UNITED STATES OF AMERICA

DEPARTMENT OF ENERGY

OFFICE OF FOSSIL ENERGY

RIO GRANDE LNG, LLC	)	FE DOCKET NO. 15-190-LNG

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

DOE/FE ORDER NO. 4492

FEBRUARY 10, 2020

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FREQUENTLY USED ACRONYMS

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

I. INTRODUCTION

On December 23, 2015, Rio Grande LNG, LLC (Rio Grande 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] Rio Grande LNG filed an Amendment to the Application on June 7, 2016.[3] Rio Grande LNG requests long-term, multi-contract authorization to export domestically produced liquefied natural gas (LNG) by vessel from a natural gas liquefaction terminal that it proposes to site, construct, and operate along the north embankment of the Brownsville Ship Channel, in Cameron County, Texas (the Rio Grande LNG Project or the Project).[4] Rio Grande LNG seeks to export the LNG to: (i) any country with which the United States currently has, or in the future enters into, a free trade agreement (FTA) requiring national treatment for trade in natural gas (FTA countries);[5] and (ii) any other country with which trade is not prohibited by U.S. law or policy (non-FTA countries).[6]

Rio Grande LNG requests authority to export LNG to both FTA and non-FTA countries in a total volume equivalent to 1,318 billion cubic feet (Bcf) per year (Bcf/yr) of natural gas, which it states is equivalent to 27 million metric tons per annum (mtpa) of LNG.[7] On August 17,

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[1] Rio Grande LNG, LLC, Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas, FE Docket No. 15-190-LNG (Dec. 23, 2015) [hereinafter App.].
[2] 15 U.S.C. § 717b. The authority to regulate the imports and exports of natural gas, including liquefied natural gas, under section 3 of the NGA (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] Rio Grande LNG, LLC, Amendment of Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas, FE Docket No. 15-190-LNG (June 7, 2016) [hereinafter Amendment to App.].
[4] App. at 1-2.
[5] 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.
[6] 15 U.S.C. § 717b(a); *see* App. at 2-3.
[7] App. at 1.

2016, in Order No. 3869, DOE/FE granted the FTA portion of the Application, as amended, in the requested volume of 1,318 Bcf/yr of natural gas.[8]

In the Amendment to the Application, Rio Grande LNG modified the non-FTA portion of the Application to request: (i) the non-FTA authorization for a term of 20 years, commencing on the earlier of the date of first export or seven years from the date the authorization is granted; and (ii) a Make-Up Period of five years (two years longer than DOE/FE's standard three-year Make-Up Period), to export any Make-Up Volume that it was unable to export during the original non-FTA export period.[9] Additionally, Rio Grande 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.[10]

DOE/FE published a notice of the non-FTA portion of the Application in the *Federal Register* (Notice of Application) on July 19, 2016.[11] The Notice of Application called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by September 19, 2016. No protests or motions to intervene in opposition to the Application were filed, and therefore the Application is uncontested.[12] DOE/FE received one comment in opposition to the Application, submitted by John Young,[13] and one comment in support of the Application, submitted by Mark Magee.[14]

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[8] *Rio Grande LNG, LLC*, DOE/FE Order No. 3869, FE Docket No. 15-190-LNG, Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Proposed Rio Grande LNG Terminal in Brownsville, Texas, to Free Trade Agreement Nations (Aug. 17, 2016). At Rio Grande LNG's request, the FTA authorization is for a term of 30 years.
[9] *See* Amendment to App. at 1-2.
[10] App. at 3.
[11] U.S. Dep't of Energy, Rio Grande 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. 46,918 (July 19, 2016) [hereinafter Notice of Application].
[12] 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).
[13] Comment of John Young, FE Docket No. 15-190-LNG (Sept. 19, 2016); *see infra* § VII.
[14] Comment of Mark Magee, FE Docket No. 15-190-LNG (Sept. 15, 2016); *see infra* § VII.

On November 22, 2019, the Federal Energy Regulatory Commission (FERC) issued an order authorizing Rio Grande LNG to site, construct, and operate the Rio Grande LNG Project with a liquefaction capacity of 27 mtpa of LNG, equivalent to approximately 3.61 Bcf per day (Bcf/d) of natural gas (1,318 Bcf/yr).[15] FERC also authorized Rio Grande LNG's affiliate, Rio Bravo Pipeline Company, LLC (Rio Bravo), to construct and operate the proposed Rio Bravo Pipeline Project. The Pipeline Project will consist of a new interstate natural gas pipeline system to transport natural gas to the Project for processing, liquefaction, and export.[16] Certain parties to the FERC proceeding sought rehearing of the FERC Order, but FERC denied those requests on January 23, 2020.[17]

DOE/FE has reviewed the non-FTA portion of the Application and Amendment, the comments opposing and supporting the Application, DOE's economic and environmental studies, the final environmental impact statement (EIS) for the Rio Grande LNG 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 Rio Grande 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 full volume requested—1,318 Bcf/yr of natural gas.[18] Because the export volumes authorized in Rio Grande LNG's FTA order (DOE/FE Order No. 3869) and this Order

[15] *Rio Grande LNG, LLC & Rio Bravo Pipeline Company, LLC*, Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 169 FERC ¶ 61,131, at ¶¶ 1, 3, 5-6 (Nov. 22, 2019) [hereinafter FERC Order]; *see also infra* § VI.C.
[16] FERC Order at ¶¶ 2, 3, 9.
[17] *See Rio Grande LNG, LLC & Rio Bravo Pipeline Company, LLC*, Order on Rehearing and Stay, FERC Docket Nos. CP16-454-001 and CP16-455-001 (Jan. 23, 2020); *see also infra* § VI.C.
[18] *See infra* §§ VIII-XI.

each reflect the planned liquefaction capacity of the Rio Grande LNG Project 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 Rio Grande LNG Project under the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321 *et seq*. FERC issued the final EIS for the Project on April 26, 2019.[19] After an independent review, DOE/FE adopted the final EIS on May 13, 2019 (DOE/EIS-0519),[20] and the U.S. Environmental Protection Agency (EPA) published a notice of the adoption on May 17, 2019.[21] As an Appendix to this Order, DOE/FE is issuing the Record of Decision (ROD) under NEPA for the proposed Project. This Order requires Rio Grande LNG's compliance with the 143 environmental conditions adopted in the FERC Order.[22]

Concurrently with this Order, DOE/FE is issuing three additional non-FTA orders as follows:

(i) *Texas LNG Brownsville LLC*, in a volume equivalent to 204.4 Bcf/yr (0.56 Bcf/d).[23]

(ii) *Corpus Christi Liquefaction Stage III, LLC*, in a volume equivalent to 582.14 Bcf/yr (1.59 Bcf/d);[24] and

[19] Federal Energy Regulatory Comm'n, *Rio Grande LNG Project Final Environmental Impact Statement*, Docket Nos. CP16-454-000 and CP16-455-000 (Apr. 26, 2019), *available at*: https://www.ferc.gov/industries/gas/enviro/eis/2019/04-26-19-FEIS.asp [hereinafter final EIS].
[20] Letter from Amy Sweeney, DOE/FE, to Julie Roemele, U.S. Envtl. Prot. Agency (May 7, 2019) (adoption of final EIS).
[21] U.S. Envtl. Prot. Agency, Environmental Impact Statements; Notice of Availability, 84 Fed. Reg. 22,492 (May 17, 2019).
[22] *See also infra* § XI (Ordering Para. H); *see also infra* § VI.
[23] *Texas LNG Brownsville LLC*, DOE/FE Order No. 4489, FE Docket No. 15-62-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).
[24] *Corpus Christi Liquefaction Stage III, LLC*, DOE/FE Order No. 4490, FE Docket No. 18-78-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).

