximately 1,500 construction jobs during each phase of the Project, as well as 500 additional construction jobs during peak construction of the pipelines.[111] Plaquemines LNG further states that approximately 300 full-time employees will be required to operate the Project.[112]

Additionally, Plaquemines LNG contends that its proposed exports will help to "realign the U.S. balance of trade" by allowing the United States to export "some of its abundant and valuable natural gas."[113]

D. International Benefits

Plaquemines LNG states that U.S. LNG exports, and specifically its proposed exports, will provide international and geopolitical benefits to the United States. Citing prior statements by DOE/FE and members of Congress, Plaquemines LNG states that U.S. LNG exports have "the potential to fundamentally alter the world's energy and economic map and benefit the nation's allies around the globe."[114] Plaquemines LNG identifies several ways that its proposed exports may provide an alternative source of supply and alternative pricing in the global natural gas market.[115] In particular, Plaquemines LNG states that increased access to U.S. natural gas will provide new supplies to U.S. allies, as an alternative to traditional suppliers in Russia and the Middle East.[116]

[111] *Id*. at 32-33.
[112] *Id*. at 33.
[113] App. at 34-35.
[114] *Id.* at 26 (citations omitted).
[115] *Id*. at 26-28 (citations omitted), 35.
[116] *Id*. at 26.

Finally, Plaquemines LNG states that U.S. exports of LNG will provide international environmental benefits, namely by enabling Caribbean nations to reduce their reliance on more carbon-intensive fuel oil and diesel for electricity generation.[117]

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,[118] and a formal application process that starts no sooner than 180 days after issuance of a notice that the pre-filing process has commenced.[119]

On July 2, 2015, FERC began its pre-filing review of the Project.[120] FERC established pre-filing Docket No. PF15-27-000 to place information related to the Project into the public record.[121] On October 5, 2015, FERC issued a Notice of Intent to Prepare an Environmental Impact Statement for the proposed Project.[122] DOE agreed to participate as a cooperating agency in FERC's environmental review.[123]

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[117] App. at 26, 29-30.
[118] 18 C.F.R. § 157.21.
[119] *Id*. § 157.21(a)(2)(i-ii).
[120] *See* final EIS at ES-2; *Venture Global Plaquemines LNG, LLC*, Approval of Pre-Filing Request, FERC Docket No. PF15-27-000 (July 2, 2015).
[121] *See* final EIS at ES-2.
[122] *See id.*; *see also Venture Global Plaquemines LNG, LLC*, Notice of Intent to Prepare an Environmental Impact Statement for the Planned Plaquemines LNG Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Sessions, FERC Docket No. PF15-27-000, 80 Fed. Reg. 61,804 (Oct. 14, 2015).
[123] *See* final EIS at ES-1.

B. FERC's Environmental Review

On February 28, 2017, Plaquemines LNG filed an application with FERC under NGA section 3 to site, construct, and operate the Plaquemines LNG Project. In the same application, Gator Express requested a certificate of public convenience and necessity under NGA section 7(c) to construct and operate the Gator Express Pipeline Project.[124] FERC assigned Docket Nos. CP17-66-000 to the Project and CP17-67-000 to the Gator Express Pipeline Project.[125]

In compliance with NEPA, FERC staff issued a Notice of Availability of a Draft Environmental Impact Statement on November 13, 2018, and placed the draft EIS into the public record.[126] On May 3, 2019, FERC staff issued the final EIS for the Project and the Gator Express Pipeline Project.[127] The final EIS responded to comments received on the draft EIS, and addressed numerous potential impacts of the proposed Project, including (but not limited to) geology, water resources, wetlands, air quality, and cumulative impacts.[128]

Based on its environmental analysis, FERC staff concluded in the final EIS that "construction and operation of the Project would result in adverse environmental impacts, but all of these impacts would be reduced to less-than-significant levels," provided that certain mitigation measures are undertaken.[129] Specifically, the final EIS contained 125 site-specific

[124] *See id.*; *see also Venture Global Plaquemines LNG, LLC & Venture Global Gator Express LLC*, Application for Authorizations under the Natural Gas Act, FERC Docket Nos. CP17-66-000 and CP17-67-000 (Feb. 28, 2017).
[125] FERC Order at ¶¶ 1-2.
[126] *Venture Global Plaquemines LNG, LLC and Venture Global Gator Express, LLC*, Federal Energy Regulatory Comm'n, Notice of Availability of the Draft Environmental Impact Statement for the Proposed Plaquemines LNG and Gator Express Pipeline Project, Docket Nos. CP17-66-000 and CP17-67-000 (Nov. 13, 2018); *see also* final EIS at ES-2; FERC Order at ¶ 66.
[127] FERC Order at ¶ 67.
[128] *See* final EIS at ES-3; FERC Order at ¶ 67. In the final EIS, FERC staff referred to the combined Plaquemines LNG and Gator Express Pipeline actions and facilities as "the Project." Final EIS at ES-1.
[129] Final EIS at ES-15.

environmental mitigation measures, which FERC staff recommended that FERC attach as conditions to any authorization of the Project.[130]

C. FERC's Order Granting Authorization

On September 30, 2019, FERC issued its Order under NGA section 3 authorizing Plaquemines LNG to site, construct, and operate the Project with a liquefaction capacity of up to 24 mtpa of LNG.[131] FERC also authorized Gator Express to construct and operate the associated Gator Express Pipeline Project.[132]

In granting these authorizations, FERC cited the final EIS in stating that "construction and operations of the projects will result in some adverse environmental impacts,"[133] but that "most of the environmental impacts would be reduced to less than significant levels with the implementation of Plaquemines LNG's proposed mitigation measures and additional measures recommended in the EIS and adopted in this order."[134] FERC further concluded that "with the conditions required in this order, the environmental impacts of the Plaquemines LNG Project will be appropriately and reasonably reduced."[135] On this basis, FERC approved Plaquemines LNG's proposal for the Project and Gator Express's proposal for the Pipeline Project under NGA sections 3 and 7, respectively.[136] FERC also made minor modifications to the 125 mitigation measures recommended in the final EIS,[137] resulting in FERC adopting 128 environmental conditions in an appendix of the Order.[138]