(iii) *Annova LNG Common Infrastructure, LLC*, in a volume equivalent to 360 Bcf/yr (0.99 Bcf/d).[25]

The volumes approved in this Order—3.61 Bcf/d of natural gas—and the three additional orders total 6.75 Bcf/d of natural gas. Together, these orders bring DOE/FE's cumulative total of approved non-FTA exports of LNG and compressed natural gas to 44.81 Bcf/d of natural gas.[26]

II. BACKGROUND

A. DOE's LNG Export Studies

1. 2012 EIA and NERA Studies

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

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

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[25] *Annova LNG Common Infrastructure, LLC*, DOE/FE Order No. 4491, FE Docket No. 19-34-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).
[26] *See infra* § VIII.D.

In December 2012, DOE/FE published a notice of availability of the 2012 LNG Export Study in the *Federal Register* for public comment.[27] DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[28]

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.[29] 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.[30]

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).[31] 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

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

[28] *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).

[29] 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.

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

[31] 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.

LNG export scenarios and used baseline cases from EIA's *Annual Energy Outlook 2014* (AEO 2014).[32]

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

In December 2015, DOE/FE published a Notice of Availability of the 2014 and 2015 Studies in the *Federal Register*, and invited public comment on those Studies.[34] DOE/FE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[35]

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[32] 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.

[33] 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.

[34] 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).

[35] *See, e.g.*, *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3792, FE Docket No. 15-63-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel From the Sabine Pass LNG Terminal Located in Cameron Parish, Louisiana, to Non-Free Trade Agreement Nations, at 66-121 (Mar. 11, 2016).

3. 2018 LNG Export Study

a. Overview

At the time DOE commissioned the 2018 LNG Export Study in 2017, 25 non-FTA applications were pending before DOE/FE.[36] 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.[37] 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,[38] and concurrently provided notice of the availability of the Study, as discussed below.[39]

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);[40]

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[36] *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].
[37] 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.
[38] *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].
[39] *See* 2018 Study Notice.
[40] 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.

(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.[41]

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.[42] The 2018 Study develops 54 scenarios by identifying various assumptions for domestic and international supply and demand conditions to capture a wide range of uncertainty in natural gas markets. The scenarios include three baseline cases based on EIA's AEO 2017 projections (the most recent EIA projections available at the time), with varying assumptions about U.S. natural gas supply.[43] 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.[44]

[41] *See* 2018 Study Notice, 83 Fed. Reg. at 27,316.
[42] *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].
[43] 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).
[44] *See id*.

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

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

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

iii. A Renewables Mandate case, which provides a low estimate for U.S. natural gas demand driven by the imposition of a stringent renewables mandate.[45]

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

As noted above, the 2018 Study also examines the likelihood of conditions leading to various export scenarios. This unique feature provides not only quantification of the effects to the U.S. natural gas market and its overall economy under each of the scenarios outlined, but also an assessment of the probability of each of these scenarios, and thus the probability of the natural gas and macroeconomic outcomes associated with each scenario.[46]

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.[47] 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

[45] *See id*.
[46] *See id*.
[47] *See id*.

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

c. Study Results

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

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

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

- Levels of 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.[48]

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.[49] The purpose of the notice of availability was "to enter the 2018 LNG Export Study into the administrative record of the 25 pending non-FTA export proceedings [identified in the notice] and to invite comments on the Study for consideration in the pending and future non-FTA application proceedings."[50] 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.[51] Of those, nine comments supported the Study,[52] eight comments opposed the 2018 Study and exports of LNG,[53] one comment took no position,[54] and one comment was non-responsive.[55]

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

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[48] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,255.
[49] *See* 2018 Study Notice.
[50] *Id*. at 27,315.
[51] The public comments are posted on the DOE/FE website at: https://fossil.energy.gov/app/docketindex/docket/index/10.
[52] 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.
[53] 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.
[54] Comment of John Young.
[55] Comment of Vincent Burke.

28, 2018.[56] 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.[57]

DOE/FE incorporates into the record of this proceeding the 2018 LNG Export Study, the 2018 Study Notice, the public comments received on the 2018 Study, and the 2018 Study Response to Comments—which together constitute the full proceeding for the 2018 LNG Export Study.

e. DOE/FE Conclusions

Based upon the record in the 2018 Study proceeding, DOE/FE determined that the 2018 Study provides substantial support for non-FTA applications within the export volumes considered by the 2018 Study—ranging from 0.1 to 52.8 Bcf/d of natural gas.[58] 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.[59] 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."[60]
- "Increased exports of natural gas will improve the U.S. balance of trade and result in a wealth transfer into the United States."[61]
- "Overall [U.S.] GDP improves as LNG exports increase for all scenarios with the same U.S. natural gas supply condition.[62]

[56] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.
[57] *See id*. at 67,272.
[58] *See id*.
[59] *See id*.
[60] *Id*. (quoting 2018 LNG Export Study at 55).
[61] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (quoting 2018 LNG Export Study at 64).
[62] *Id*. (quoting 2018 LNG Export Study at 67).

- "There is no support for the concern that LNG exports would come at the expense of domestic natural gas consumption."[63]
- "[A] large share of the increase in LNG exports is supported by an increase in domestic natural gas production."[64]
- "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."[65]

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.[66] DOE/FE concluded that, when compared to prior AEO Reference cases—including AEO 2017's Reference case used in the 2018 Study—the AEO 2018 Reference case projected increases in domestic natural gas production in excess of what is required to meet projected increases in domestic consumption.[67]

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."[68] 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.[69]

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,

[63] *Id*. (quoting 2018 LNG Export Study at 77).
[64] *Id*.
[65] *Id*. (quoting 2018 LNG Export Study at 70).
[66] 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.
[67] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[68] *Id*. (citing 2018 LNG Export Study at 63 & Appendix F).
[69] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

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).[70] DOE/FE received public comments on the Draft Addendum, and on August 15, 2014, issued the final Addendum with its response to the public comments contained in Appendix B.[71]

Second, DOE/FE commissioned the National Energy Technology Laboratory (NETL), a DOE applied research laboratory, to conduct an analysis calculating the life cycle greenhouse gas (GHG) emissions for LNG exported from the United States. DOE commissioned this life cycle analysis (LCA) to inform its public interest review of non-FTA applications, as part of its broader effort to evaluate different environmental aspects of the LNG production and export chain.

DOE sought to determine: (i) how domestically-produced LNG exported from the United States compares with regional coal (or other LNG sources) for electric power generation in Europe and Asia from a life cycle GHG perspective, and (ii) how those results compare with natural gas sourced from Russia and delivered to the same markets via pipeline. In June 2014,

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

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

DOE/FE published NETL's report entitled, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States* (LCA GHG Report or 2014 Report).[72] DOE/FE also received public comments on the LCA GHG Report and responded to those comments in prior orders.[73] DOE has relied on the 2014 Report in its review of all subsequent applications to export LNG to non-FTA countries.[74]

Most recently, in 2018, DOE commissioned NETL to conduct an update to the 2014 LCA GHG Report, entitled *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States: 2019 Update* (LCA GHG Update or 2019 Update).[75] As with the 2014 Report, the LCA GHG Update compared life cycle GHG emissions of exports of domestically produced LNG to Europe and Asia, compared with alternative fuel sources (such as regional coal and other imported natural gas) for electric power generation in the destination countries. Although core aspects of the analysis—such as the scenarios investigated—were the same as the 2014 Report, the LCA GHG Update contained the following three changes:

- Incorporated NETL's most recent characterization of upstream natural gas production, set forth in NETL's April 2019 report entitled, *Life Cycle Analysis of*

[72] U.S. Dep't of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States, 79 Fed. Reg. 32,260 (June 4, 2014) [hereinafter LCA GHG Report]. DOE/FE announced the availability of the LCA GHG Report on its website on May 29, 2014.
[73] *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).
[74] *See, e.g.*, *Venture Global Plaquemines LNG, LLC*, DOE/FE Order No. 4446, FE Docket No. 16-28-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, 14-15, 38-41 (Oct. 16, 2019).
[75] Nat'l Energy Tech. Lab., *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update* (DOE/NETL 2019/2041) (Sept. 12, 2019), *available at*: https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf. Although the LCA GHG Update is dated September 12, 2019, DOE announced the availability of the LCA GHG Update on its website and in the *Federal Register* on September 19, 2019.

Natural Gas Extraction and Power Generation (April 2019 LCA of Natural Gas Extraction and Power Generation);[76]

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

- Updated the 100-year global warming potential (GWP) for methane (CH_4) to reflect the current Intergovernmental Panel on Climate Change's Fifth Assessment Report.[77]

In all other respects, the LCA GHG Update was unchanged from the 2014 Report.[78]

The LCA GHG Update demonstrated that the conclusions of the 2014 LCA GHG Report remained the same. Specifically, the 2019 Update concluded that the use of U.S. LNG exports for power production in European and Asian markets will not increase global GHG emissions from a life cycle perspective, when compared to regional coal extraction and consumption for power production.[79] On this basis, DOE/FE found that the 2019 Update supports the proposition that exports of LNG from the lower-48 states will not be inconsistent with the public interest.[80] Additional details are discussed below (*see infra* § VIII.B.3) and in DOE's Response to Comments on the 2019 Update.

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

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

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[76] Nat'l Energy Tech. Lab., *Life Cycle Analysis of Natural Gas Extraction and Power Generation* (DOE/NETL 2019/2039) (Apr. 19, 2019), *available at*: https://www.netl.doe.gov/energy-analysis/details?id=3198.
[77] *See* U.S. Dep't of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States; Notice of Availability of Report Entitled Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States: 2019 Update and Request for Comments, 84 Fed. Reg. 49,278, 49,279 (Sept. 19, 2019).
[78] *See* U.S. Dep't of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States: 2019 Update – Response to Comments, 85 Fed. Reg. 72, 75 (Jan. 2, 2020) [hereinafter DOE Response to Comments on 2019 Update].
[79] *See id*. at 78, 85.
[80] *See id*. at 86.

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*),[81] and three in a consolidated, unpublished opinion issued on November 1, 2017 (*Sierra Club II*).[82] 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.[83]

In *Sierra Club I*, the D.C. Circuit concluded that DOE/FE had complied with both section 3(a) of the NGA and NEPA in issuing the challenged non-FTA authorization to Freeport LNG Expansion, L.P. and its related entities (collectively, Freeport). DOE/FE had granted the Freeport application in 2014 in a volume equivalent to 0.4 Bcf/d of natural gas, finding that Freeport's proposed exports were in the public interest under NGA section 3(a). DOE/FE also considered and disclosed the potential environmental impacts of its decision under NEPA. Sierra Club petitioned for review of the Freeport authorization, arguing that DOE fell short of its obligations under both the NGA and NEPA. The D.C. Circuit rejected Sierra Club's arguments in a unanimous decision, holding that, "Sierra Club has given us no reason to question the

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[81] *Sierra Club v. U.S. Dep't of Energy*, 867 F.3d 189 (D.C. Cir. 2017) (denying petition for review of the LNG export authorization issued to Freeport LNG Expansion, L.P., *et al*.).
[82] *Sierra Club v. U.S. Dep't of Energy*, 703 Fed. App'x. 1 (D.C. Cir. 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).
[83] *See Sierra Club v. U.S. Dep't of Energy*, No. 16-1426, Per Curiam Order (D.C. Cir. 2018) (granting Sierra Club's unopposed motion for voluntary dismissal).

Department's judgment that the [Freeport] application is not inconsistent with the public interest."[84]

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.[85] 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."[86] 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."[87]

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.[88] 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.[89]

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."[90] Having "already rejected

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[84] *Sierra Club I*, 867 F.3d at 203.
[85] *Id.* at 192.
[86] *Id*. at 198.
[87] *Id*. at 201.
[88] *Id*.
[89] *Id*. at 202.
[90] *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."[91]

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."[92] 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.[93]

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

III. PUBLIC INTEREST STANDARD

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

> [N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the [Secretary of Energy[94]] 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.[95]

[91] *Id.*
[92] *Sierra Club II*, 703 Fed. App'x. 1, at *2.
[93] *Id*.
[94] 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.
[95] 15 U.S.C. § 717b(a).

DOE—as affirmed by the D.C. Circuit—has consistently interpreted NGA section 3(a) as creating a rebuttable presumption that a proposed export of natural gas is in the public interest.[96] Accordingly, DOE will conduct an informal adjudication and grant a non-FTA application unless DOE finds that the proposed exportation will not be consistent with the public interest.[97] 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.[98] 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

[96] *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)).