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[130] Final EIS at ES-15 to ES-16; *see also id*. at 5-27 to 5-48 (list of mitigation measures).
[131] FERC Order at ¶¶ 3, 5, 106, 108 (Ordering Para. (A)).
[132] *Id.* at ¶¶ 3, 106, 108 (Ordering Para. (C)).
[133] *Id.* at ¶ 67.
[134] *Id.* at ¶ 16; *see also id*. at ¶ 67.
[135] *Id.* at ¶ 16.
[136] *Id*. at ¶¶ 19, 26.
[137] FERC Order at ¶ 67 n.86 (explaining modifications).
[138] *Id.* at ¶¶ 16, 108, and Appendix (Environmental Conditions).

FERC reviewed and addressed the major environmental issues addressed in the final EIS.[139] In addressing GHG emissions, for example, FERC pointed to the estimate in the final EIS that "operation of the projects, including the LNG terminal and pipeline facilities, may result in direct and indirect emissions of up to 7,440,000 metric tons per year of carbon dioxide equivalent (CO_2e)."[140] FERC further stated that the "operational emissions of these facilities could potentially increase annual CO_2e emissions based on the 2017 levels by 0.13 percent at the national level."[141]

On the basis of these estimates, FERC acknowledged the finding in the final EIS that "the quantified GHG emissions from the construction and operation of the project will contribute incrementally to climate change."[142] 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 that "it could not determine whether a project's contribution to climate change would be significant."[143]

Additionally, FERC considered the cumulative impacts of the Project with other projects or actions in the same geographic and temporal scope.[144] Citing the final EIS, FERC stated that "the project's contribution to cumulative impacts on resources affected … would generally not be significant, with the exception of air quality cumulative impacts."[145] Nonetheless, according to FERC, the Project "would not contribute pollutants above significant levels and would not contribute to significant adverse combined effects with other existing and foreseeable actions."[146]

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[139] *See generally id.* at ¶¶ 66-107.
[140] *Id*. at ¶ 96 (citing final EIS at 4-180, Table 4.11-4).
[141] *Id*. (citing EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2017 (2019)).
[142] *Id*. at ¶ 97 (citing final EIS at 4-333).
[143] FERC Order at ¶ 97 (citation omitted).
[144] *Id.* at ¶ 103 (citing final EIS at 4-291 to 4-334).
[145] *Id.* (citing final EIS at 4-333 to 4-334).
[146] *Id.* (citing final EIS at 4-327).

In sum, FERC agreed with the conclusions presented in the final EIS and found that "the projects, if constructed and operated as described in the final EIS, [are] an environmentally acceptable action."[147]

VII. CURRENT PROCEEDING BEFORE DOE/FE

A. Overview

In response to the Notice of Application, DOE/FE received one filing: the American Petroleum Institute's (API) motion to intervene and comments in support of the Application.[148] Plaquemines LNG did not submit a response to API's filing.

B. Motion to Intervene and Comments of the American Petroleum Institute

In support of its motion to intervene, API states that it is a national trade association representing more than 650 member companies involved in all aspects of the oil and natural gas industry in the United States, including owners and operators of LNG import and export facilities in the United States and around the world, as well as owners and operators of LNG vessels, global LNG traders, and manufacturers of essential technology and equipment used in the LNG value chain. API further states that its members have extensive experience with the drilling and completion techniques used in producing domestic natural gas resources. For these reasons, API asserts that it has a direct and immediate interest in these proceedings that cannot be protected adequately by any other party.[149]

API supports a grant of the Application. API states that the United States, as the world's leading producer of natural gas, has the opportunity to use the development of LNG exports to grow the domestic economy and create jobs, reduce global GHG emissions, and provide its allies

[147] *Id.* at ¶ 106.
[148] American Petroleum Inst., Motion to Intervene and Comments in Support, FE Docket No. 16-28-LNG (Aug. 8, 2016) [hereinafter API Mot.].
[149] *Id*. at 2.

and trading partners with a reliable source of energy.[150] Citing DOE's prior economic studies, API maintains that LNG exports will yield economic benefits for the U.S. economy. API further states that increased LNG exports will create up to 452,300 domestic jobs and support more than $73 billion in domestic economic activity through 2035.[151]

According to API, increased U.S. LNG exports will have geopolitical benefits for the United States. API contends that adding natural gas supplies to the global gas market will benefit U.S. allies and trading partners by helping to stabilize energy prices and support economic development.[152] API asserts that U.S. natural gas exports also will provide international consumers with greater choice by introducing an alternative, reliable source of energy to the global marketplace.[153]

VIII. DISCUSSION AND CONCLUSIONS

In reviewing the non-FTA portion of Plaquemines LNG's Application, DOE/FE has considered its obligations under both 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:

- The uncontested Application and the supporting comments filed by API;
- FERC's final EIS and September 30, 2019 Order, including the 128 environmental conditions adopted in that Order;
- The Draft Addendum, comments received in response to the Draft Addendum, and the final Addendum;
- The LCA GHG Report (and the supporting NETL document), including comments submitted in response to those documents; and

[150] *Id.* at 2-3.
[151] *Id*. at 3 (citing ICF Internat'l, *U.S. LNG Exports: Impacts on Energy Markets and the Economy*, at 2 (2013)).
[152] *Id.*
[153] *Id.*

- The 2018 LNG Export Study, including comments received in response to that Study.

A. Non-Environmental Issues

1. Significance of the 2018 LNG Export Study

As discussed above, DOE/FE commissioned the 2018 LNG Export Study and invited public comments on the Study. DOE/FE analyzed this material in its Response to Comments published in the *Federal Register* on December 28, 2018. On the basis of the 2018 Study, DOE/FE concluded that the United States will experience net economic benefits from the issuance of authorizations to export domestically produced LNG.[154] 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.[155]

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.[156] DOE/FE has assessed AEO 2019 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study.[157] The AEO 2017 Reference case shows lower net LNG exports of 12.5 Bcf/d of natural gas in 2050, compared with the AEO 2019 Reference case that shows net LNG exports of 13.8 Bcf/d in 2050. As discussed below, the

[154] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,272; *see also supra* § II.A.3.
[155] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[156] U.S. Energy Info. Admin., *Annual Energy Outlook 2019* (with projections to 2050) (Jan. 24, 2019), *available at*: https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf.
[157] AEO 2017 included two versions of the Reference case—one with, and one without, the implementation of the Clean Power Plan (CPP). In recent non-FTA orders, we discussed both versions of the AEO 2017 Reference case, noting that the U.S. Environmental Protection Agency (EPA) was reviewing the CPP and considering an alternative regulatory approach. On June 19, 2019, EPA repealed the CPP and issued the final Affordable Clean Energy (ACE) rule. *See* U.S. Envtl. Protection Agency, Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations, 84 Fed. Reg. 32,520 (July 8, 2019). Accordingly, in this Order, we refer *only* to the AEO 2017 Reference case without the CPP. The AEO 2019 Reference case does not include the CPP, so the comparisons between AEO 2017 and AEO 2019 are consistent in that regard.

AEO 2019 Reference case is even more supportive of exports than the AEO 2017 Reference case.

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 case, 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 Plaquemines LNG's proposed authorization will not be inconsistent with the public interest.

2. Plaquemines LNG's Application

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

First, Plaquemines LNG points to DOE's 2012, 2014, and 2015 Studies in asserting that the United States has significant natural gas resources available to meet both projected future domestic needs and demand for the proposed exports. We agree, based on more recent projections and analyses. Specifically, we find that the 2018 LNG Export Study and AEO 2019 continue to project robust domestic supply conditions that are more than adequate to satisfy both domestic needs and exports of LNG, including those proposed in the Application.[158]

Second, the 2018 LNG Export Study indicates that exports of LNG will generate net macroeconomic benefits in the United States.[159] Indeed, the 2018 Study consistently shows

[158] *See, e.g.*, 2018 Study Response to Comments, 83 Fed. Reg. at 67,262.
[159] *Id*. at 67,272.

macroeconomic benefits in every scenario, as well as positive annual growth across the energy intensive sectors of the U.S. economy.[160]

Third, over the 20-year term of the authorization, the proposed exports will improve the Unites States' ties with its trading partners and make a positive contribution to the United States' trade balance. Other benefits of this international trade are discussed below. For these reasons, we agree with Plaquemines LNG and API that the proposed exports are consistent with U.S. policy.[161]

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 Plaquemines LNG's Application over the authorization term without negative economic impacts, including domestic price impacts (discussed below).

3. Price Impacts

As discussed above, the 2018 LNG Export Study projects the economic impacts of LNG exports in a range of scenarios, including scenarios that exceed the current amount of LNG exports authorized in the final non-FTA export authorizations to date (equivalent to a total of 38.06 Bcf/d of natural gas with the issuance of this Order). The 2018 Study found that, "[i]ncreasing U.S. LNG exports under any given set of assumptions about U.S. natural gas resources and their production leads to only small increases in U.S. natural gas prices."[162]

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 the AEO 2017 Reference case) shows that the

[160] *See id.* at 67,268-69 (citing 2018 LNG Export Study at 67, 70).
[161] App. at 26-28, 34; API Mot. at 3.
[162] 2018 Study Response to Comments, 83 Fed. Reg. at 67,258 (citing 2018 LNG Export Study at 55).

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 coupled with lower prices. For example, for the year 2050, the AEO 2019 Reference case anticipates nearly 10% more natural gas production in the lower-48 than the AEO 2017 Reference case. It also projects an average Henry Hub natural gas price that is lower than the AEO 2017 Reference case by 17%. Table 1 below shows these comparisons:

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

	AEO 2017 Reference Case	**AEO 2019 Reference Case**
Lower-48 Dry Natural Gas Production (Bcf/d)	107.9	118.3
Total Natural Gas Consumption (Bcf/d)	92.4	95.8
Electric Power Sector Consumption (Bcf/d)	31.8	33.3
Net Exports by Pipeline (Bcf/d)	3.4	8.9
Net LNG Exports (Bcf/d)	12.5	13.8
LNG Exports – Total (Bcf/d)	12.7	14.1
Henry Hub Spot Price ($/MMBtu) (Note 1)	$5.88 (2018$)	$4.87 (2018$)

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

For these reasons, and as explained in DOE/FE's Response to Comments on the 2018 Study, we find that arguments concerning domestic price increases are not supported by the record evidence.[163]

4. Benefits of International Trade

We have not limited our review to the 2018 LNG Export Study and data from AEO 2019, but have considered the international consequences of our decision. As discussed above, we review applications to export LNG to non-FTA nations under section 3(a) of the NGA. The United States' commitment to free trade is one factor bearing on that review.

Additionally, an efficient, transparent international market for natural gas with diverse sources of supply provides both economic and strategic benefits to the United States and our allies. Indeed, increased production of domestic natural gas has significantly reduced the need for the United States to import LNG. In global trade, LNG shipments that would have been destined to U.S. markets have been redirected to Europe and Asia, improving energy security for many of our key trading partners. To the extent U.S. exports can diversify global LNG supplies and increase the volumes of LNG available globally, these exports will improve energy security for many U.S. allies and trading partners. As such, we agree with Plaquemines LNG that authorizing its exports may advance the public interest for reasons that are distinct from and additional to the economic benefits identified in the 2018 LNG Export Study.