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

[98] U.S. Dep't of Energy, New Policy Guidelines and Delegations Order Relating to Regulation of Imported Natural Gas, 49 Fed. Reg. 6684 (Feb. 22, 1984) [hereinafter 1984 Policy Guidelines].

> 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.[99]

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.[100]

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.[101] 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."[102]

Although DOE Delegation Order No. 0204-111 is no longer in effect,[103] DOE's review of export applications has continued to focus on: (i) the domestic need for the natural gas proposed to be exported, (ii) whether the proposed exports pose a threat to the security of domestic natural gas supplies, (iii) whether the arrangement is consistent with DOE's policy of promoting market competition, and (iv) any other factors bearing on the public interest, as determined by DOE.

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[99] *Id*. at 6685.

[100] *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)).

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

[102] 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* Federal Energy Regulatory Comm'n, 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)).

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

IV. DESCRIPTION OF REQUEST

A. Description of Applicant and Changes in Control

Rio Grande LNG is a Texas limited liability company with its principal place of business in The Woodlands, Texas.[104] Rio Grande LNG stated in its Application that it was 100% owned by NextDecade, LLC which, in turn, had 12 investors.[105] In the years since the Application was filed, Rio Grande LNG has informed DOE/FE of various changes in its ownership.[106]

On August 23, 2017, Rio Grande LNG notified DOE/FE that, among other changes related to a merger, its parent company, NextDecade, LLC, had been renamed NextDecade LNG, LLC.[107] Rio Grande LNG stated that NextDecade LNG, LLC's 100% equity ownership of Rio Grande LNG remained the same. DOE/FE issued a Response to the Statement of Change in Ownership and gave immediate effect to this change in ownership.[108]

On November 27, 2019,[109] and February 3, 2020,[110] Rio Grande LNG submitted two additional updates regarding its ownership structure (collectively, Updates). In the Updates, Rio Grande LNG informed DOE/FE that NextDecade LNG, LLC continues to own 100% of the equity of Rio Grande LNG, and that NextDecade Corporation continues to own 100% of NextDecade LNG, LLC.[111] According to Rio Grande LNG, NextDecade Corporation has completed a series of financing transactions and equity issuances, which affected its outstanding

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[104] App. at 4.
[105] *Id*. at 5-8.
[106] *See* U.S. Dep't of Energy, Procedures for Changes in Control Affecting Applications and Authorizations to Import or Export Natural Gas, 79 Fed. Reg. 65,541 (Nov. 5, 2014) [hereinafter CIC Procedures].
[107] Rio Grande LNG, LLC, Statement of Change in Ownership and Notice of Amendment to Pending Non-FTA Export Application, FE Docket No. 15-190-LNG, at 3 (Aug. 23, 2017).
[108] U.S. Dep't of Energy, Notice of Change in Control for Rio Grande LNG, LLC, FE Docket No. 15-190-LNG, at 2-3 (Oct. 25, 2017).
[109] Rio Grande LNG, LLC, Updates to Pending Non-FTA Application, FE Docket No. 15-190-LNG (Nov. 26, 2019).
[110] Rio Grande LNG, LLC, Updates to Existing FTA Authorization and Pending Non-FTA Application, FE Docket No. 15-190-LNG (Feb. 3, 2020) [hereinafter Feb. 3, 2020 Update].
[111] *See* Feb. 3, 2020 Update at 2.

shares as specified in the Updates.[112] Pursuant to DOE/FE's Change in Control Procedures, we construe the Updates as an amendment to the non-FTA portion of the Application to reflect a change in control, and the amendment of the Application has taken effect.[113] We further note that the Updates were unopposed.[114]

B. The Rio Grande LNG Project

Rio Grande LNG states that the proposed Rio Grande LNG Project will consist of a natural gas liquefaction facility and LNG export terminal to be located along the north embankment of the Brownsville Ship Channel in Cameron County, Texas.[115] According to Rio Grande LNG, the Project will occupy an approximately 1,000-acre site located between the Brownsville Ship Channel and the Brownsville-Port Elizabeth Highway, approximately 12 miles to the east-northeast of Brownsville, Texas.[116] Rio Grande LNG states that it has entered into a 30-year lease agreement with the site's owner, the Brownsville Navigation District.[117] The lease agreement has two options to renew and extend the term for periods of 10 years each.[118]

As approved by FERC, the Rio Grande LNG Project will consist of the following major components: six liquefaction trains, four LNG storage tanks, marine and truck loading facilities, and associated infrastructure and support facilities.[119] The six liquefaction trains each will have a nominal capacity of 4.5 mtpa of LNG, for a total nominal capacity of approximately 27 mtpa of

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[112] *See*, *e.g.*, *id*. at 2-4.
[113] CIC Procedures, 79 Fed. Reg. at 65,542. Consistent with the CIC Procedures, DOE/FE will address the amendment to Rio Grande LNG's FTA authorization in a separate order.
[114] *See id*.
[115] App. at 2, 14.
[116] *Id*. at 15. A map of the site is attached to the Application as Appendix A.
[117] *Id.*; *see also* Rio Grande LNG, LLC, Semi-Annual Progress Report, FE Docket No. 15-190-LNG, at 1 (Apr. 3, 2019) [hereinafter Rio Grande LNG Semi-Annual Report] (stating that the lease agreement supersedes previous site option agreements).
[118] Rio Grande LNG Semi-Annual Report at 1.
[119] FERC Order at ¶ 6; *see also* App. at 14-15.

LNG for export.[120] Construction of the Project will take place in six sequential stages associated with each liquefaction train.[121]

C. Project Pipeline

The Rio Grande LNG Project includes the proposed Rio Bravo Pipeline Project. As approved by FERC, the Rio Bravo Pipeline Project will consist of a new 137.9-mile long interstate natural gas transmission system.[122] When complete, the Rio Bravo Pipeline will interconnect the Project with eight interstate and intrastate pipeline systems,[123] and will be capable of providing the Project with up to 4.5 Bcf/d of natural gas.[124]

D. Source of Natural Gas

Rio Grande LNG states that, in light of the anticipated interconnections available to the proposed Rio Bravo Pipeline, the Project will have the capability to source natural gas from almost any point on the U.S. natural gas pipeline grid through direct physical delivery or displacement.[125]

E. Business Model

Rio Grande LNG requests this authorization on its own behalf and as agent for other entities that will hold title to the LNG at the time of export.[126] In the Application, Rio Grande LNG states that it has not entered into any long-term natural gas supply or export contracts related to the requested authorization.[127] According to Rio Grande LNG, it anticipates that both

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[120] FERC Order at ¶¶ 5-6.
[121] *See id*. at ¶ 5.
[122] *Id*. at ¶ 9.
[123] App. at 9; *see also* FERC Order at ¶ 9 n.15 (identifying the proposed interconnects in the Agua Dulce Market Area).
[124] FERC Order at ¶ 9.
[125] App. at 17-18.
[126] *Id*. at 3, 13.
[127] *Id.* at 14.

Rio Grande LNG-affiliated and unaffiliated entities will enter into capacity use arrangements with Rio Grande LNG. In its Semi-Annual Report, however, Rio Grande LNG states that, on March 28, 2019, NextDecade Corporation and Shell NA LNG LLC executed a 20-year sale and purchase agreement for the supply of 2 mtpa of LNG from the Rio Grande LNG Project.[128]

Rio Grande LNG states that it will file all long-term, binding contracts associated with the export of LNG from the Project, once executed, in accordance with established policy and precedent.[129] Rio Grande 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 set forth in recent DOE/FE orders.[130]

V. APPLICANT'S PUBLIC INTEREST ANALYSIS

A. Overview

Rio Grande LNG asserts that the requested authorization to export LNG to non-FTA countries is not inconsistent with the public interest and should be granted.[131] In support of this position, Rio Grande LNG addresses the following factors: (i) the domestic need for the natural gas to be exported; (ii) impacts on natural gas markets; (iii) economic benefits; and (iv) international considerations.[132] In support of its arguments, Rio Grande LNG points to DOE's 2012 and 2014 LNG Export Studies, among other evidence.

B. Domestic Need for the Natural Gas to Be Exported

Rio Grande LNG maintains that the domestic supply of natural gas is adequate to meet both domestic demand and Rio Grande LNG's proposed export volumes over the requested

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[128] Rio Grande LNG Semi-Annual Report at 2.
[129] App. at 13-14.
[130] *Id*. at 13.
[131] *Id.* at 30.
[132] *Id*. at 29-30 (summarizing public interest benefits).

authorization term.[133] In support of this position, Rio Grande LNG states that U.S. proved reserves of dry natural gas increased by 93.6 trillion cubic feet (38.3%) between 2008 and 2013, while consumption grew at a far slower rate. Rio Grande LNG asserts that these increases in proved reserves, as well as technological improvements in drilling and extraction, have enhanced U.S. natural gas production capabilities and contributed to a significant decrease in U.S. natural gas prices.[134] Citing EIA projections, Rio Grande LNG asserts that "the U.S. has an inventory of recoverable natural gas resources sufficient to last beyond any practicable planning horizon."[135]

Rio Grande LNG also maintains that there will be an adequate supply of natural gas on a regional basis. First, Rio Grande LNG states that the proposed Project will be located in an area with "robust access" to natural gas supplies through the integrated and well-developed interstate and intrastate natural gas pipeline system.[136] Rio Grande LNG emphasizes the large number of pipelines in the region, as well as the natural gas transportation industry's ability to build and expand pipeline infrastructure to ensure adequate regional supplies of natural gas.[137] Second, citing EIA's estimates, Rio Grande LNG states that there are extensive local supplies of natural gas to meet both the domestic needs of the area and the demand for exported natural gas.[138]

Rio Grande LNG asserts that there has been "little growth" in U.S. demand for natural gas over the past decade.[139] Rio Grande LNG points to EIA's *Annual Energy Outlook 2015*, which projected 0.4% growth of long-term annual U.S. natural gas consumption from 2012 to 2035.[140] Rio Grande LNG states that, even at 100% utilization of the Project, the natural gas to

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[133] *Id* at 32.
[134] *Id.* at 32-34.
[135] App. at 36.
[136] *Id*. at 37.
[137] *Id.*
[138] *Id.*
[139] *Id*. at 38.
[140] *Id.*

be exported over the requested 20-year term would represent only 1.27% of all technically recoverable resources in the United States, as estimated by EIA.[141]

Turning to potential impacts on domestic prices of natural gas, Rio Grande LNG asserts that "the proposed exports would have minimal impacts on the price of natural gas in the region and the nation."[142] In support of this claim, Rio Grande LNG cites DOE's 2014 LNG Export Study, a 2013 study conducted by the Deloitte Center for Energy Solutions and Deloitte MarketPoint LLC, and a 2015 study commissioned by Rio Grande LNG and conducted by Deloitte MarketPoint LLC.[143] Rio Grande LNG states, for example, that the 2015 Deloitte study—entitled the *World Gas Model–Global Natural Gas and LNG Market Analysis* (or the Deloitte Rio Grande LNG Export Report)—examined the impacts of Rio Grande LNG's proposed Project on regional and national natural gas prices.[144] According to Rio Grande LNG, the Deloitte Rio Grande LNG Export Report considered the impact of adding 27 mtpa of LNG export capacity at the Project, together with additional LNG export capacity represented by other projects, yet found that this export demand would cause only modest impacts to domestic prices of natural gas.[145]

C. Impacts on Natural Gas Markets

Rio Grande LNG maintains that exporting natural gas will help to stabilize the natural gas industry, among other benefits. According to Rio Grande LNG, by increasing the size and diversity of the demand for natural gas through exports of U.S. LNG, the volatility in demand

[141] App. at 38-39.
[142] *Id*. at 42.
[143] *Id.* at 41-42.
[144] *Id*. at 42 (citing *World Gas Model–Global Natural Gas and LNG Market Analysis*, Deloitte MarketPoint LLC (Dec. 2015)). The Deloitte Rio Grande LNG Export Report is attached to the Application as Appendix F.
[145] *Id.* at 42-44.

decreases. This, in turn, will contribute to more stable prices and supply in the United States, while also encouraging investment in the natural gas industry.[146]

D. Economic Benefits

Rio Grande LNG asserts that its Project will generate significant local, regional, and national economic benefits, including employment, economic activity, and tax revenues.[147] In support of these arguments, Rio Grande LNG cites a study by The Perryman Group, entitled *The Potential Impact of the Proposed Rio Grande Liquefied Natural Gas (LNG) and Rio Bravo Pipeline Facilities on Business Activity in Cameron County, Texas, and the United States* (the Perryman Study) that it commissioned in connection with the Application.[148]

First, the Perryman Study anticipates that the construction and non-operational phase of the Rio Grande LNG Project will produce approximately 59,062 jobs in the United States, 39,572 jobs in Texas, and 10,625 jobs in Cameron County.[149] The Perryman Study also projects that, at maturity, the Project will create 4,901 permanent jobs in the United States, 4,492 permanent jobs in Texas, and 3,256 permanent jobs in Cameron County.[150]

Next, the Perryman Study projects that the Rio Grande LNG Project will generate significant economic activity through expenditures for the purchase of goods and services. During the construction and non-operational phase of the Project, for example, the Perryman Study projects total expenditures of approximately $77,116 million in the United States, $48,774 million in Texas, and $12,007 million in Cameron County.[151] The Perryman Study also projects