B. Environmental Issues

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

[163] *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).

1. Adoption of FERC's Final EIS

DOE/FE participated in FERC's environmental review of the proposed Project as a cooperating agency. Because DOE was a cooperating agency, DOE/FE is permitted to adopt without recirculating the final EIS, provided that DOE/FE has conducted an independent review of the final EIS and determines that its comments and suggestions have been satisfied.[164] 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-0539) (see *supra* § I), and hereby incorporates the reasoning contained in the final EIS in this Order. Additionally, in the Appendix to this Order, DOE/FE is issuing the Record of Decision (ROD) under NEPA for the proposed Project.

2. Environmental Impacts Associated with Induced Production of Natural Gas

The current rapid development of natural gas resources in the United States likely will continue, with or without the export of natural gas to non-FTA nations.[165] 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

[164] *See* 40 C.F.R. § 1506.3(c).
[165] Addendum at 2.

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

By comparison, section 3(a) of the NGA is too blunt an instrument to address these environmental concerns efficiently. A decision to prohibit exports of natural gas would cause the United States to forego entirely the economic and international benefits discussed herein, but would have little more than a modest, incremental impact on the environmental issues. For these reasons, we conclude that the environmental concerns associated with natural gas production do not establish that exports of natural gas to non-FTA nations are inconsistent with the public interest. We note that the D.C. Circuit in *Sierra Club I* rejected Sierra Club's arguments on this basis, and we find that the Court's conclusions and reasoning control in this proceeding.[166]

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

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

[166] *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.

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

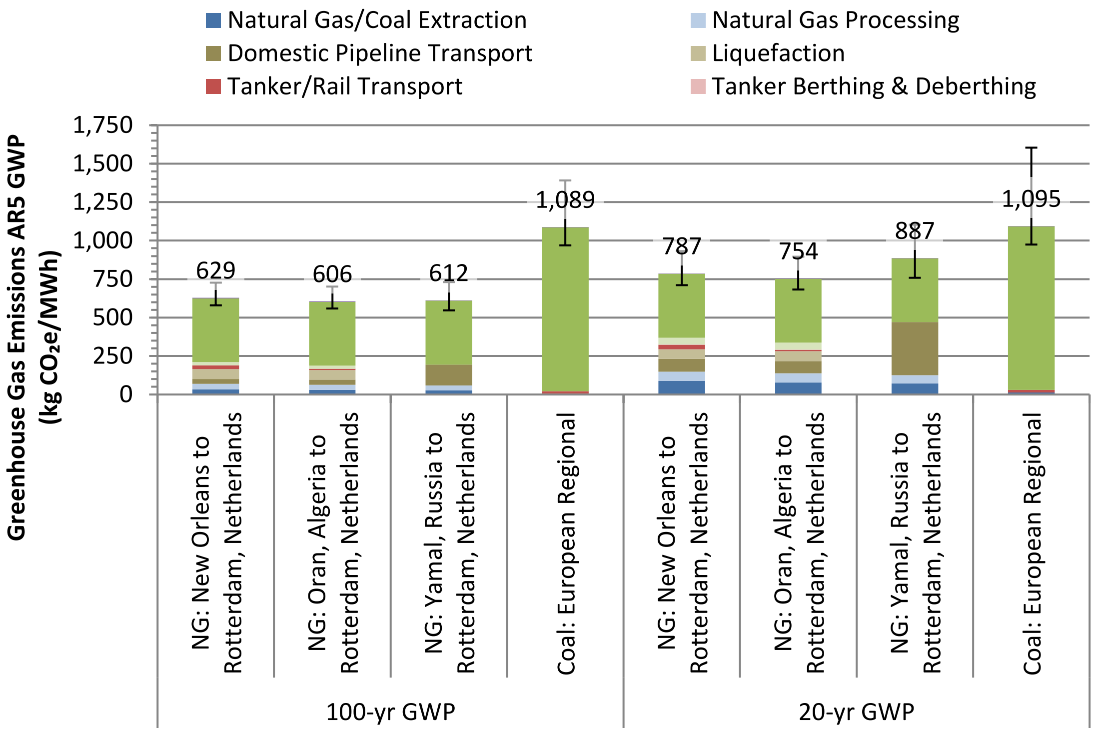

Figure 1: Life Cycle GHG Emissions for Natural Gas and Coal Power in Europe[168]

[167] *See supra* § II.B.
[168] LCA GHG Report at 9 (Figure 6-1).