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[146] *Id.* at 45-46.
[147] App. at 47-48.
[148] *Id.* at 48 n.109 (citing *The Potential Impact of the Proposed Rio Grande Liquefied Natural Gas (LNG) and Rio Bravo Pipeline Facilities on Business Activity in Cameron County, Texas, and the United States*, The Perryman Group (Dec. 2015)). The Perryman Study is attached to the Application as Appendix E.
[149] Perryman Study at 14.
[150] App. at 50 (citing Perryman Study at 17).
[151] *Id*. at 48-49 (citing Perryman Study at 14).

that, at maturity, operation of the Rio Grande LNG Project will require annual expenditures of approximately $2,318 million in the United States, $2,116 million in Texas, and $1,432 million in Cameron County.[152]

Additionally, the Perryman Study predicts that the Rio Grande LNG Project will yield incremental tax receipts during the construction and non-operational phase of more than $3 billion for the federal government, $1.2 billion for the Texas state government, and $116.5 million for local taxing authorities in Cameron County, as well as additional tax receipts during the Project's operations.[153]

As another economic benefit, Rio Grande LNG states that the Project likely will stimulate natural gas resource development by expanding the market for North American natural gas, thereby "greatly magnifying the overall benefits derived from the Rio Grande LNG Project."[154]

F. International Considerations

Rio Grande LNG states that its proposed exports will confer economic and strategic benefits to the United States and its allies.[155] In support of this argument, Rio Grande LNG points to a 2012 report of the Brookings Institution's Energy Security Initiative, entitled *Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas*" (the Brookings Study).[156] The Brookings Study, according to Rio Grande LNG, examined factors relating to LNG exports, including energy prices, geopolitics, and the environment.

With respect to energy prices, Rio Grande LNG states that LNG exports will improve market liquidity, thereby putting downward pressure on energy prices, as well as helping to

[152] *Id.* at 49 (citing Perryman Study at 17).
[153] *Id*. at 50-51 (Perryman Study at 19).
[154] *Id*. at 51.
[155] *Id*.
[156] App. at 51-52 & n.127 (citing Charles Ebinger *et al.*, *Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas*, The Brookings Energy Security Initiative (May 2012)).

support the world economy.[157] Rio Grande LNG also asserts that the proposed exports will improve the U.S. balance of trade.[158]

Additionally, quoting the Brookings Study, Rio Grande LNG states that U.S. LNG exports will support U.S. foreign policy interests by increasing the diversity of the global supply of natural gas in Europe and elsewhere, as well as providing energy security and pricing relief to LNG importers in Asia.[159] As an environmental benefit, Rio Grande LNG asserts that U.S. natural gas could potentially replace more carbon-intensive fuels in other countries.[160]

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,[161] and a formal application process that starts no sooner than 180 days after issuance of a notice that the pre-filing process has commenced.[162]

On April 13, 2015, FERC began its pre-filing review of the Rio Grande LNG Export Project.[163] FERC established pre-filing Docket No. PF15-20-000 to place information related to the Project into the public record.[164] On July 23, 2015, FERC issued a Notice of Intent to

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[157] App. at 52.
[158] *Id.*; *see also id*. at 57-58.
[159] *Id.* at 53.
[160] *Id*. at 53; *see also id*. at 55-56.
[161] 18 C.F.R. § 157.21.
[162] 18 C.F.R. § 157.21(a)(2)(i-ii).
[163] *Rio Grande LNG, LLC & Rio Bravo Pipeline Co., LLC,* Approval of Pre-Filing Request, FERC Docket No. PF15-20-000 (Apr. 13, 2015); Final EIS at 1-11.
[164] *See* Final EIS at 1-11.

Prepare an Environmental Impact Statement for the proposed Project.[165] DOE agreed to participate as a cooperating agency in FERC's environmental review.[166]

B. FERC's Environmental Review

On May 5, 2016, Rio Grande LNG filed an application with FERC under section 3 of the NGA to site, construct, and operate the Rio Grande LNG Project.[167] At the same time, Rio Bravo Pipeline Company, LLC (Rio Bravo) filed a request for a certificate of public convenience and necessity under NGA section 7(c) to construct and operate the Rio Bravo Pipeline Project.[168] FERC assigned Docket Nos. CP16-454-000 to the Rio Grande LNG Project (referred to as the Rio Grande LNG Terminal) and CP16-455-000 to the Rio Bravo Pipeline Project.[169]

In compliance with NEPA, FERC staff issued a Notice of Availability of a Draft Environmental Impact Statement on October 12, 2018, and placed the draft EIS into the public record.[170] On April 26, 2019, FERC staff issued the final EIS for the Project.[171] 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) wetlands, geological conditions, water resources, air quality, and cumulative impacts.[172]

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[165] *Rio Bravo Pipeline Co., LLC & Rio Grande LNG, LLC*; Notice of Intent to Prepare an Environmental Impact Statement for the Planned Rio Grande LNG Project and Rio Bravo Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meeting, FERC Docket No. PF15-20-000, 80 Fed. Reg. 45,517 (July 30, 2015).
[166] *See*, *e.g.*, FERC Order at ¶ 53.
[167] *Rio Grande LNG, LLC & Rio Bravo Pipeline Co*., LLC, Application for Authorization Under the Natural Gas Act, FERC Docket Nos. CP16-454-000 & CP16-455-000 (May 5, 2016).
[168] *See id*.
[169] FERC Order at ¶¶ 1-2.
[170] *Rio Grande LNG, LLC & Rio Bravo Pipeline Co., LLC*, Federal Energy Regulatory Comm'n, Notice of Availability of the Draft Environmental Impact Statement for the Proposed Rio Grande LNG Project, Docket No. CP16-454-000 (Oct. 12, 2018); *see also* FERC Order at ¶ 54.
[171] *See Rio Grande LNG, LLC & Rio Bravo Pipeline Co., LLC*; Notice of Availability of the Final Environmental Impact Statement for the Proposed Rio Grande LNG Project, 84 Fed. Reg. 18,836 (May 2, 2019); *see also* FERC Order at ¶ 55.
[172] *See* final EIS at ES-4 to ES-20; *see also* FERC Order at ¶ 55.