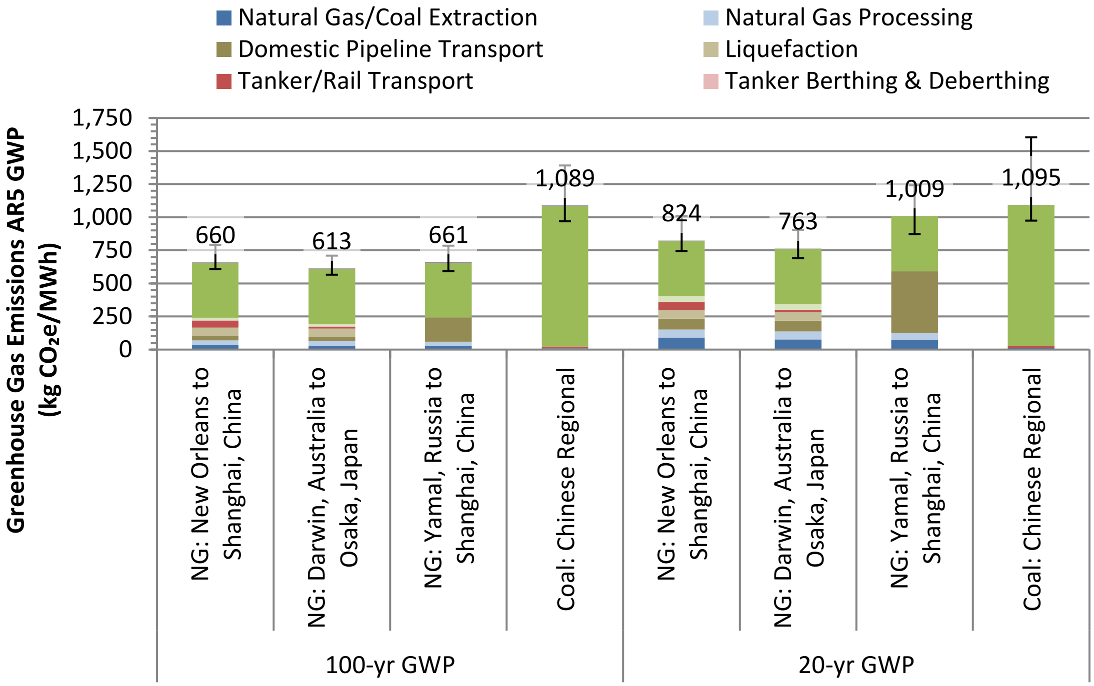

Figure 2: Life Cycle GHG Emissions for Natural Gas and Coal Power in Asia[169]

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.[170]

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

[169] LCA GHG Report at 10 (Figure 6-2).
[170] *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."[171] We find that the Court's conclusions and reasoning control in this proceeding, and we therefore decline to address them further.

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

C. Other Considerations

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

More generally, DOE/FE continues to subscribe to the principle set forth in our 1984 Policy Guidelines[172] 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.[173] Given

[172] 1984 Policy Guidelines, 49 Fed. Reg. 6684.

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

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

D. Conclusion

We have reviewed the evidence in the record and relevant precedent in earlier non-FTA export decisions and have not found an adequate basis to conclude that Plaquemines LNG's proposed exports will be inconsistent with the public interest.

In deciding whether to grant a final non-FTA export authorization, we also consider the cumulative impacts of the total volume of all non-FTA export authorizations. With the issuance of this Order, there are currently 38 final non-FTA authorizations in a cumulative volume of exports totaling 38.06 Bcf/d of natural gas, or approximately 13.9 trillion cubic feet per year, as follows: Sabine Pass Liquefaction, LLC (2.2 Bcf/d),[174] Carib Energy (USA) LLC (0.04 Bcf/d),[175] Cameron LNG, LLC (1.7 Bcf/d),[176] FLEX I (1.4 Bcf/d),[177] FLEX II (0.4 Bcf/d),[178] Dominion Cove Point LNG, LP (0.77 Bcf/d),[179] Cheniere Marketing, LLC and Corpus Christi

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[174] *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).

[175] *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).

[176] *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).

[177] *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).

[178] *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).

[179] *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).

Liquefaction, LLC (2.1 Bcf/d),[180] Sabine Pass Liquefaction, LLC Expansion Project (1.38 Bcf/d),[181] American Marketing LLC (0.008 Bcf/d),[182] Emera CNG, LLC (0.008 Bcf/d),[183] Floridian Natural Gas Storage Company, LLC,[184] Air Flow North American Corp. (0.002 Bcf/d),[185] Bear Head LNG Corporation and Bear Head LNG (USA), LLC (0.81 Bcf/d),[186] Pieridae Energy (USA) Ltd.,[187] Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),[188] Cameron LNG, LLC Design Increase (0.42 Bcf/d),[189] Cameron LNG, LLC Expansion Project

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[180] *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).
[181] *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).
[182] *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).
[183]*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).
[184] *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).
[185] *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).
[186] *Bear Head LNG Corp. and Bear Head LNG (USA)*, DOE/FE Order No. 3770, FE Docket No. 15-33-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export U.S.-Sourced Natural Gas by Pipeline to Canada for Liquefaction and Re-Export in the Form of Liquefied Natural Gas to Non-Free Trade Agreement Countries (Feb. 5, 2016).
[187] *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).
[188] *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).
[189] *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).

(1.41 Bcf/d),[190] Lake Charles Exports, LLC (2.0 Bcf/d),[191] Lake Charles LNG Export Company, LLC,[192] Carib Energy (USA), LLC (0.004),[193] Magnolia LNG, LLC (1.08 Bcf/d),[194] Southern LNG Company, L.L.C. (0.36 Bcf/d),[195] the FLEX Design Increase (0.34 Bcf/d),[196] Golden Pass Products LLC (2.21 Bcf/d),[197] Delfin LNG LLC (1.8 Bcf/d),[198] the Lake Charles LNG Export Company, LLC Design Increase (0.33 Bcf/d),[199] the Lake Charles Exports, LLC Design Increase,[200] Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),[201] Mexico Pacific Limited

[190] *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).

[191] *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).

[192] *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).

[193] *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).

[194] *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).

[195] *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).

[196] *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).

[197] *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).

[198] *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).

[199] *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).

[200] *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).

[201] *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

LLC (1.7 Bcf/d),[202] Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),[203] ECA Liquefaction, S. de R.L. de C.V. (Mid-Scale Project) (0.44 Bcf/d),[204] Energía Costa Azul, S. de R.L. de C.V. (Large-Scale Project) (1.3 Bcf/d),[205] Port Arthur LNG, LLC (1.91 Bcf/d),[206] Driftwood LNG LLC (3.88 Bcf/d),[207] FLEX4 (0.72 Bcf/d),[208] Gulf LNG Liquefaction Company, LLC (1.5 Bcf/d),[209] Eagle LNG Partners Jacksonville LLC (0.14 Bcf/d),[210] 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.[211] Additionally, we note that the volumes authorized for export in the *Lake Charles Exports* and *Lake Charles*

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).

[202] *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).

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

[204] *ECA Liquefaction, S. de R.L. de C.V.*, DOE/FE Order No. 4364, FE Docket No. 18-144-LNG, Opinion and Order Granting Long-Term Authorization to Re-Export U.S-Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Non-Free Trade Agreement Countries (ECA Mid-Scale Project) (Mar. 29, 2019), *amended by* DOE/FE Order No. 4364-A (Oct. 7, 2019).

[205] *Energía Costa Azul, S. de R.L. de C.V.*, DOE/FE Order No. 4365, FE Docket No. 18-145-LNG, Opinion and Order Granting Long-Term Authorization to Re-Export U.S-Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Non-Free Trade Agreement Countries (ECA Large-Scale Project) (Mar. 29, 2019).

[206] *Port Arthur LNG, LLC*, DOE/FE Order No. 4372, FE Docket No. 15-96-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (May 2, 2019).

[207] *Driftwood LNG LLC*, DOE/FE Order No. 4373, FE Docket No. 16-144-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (May 2, 2019).

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

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

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

[211] *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).

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.[212] Additionally, the volumes authorized for export in the *Bear Head* and *Pieridae US* orders are not additive; together, they are limited to a maximum of 0.81 Bcf/d to reflect the current capacity of the Maritimes Northeast Pipeline at the U.S.-Canadian border.[213]

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.[214] DOE/FE further notes that, to date, the amount of U.S. LNG export capacity that is operating or under construction totals 15.54 Bcf/d of natural gas across eight large-scale export projects in the lower-48 states.[215]

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

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[212] *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.").

[213] *See Bear Head LNG Corp. 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.").

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

[215] U.S. Energy Info. Admin., *U.S. Liquefaction Capacity* (Oct. 1, 2019), *available at*: https://www.eia.gov/naturalgas/U.S.liquefactioncapacity.xlsx (total of 15.54 Bcf/d calculated by adding Column N in "Existing & Under Construction" worksheet).

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.

IX. FINDINGS

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

X. TERMS AND CONDITIONS

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

A. Term of the Authorization

Plaquemines LNG 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. The 20-year term will begin on the date when Plaquemines LNG commences commercial export of domestically sourced LNG from the Plaquemines LNG Project, but not before.

B. Commencement of Operations

As requested by Plaquemines LNG and consistent with our final non-FTA authorizations issued to date, DOE/FE will add as a condition of the authorization that Plaquemines LNG must commence commercial LNG export operations 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 or re-export operations.

C. Commissioning Volumes

Plaquemines LNG will be permitted to apply for short-term export authorizations to export Commissioning Volumes prior to the commencement of the first commercial export of domestically sourced LNG from the Project. "Commissioning Volumes" are defined as the volume of LNG produced and exported under a short-term authorization during the initial start-up of each LNG train, before each LNG train has reached its full steady-state capacity and begun its commercial exports pursuant to Plaquemines LNG's long-term contracts.[216] The

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[216] 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).

Commissioning Volumes will not be counted against the maximum level of volumes previously authorized in Plaquemines LNG's FTA authorization (DOE/FE Order No. 3866) or in this Order.

D. Make-Up Period

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

The Make-Up Period does not affect or modify the total volume of LNG previously authorized in Plaquemines LNG's FTA authorization or in this Order. Insofar as Plaquemines LNG 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.[217] DOE/FE has found that this requirement applies to any change in control of the authorization holder. This condition was deemed necessary to ensure that DOE/FE will be given an adequate opportunity to assess the public interest impacts of such a transfer or change.

DOE/FE construes a change in control to mean a change, directly or indirectly, of the power to direct the management or policies of an entity whether such power is exercised through one or more intermediary companies or pursuant to an agreement, written or oral, and whether such power is established through ownership or voting of securities, or common directors,

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[217] 10 C.F.R. § 590.405.

officers, or stockholders, or voting trusts, holding trusts, or debt holdings, or contract, or any other direct or indirect means.[218] 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.[219]

F. Agency Rights

Plaquemines LNG requests authorization to export LNG on its own behalf and as agent for other entities that hold title to the LNG at the time of export, pursuant to long-term contracts. DOE/FE previously has determined that, in LNG export orders in which Agency Rights have 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.[220]

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

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[218] *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).
[219] *See id*.
[220] *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).

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

DOE/FE will require that Plaquemines LNG file or cause to be filed with DOE/FE any relevant long-term commercial agreements, including liquefaction tolling agreements, pursuant to which Plaquemines LNG exports LNG as agent for a Registrant. DOE/FE finds that the submission of all such agreements or contracts within 30 days of their execution using the procedures described below will be consistent with the "to the extent practicable" requirement of section 590.202(b).[221]

In addition, DOE/FE finds that section 590.202(c) of DOE/FE's regulations[222] requires that Plaquemines LNG file, or cause to be filed, all long-term contracts associated with the long-term supply of natural gas to the Project, whether signed by Plaquemines LNG or the Registrant, within 30 days of their execution.

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

[221] 10 C.F.R. § 590.202(b).
[222] *Id*. § 590.202(c).

provisions, and other relevant provisions; and (B) the filing must demonstrate why the redacted information should be exempted from public disclosure.[223]

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 Plaquemines LNG's Application in the volume of LNG requested, up to the equivalent of 1,240 Bcf/yr of natural gas.

I. Combined FTA and Non-FTA Export Authorization Volumes

The volumes of LNG authorized for export in Plaquemines LNG's FTA authorization (DOE/FE Order No. 3866) and this Order reflect the planned liquefaction capacity of the Project, as approved by FERC. Accordingly, Plaquemines LNG may not treat the FTA and non-FTA export volumes as additive to one another.

XI. ORDER

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

A. Venture Global Plaquemines LNG, LLC (Plaquemines LNG) is authorized to export domestically produced LNG by vessel from the proposed Plaquemines LNG Project (the Project) to be located in Plaquemines Parish, Louisiana, in a volume up to the equivalent of 1,240 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. Plaquemines LNG is authorized to export the LNG on its own behalf and as agent for other entities who hold title to the natural gas, pursuant to one or

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

more long-term contracts (a contract greater than two years).