Based on its environmental analysis, FERC staff concluded in the final EIS that, "impacts on the environment from the proposed Project would be reduced to less than significant levels with the implementation of [the] proposed impact avoidance, minimization, and mitigation measures and the additional measures recommended by FERC staff."[173] The final EIS contained 144 site-specific environmental mitigation measures, which it recommended that FERC attach as conditions to any authorization of the Project.[174]

C. FERC's Order Granting Authorization

On November 22, 2019, FERC issued its Order under NGA section 3 authorizing Rio Grande LNG to site, construct, and operate the Rio Grande LNG Project (or Terminal) with a liquefaction capacity of up to 27 mtpa of LNG.[175] FERC also authorized Rio Bravo Pipeline Company, LLC to construct and operate the Rio Bravo Pipeline Project.[176]

In granting these authorizations, FERC cited the final EIS in stating that "most of the direct environmental impacts from construction of the proposed Rio Grande LNG Terminal are expected to be temporary or short term …, while some long-term and permanent environmental impacts would also occur."[177] FERC concluded, however, that with the exception of certain cumulative impacts discussed below, "implementation of Rio Grande's proposed mitigation measures and additional measures recommended by staff in the EIS and adopted in this order would ensure that impacts in the project area would be avoided or minimized, and reduced to less-than-significant levels."[178] On this basis, FERC approved Rio Grande LNG's proposal for the Project and Rio Bravo's proposal for the Pipeline Project under NGA sections 3 and 7,

[173] Final EIS at ES-19.
[174] *See id*. at 5-24 to 5-47 (list of mitigation measures).
[175] FERC Order at ¶¶ 3, 5, 133, 135 (Ordering Para. A).
[176] *Id*. at ¶ ¶ 3, 5, 133, 135 (Ordering Para. C).
[177] *Id*. at ¶ 22 (citing final EIS at 5-1).
[178] *Id*.

respectively.[179] FERC adopted 143 of the 144 mitigation measures recommended in the final EIS as environmental conditions of the Order,[180] and found that the remaining mitigation measure was complete and thus no longer required.[181]

FERC reviewed and addressed the major environmental issues discussed in the final EIS.[182] 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 GHG emissions of up to 9,070,827 metric tons per year of carbon dioxide equivalent (CO_2e)."[183] FERC further stated that the "operational emissions of these facilities could potentially increase annual CO_2e emissions based on the 2017 levels by approximately 0.17 percent at the national level."[184]

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 projects will contribute incrementally to climate change."[185] However, FERC stated that it "previously concluded it could not determine a project's incremental physical impacts on the environment caused by GHG emissions," and therefore "concluded it could not determine whether a project's contribution to climate change would be significant."[186]

Additionally, FERC considered the cumulative impacts of the proposed Rio Grande LNG and Rio Bravo Pipeline Projects with other projects in the same geographic and temporal

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[179] *Id*. at ¶ 3.
[180] FERC Order at ¶ 132 and Appendix.
[181] *Id.* at ¶ 88.
[182] *See generally id.* at ¶¶ 53-134.
[183] *Id*. at ¶ 108 (citing final EIS at Tables 4.11.1-7, 4.11.1-16, and 4.11.1-18).
[184] *Id*. at ¶ 108.
[185] *Id*. at ¶ 109 (citing final EIS at 4-481).
[186] FERC Order at ¶ 109 (citations omitted).

scope.[187] First, FERC stated that, for the majority of resources where a level of impact could be ascertained, the Projects' contribution to cumulative impacts "would not be significant," and the potential cumulative impacts of the projects and the other projects "would be minor or insignificant."[188] Next, FERC observed that the Rio Grande LNG Project combined with other projects with the geographic scope (including the proposed Texas LNG and Annova LNG Projects) would contribute to certain significant cumulative impacts, including but not limited to impacts to surface water quality in the Brownsville Ship Channel, habitat loss for certain federally listed animal species, and impacts on visual resources due to the presence of aboveground structures.[189]

In addressing these potentially significant cumulative impacts, FERC noted that "[t]he final EIS discusses applicable mitigation measures, laws, and regulations protecting environmental resources, as well as permitting requirements to minimize effects on those resources."[190] FERC further emphasized that it "has the authority to take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the project," including the authority to impose any additional measures deemed necessary to ensure compliance with the intent of the conditions of the FERC Order.[191]

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 environmentally acceptable actions."[192] FERC also found that that the Rio Grande LNG Project is not

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[187] *Id.* at ¶ 115 (citing final EIS at ES-15 to ES-18, 4-392 to 4-495).
[188] *Id.* at ¶ 116 (citing final EIS at 5-19 to 5-22).
[189] *Id.*; *see also id.* ¶¶ 117-20 (discussing potentially significant cumulative impacts).
[190] *Id.* at ¶ 116.
[191] FERC Order at ¶ 132.
[192] *Id.* at ¶ 133.

inconsistent with the public interest under NGA section 3, and that the Rio Bravo Pipeline Project is in the public convenience and necessity under NGA section 7.[193]

On December 23, 2019, John Young filed a request for rehearing of the FERC Order.[194] On the same date, Sierra Club and other non-profit organizations (collectively, Sierra Club) also filed a request for rehearing.[195] On January 22, 2020, FERC issued a tolling order granting rehearing for the limited purpose of further consideration.[196] On January 23, 2020, FERC issued an order denying both Mr. Young's and Sierra Club's requests for rehearing.[197]

VII. CURRENT PROCEEDING BEFORE DOE/FE

In response to the Notice of Application, DOE/FE received two comments.

A. Comment of John Young

Mr. Young filed a comment opposing the Application on September 19, 2016.[198] Mr. Young contends that the proposed location of the Rio Grande LNG Project is inappropriate due to its proximity to wildlife areas and migratory bird routes. Mr. Young expresses concerns about safety risks and medical problems that could be inflicted as a result of the Project's operations and resulting air emissions. Mr. Young suggests that the proposed operations will cause methane emissions, thus adding to climate change. Mr. Young further questions whether the purported economic benefits of the Project are hypothetical and whether sufficient evidence exists to support a presumption that LNG exports are in the public interest. Finally, Mr. Young "call[s]

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193 *See id*.
194 Request for Rehearing by John Young, FERC Docket Nos. CP16-454-000 and CP16-455-000 (Dec. 23, 2019).
195 Request for Rehearing by Sierra Club, FERC Docket Nos. CP16-454-000 and CP16-455-000 (Dec. 23, 2019).
196 *Rio Grande LNG, LLC & Rio Bravo Pipeline Company, LLC*, Order Granting Rehearings for Further Consideration, FERC Docket Nos. CP16-454-001 and CP16-455-001 (Jan. 22, 2020).
197 *Rio Grande LNG, LLC & Rio Bravo Pipeline Company, LLC*, Order on Rehearing and Stay, FERC Docket Nos. CP16-454-001 and CP16-455-001 (Jan. 23, 2020).
198 Comment of John Young, FE Docket No. 15-190-LNG, at 1-9 (Sept. 19, 2016).

on DOE to require an environmental impact statement" for the proposed Project to address these concerns.[199]

B. Comment of Mark Magee

On September 15, 2016, Mr. Magee filed a comment in support of the Application.[200] Mr. Magee states that he supports construction of the Rio Grande LNG Project, as well as the other two proposed LNG export terminals to be located in the Brownsville Ship Channel area (the proposed Texas LNG and Annova LNG Projects). According to Mr. Magee, the proposed Rio Grande LNG Project will provide "long term economic benefit" that is "durable and far-reaching" for the local community.[201] Finally, Mr. Magee asserts that the availability of employment opportunities, particularly for young people, is an important consideration in weighing the costs and benefits of the Project.[202]