B. Plaquemines LNG may export Commissioning Volumes prior to the commencement of the terms of this Order, pursuant to a separate short-term export authorization. The Commissioning Volumes will not be counted against the export volumes previously authorized in Plaquemines LNG's FTA authorization (DOE/FE Order No. 3866) or in this Order.

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

D. Plaquemines LNG must commence export operations using the planned liquefaction Project 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 1,240 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. Plaquemines LNG shall ensure that all transactions authorized by this Order are permitted and lawful under U.S. laws and policies, including the rules, regulations, orders, policies, and other determinations of the Office of Foreign Assets Control of the U.S.

Department of the Treasury and FERC. Failure to comply with these requirements could result in rescission of this authorization and/or other civil or criminal penalties.

H. Plaquemines LNG shall ensure compliance with all terms and conditions established by FERC in the final EIS, including the 128 environmental conditions adopted in the FERC Order issued on September 30, 2019. Additionally, this authorization is conditioned on Plaquemines LNG's on-going compliance with any other preventative and mitigative measures at the Project imposed by federal or state agencies.

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

J. Plaquemines LNG is permitted to use its authorization to export LNG as agent for other LNG title-holders (Registrants), after registering those entities with DOE/FE. Registration materials shall include an agreement by the Registrant to supply Plaquemines LNG with all information necessary to permit Plaquemines LNG to register that person or entity with DOE/FE, including: (1) the Registrant's agreement to comply with this Order and all applicable requirements of DOE/FE's regulations at 10 C.F.R. Part 590, including but not limited to destination restrictions; (2) the exact legal name of the Registrant, state/location of incorporation/registration, primary place of doing business, and the Registrant's ownership structure, including the ultimate parent entity if the Registrant is a subsidiary or affiliate of another entity; (3) the name, title, mailing address, e-mail address, and telephone number of a corporate officer or employee of the Registrant to whom inquiries may be directed; and (4) within 30 days of execution, a copy of any long-term contracts not previously filed with DOE/FE, described in Ordering Paragraph I of this Order.

Any change in the registration materials—including changes in company name, contact information, length of the long-term contract, termination of the long-term contract, or other relevant modification—shall be filed with DOE/FE within 30 days of such change(s).

K. Plaquemines LNG, or others for whom Plaquemines LNG acts as agent, shall include the following provision in any agreement or other contract for the sale or transfer of LNG pursuant to this Order:

> Customer or purchaser acknowledges and agrees that it will resell or transfer LNG, purchased hereunder for delivery only to countries identified in Ordering Paragraph F of DOE/FE Order No. 4446, issued October 16, 2019, in FE Docket No. 16-28-LNG, and/or to purchasers that have agreed in writing to limit their direct or indirect resale or transfer of such LNG to such countries. Customer or purchaser further commits to cause a report to be provided to Venture Global Plaquemines LNG, LLC that identifies the country (or countries) into which the LNG was actually delivered, and to include in any resale contract for such LNG the necessary conditions to ensure that Venture Global Plaquemines LNG, LLC is made aware of all such actual destination countries.

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

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

N. With respect to any change in control of the authorization holder, Plaquemines LNG must comply with DOE/FE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.[224]

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

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

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

Q. The motion to intervene submitted by API was granted by operation of law.[225]

Issued in Washington, D.C., on October 16, 2019.

Steven E. Winberg
Assistant Secretary
Office of Fossil Energy

[225] 10 C.F.R. § 590.303(g).

APPENDIX: RECORD OF DECISION

The Department of Energy's Office of Fossil Energy (DOE/FE) prepared this Record of Decision (ROD) and Floodplain Statement of Findings pursuant to the National Environmental Policy Act of 1969 (NEPA),[226] and in compliance with the Council on Environmental Quality (CEQ) implementing regulations for NEPA,[227] DOE's implementing procedures for NEPA,[228] and DOE's "Compliance with Floodplain and Wetland Environmental Review Requirements."[229]

As discussed above, DOE/FE participated as a cooperating agency with FERC in preparing an environmental impact statement (EIS). The EIS analyzed the potential environmental impacts of: (i) Venture Global Plaquemines LNG, LLC's (Plaquemines LNG) proposed LNG terminal (the Project) that would be used to support the export authorization sought from DOE/FE;[230] and (ii) Venture Global Gator Express, LLC's proposed pipelines to transport feed gas to the Project.[231] The Project is proposed to be located in Plaquemines Parish, Louisiana. In accordance with 40 C.F.R. § 1506.3, DOE/FE adopted the EIS on May 17, 2019 (DOE/EIS-0539),[232] and the U.S. Environmental Protection Agency (EPA) published a notice of the adoption on May 24, 2019.[233]

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226 42 U.S.C. § 4321 *et seq*.
227 40 C.F.R. § 1500-08.
228 10 C.F.R. § 1021.
229 *Id*. § 1022.
230 Federal Energy Regulatory Comm'n, *Final Environmental Impact Statement for the Plaquemines LNG and Gator Express Pipeline Project*, Docket Nos. CP17-66-000 and CP17-67-000 (May 3, 2019), *available at*: https://www.ferc.gov/industries/gas/enviro/eis/2019/05-03-19-FEIS/05-03-19-FEIS.pdf [hereinafter final EIS].
231 FERC Order at ¶ 67. In the EIS, FERC staff referred to the combined Plaquemines LNG and Gator Express Pipeline actions and facilities as "the Project." Final EIS at ES-1.
232 Letter from Amy Sweeney, DOE/FE, to Julie Roemele, U.S. EPA (May 17, 2019) (adoption of final EIS).
233 U.S. Envtl. Protection Agency, Environmental Impact Statements; Notice of Availability, 84 Fed. Reg. 24,134, 24,135 (May 24, 2019).

A. Alternatives

The EIS assessed alternative methods that could be used to achieve the Project's objectives. The range of alternatives analyzed included the No Action Alternative, system alternatives, alternative terminal facility sites, alternative terminal configurations, alternative pipeline routes, and alternative aboveground facility sites.[234] Alternatives were evaluated and compared to the Project to determine if the alternatives were environmentally preferable, as well as technically and economically feasible.

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 other LNG export projects could be developed in the region or elsewhere in the United States, and projects of similar scope and magnitude would likely produce environmental impacts of comparable significance.[235] The EIS concluded that the development of other energy sources would not be a reasonable alternative to the proposed Project, as the purpose of the Project is to construct and operate a terminal for export to foreign markets.[236]

The EIS reviewed system alternatives to assess the ability of other existing, modified, planned, or proposed facilities to meet the stated objectives of the Project, and to determine if a technically and economically feasible alternative exists that would have a significant environmental advantage over the Project.[237] The EIS identified 23 approved, proposed, or planned LNG terminal sites along the Gulf Coast to export LNG to FTA and non-FTA countries.[238] The EIS concluded that each of the potential system alternatives would likely result

[234] Final EIS at 3-1 to 3-16; *see also id*. at ES-13 to ES-15.
[235] *Id.* at 3-2 to 3-3.
[236] *Id.*
[237] *Id.* at 3-3 to 3-7.
[238] *Id.*

in similar environmental impacts to the Project, and that none of the system alternatives would meet the purpose of the Project.[239]

Next, the EIS considered alternative terminal facility sites for the Project. The EIS compared six potential sites in the general area of the proposed Project site.[240] Using eight selection criteria to compare the potential sites, the EIS concluded that only the proposed site on the Mississippi River represents an "acceptable site" for the Project.[241]

The EIS also evaluated alternative terminal configurations for the Project's infrastructure. Based on federal siting and safety requirements, the EIS was unable to identify any alternative configurations that met the regulations, codes, and guidelines while avoiding or reducing impacts when compared to those of the proposed terminal configuration.[242] As a result, the EIS concluded that the proposed general configuration of the Project site is the preferred alternative.[243]

Additionally, the EIS evaluated alternative pipeline routes for the Project. The proposed pipeline route for the Gator Express Pipeline includes two parallel 42-inch diameter pipelines sharing one right-of-way corridor for the majority of the route.[244] The EIS reviewed two major route alternatives, in addition to the proposed route, to evaluate the impact on surrounding open water and wetlands along the routes.[245] The EIS concluded that the alternative routes did not offer any environmental advantages over the proposed route.[246]

Finally, the EIS evaluated alternative aboveground facilities sites. Based on the proposed

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[239] *Id*. at 3-5 to 3-7 (also finding "there is no reasonable system alternative to the [Gator Express] pipeline").
[240] Final EIS at 3-7 to 3-11.
[241] *Id*. at 3-11.
[242] *Id.* at 3-12.
[243] *Id.*
[244] *Id*.
[245] *Id.*
[246] Final EIS at ES-14; *see also id*. at 3-12 to 3-16.

aboveground facilities for the Project, the EIS determined that the impact on environmentally sensitive areas would be minimal due to the size and scope of the facilities.[247] As a result, the EIS did not identify any environmental concerns that required the need to identify and evaluate alternative sites for these minor aboveground facilities. The EIS thus determined that the proposed aboveground facility sites are the preferred alternative.[248]

B. Environmentally Preferred Alternative

When compared against the alternatives assessed in the EIS, the proposed Project, as modified by the recommended mitigation measures, is the preferred alternative to meet the Project objectives.[249]

C. Decision

DOE/FE has decided to issue Order No. 4446 authorizing Plaquemines LNG to export domestically produced LNG by vessel from the proposed Project to non-FTA countries in a volume equivalent to 1,240 Bcf/yr 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 EIS; and (ii) DOE's determination in the Order that the proposed exports will not be inconsistent with the public interest, as would be required to deny the Application under NGA section 3(a).[250] DOE also considered the Addendum, which summarizes available information on potential upstream impacts associated with unconventional natural gas activities, such as hydraulic fracturing.

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[247] *Id.* at 3-16.
[248] *Id.* at ES-14 to ES-15; *see also id*. at 3-16.
[249] *Id*. at 5-26 to 5-27.
[250] 15 U.S.C. § 717b(a). DOE/FE further notes that the Application is uncontested.

D. Mitigation

As a condition of its decision to issue Order No. 4446, DOE/FE is imposing requirements that will avoid or minimize the environmental impacts of the Project. These conditions include the 128 environmental conditions taken from the EIS and adopted by FERC in its Order authorizing the Project on September 30, 2019.[251] Mitigation measures beyond those included in DOE/FE Order No. 4446 that are enforceable by other federal and state agencies are additional conditions of DOE/FE Order No. 4446. 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."[252] The required floodplain assessment was conducted during development and preparation of the EIS, which determined that portions of the Project would be located in the 100-year and 500-year flood plain. Plaquemines LNG has proposed to design the Project to withstand a 500-year flood event, in accordance with FERC recommendations.[253] While placement of the Project within floodplains would be unavoidable, DOE/FE has determined that the proposed design for the Project minimizes floodplain impacts to the extent practicable.

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[251] *Venture Global Plaquemines LNG, LLC and Venture Global Gator Express, LLC,* Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 168 FERC ¶ 61,204 (Sept. 30, 2019). The final EIS recommended 125 mitigation measures, which FERC adopted in the form of 128 environmental conditions after minor modifications. *See id*. at ¶ 67 & n.86.

[252] 10 C.F.R. § 1022.

[253] Final EIS at 4-4 to 4-5, 4-257 to 4-258.