VIII. DISCUSSION AND CONCLUSIONS

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

- The Application (which is uncontested under DOE/FE's regulations), the Amendment, the comment filed by Mr. Young in opposition to the Application, and the comment filed by Mr. Magee in support of the Application;
- FERC's final EIS and November 22, 2019 Order, including the 143 environmental conditions adopted in that Order;
- The Draft Addendum, comments received in response to the Draft Addendum, and the final Addendum;

[199] *Id*. at 9.
[200] Comment of Mark Magee, FE Docket No. 15-190-LNG (Sept. 15, 2016).
[201] *Id.*
[202] *Id.*

- The 2014 LCA GHG Report and the 2019 LCA GHG Update, including comments submitted in response to those documents; and

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

A. Non-Environmental Issues

1. Significance of the 2018 LNG Export Study

As discussed above, DOE/FE commissioned the 2018 LNG Export Study and invited public comments on the Study.[203] 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.[204] 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.[205]

We take administrative notice of EIA's recent authoritative projections for natural gas supply, demand, and prices, set forth in the *Annual Energy Outlook 2020* (AEO 2020), issued on January 29, 2020.[206] DOE/FE has assessed AEO 2020 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study.[207] The AEO 2017 Reference case without the CPP shows lower net LNG exports of 12.5 Bcf/d of natural gas in 2050, compared

[203] *See supra* § II.A.3.
[204] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,272; *see also supra* § II.A.3.
[205] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[206] U.S. Energy Info. Admin., *Annual Energy Outlook 2020* (Jan. 29, 2020), *available at*: https://www.eia.gov/outlooks/aeo/pdf/aeo2020.pdf.
[207] AEO 2017 included two versions of the Reference case—one with, and one without, the implementation of the Clean Power Plan (CPP). In recent non-FTA orders, we discussed both versions of the AEO 2017 Reference case, noting that the U.S. Environmental Protection Agency (EPA) was reviewing the CPP and considering an alternative regulatory approach. On June 19, 2019, EPA repealed the CPP and issued the final Affordable Clean Energy (ACE) rule. *See* U.S. Envtl. Prot. Agency, Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations, 84 Fed. Reg. 32,520 (July 8, 2019). Accordingly, in this Order, we refer only to the AEO 2017 Reference case without the CPP. The AEO 2020 Reference case does not include the CPP, so the comparisons between AEO 2017 and AEO 2020 are consistent in that regard.

with the AEO 2020 Reference case that shows net LNG exports of 15.8 Bcf/d in 2050. As discussed below, the AEO 2020 Reference case is even more supportive of exports than the AEO 2017 Reference case.

EIA's projections in AEO 2020 continue to show market conditions that will accommodate increased exports of natural gas. When compared to the AEO 2017 Reference case without the CPP, the AEO 2020 Reference case projects increases in domestic natural gas production—well in excess of what is required to meet projected increases in domestic consumption.

For these reasons, we reaffirm that the 2018 LNG Export Study is fundamentally sound. The 2018 Study, as well as AEO 2020, support our finding that Rio Grande LNG's proposed authorization will not be inconsistent with the public interest.

2. Rio Grande LNG's Application

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

First, Rio Grande LNG points to DOE's 2012 and 2014 LNG Export Studies, the 2015 Deloitte Rio Grande LNG Export Report, and other third-party studies in asserting that the United States has significant natural gas resources available to meet both projected future domestic needs and demand for the proposed exports. We agree, based on more recent projections and analyses. Specifically, we find that the 2018 LNG Export Study and AEO 2020 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.[208]

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

Second—and consistent with Mr. Magee's comment—the 2018 LNG Export Study indicates that exports of LNG will generate net economic benefits to the broader U.S. economy.[209] Indeed, the 2018 Study consistently shows macroeconomic benefits to the U.S. economy in every scenario, as well as positive annual growth across the energy intensive sectors of the economy.[210] Therefore, we disagree with Mr. Young's suggestion that LNG export operations, including the operation of the proposed Rio Grande LNG Project, will have negative impacts on the economy. We also note that Mr. Young did not address the Perryman Study, which Rio Grande LNG provided in support of its claims of economic benefit from the Project.

Third, over the 20-year term of the authorization, the proposed exports will improve the United States' ties with its trading partners and make a positive contribution to the United States' trade balance. For these reasons, we agree with Rio Grande LNG that its proposed exports are consistent with the interests of the United States.[211]

Accordingly, based on the 2018 Study and the more recent data in AEO 2020, DOE/FE finds that the market will be capable of sustaining the level of exports requested in Rio Grande LNG's Application over the authorization term without negative economic impacts, including domestic price impacts (discussed below).

3. Price Impacts

The 2018 LNG Export Study projects the economic impacts of LNG exports in a range of scenarios, including scenarios that exceed the current amount of LNG exports authorized in the final non-FTA export authorizations to date (equivalent to a total of 44.81 Bcf/d of natural gas with the issuance of this Order and the three additional non-FTA orders being issued today). The

[209] *Id*. at 67,272.
[210] *See id.* 67,268-69 (citing 2018 LNG Export Study at 67, 70).
[211] App. at 57-58.

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."[212]

Additionally, DOE/FE has analyzed AEO 2020 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study. Comparing key results from 2050 (the end of the projection period in Reference case projections from AEO 2017) shows that the Reference case outlook in AEO 2020 projects lower-48 market conditions that would be even more supportive of LNG exports than in AEO 2017, including higher production and demand coupled with lower prices. For example, for the year 2050, the AEO 2020 Reference case anticipates over 13% more natural gas production in the lower-48 than the AEO 2017 Reference case. It also projects an average Henry Hub natural gas price that is lower than the AEO 2017 Reference case by over 38%. Table 1 below shows these comparisons:

Table 1: Year 2050 Reference Case Comparisons in AEO 2017 and AEO 2020

	AEO 2017 Reference Case	**AEO 2020 Reference Case**
Lower-48 Dry Natural Gas Production (Bcf/d)	107.9	122.3
Total Natural Gas Consumption (Bcf/d)	92.4	100.0
Electric Power Sector Consumption (Bcf/d)	31.8	33.4
<u>Net</u> Exports by Pipeline (Bcf/d)	3.4	6.5

[212] 2018 Study Response to Comments, 83 Fed. Reg. at 67,258 (citing 2018 LNG Export Study at 55).

<u>Net</u> LNG Exports (Bcf/d)	12.5	15.8
LNG Exports – Total (Bcf/d)	12.7	15.9
Henry Hub Spot Price ($/MMBtu) **(Note 1)**	$6.00 (2019$)	$3.69 (2019$)

Note 1: Prices adjusted to 2019$ with the AEO 2017 projection of a Gross Domestic Product price index.

For these reasons, and as explained in DOE/FE's Response to Comments on the 2018 Study, we find that arguments concerning domestic price increases are not supported by the record evidence.[213]

4. Benefits of International Trade

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

[213] *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).

for many U.S. allies and trading partners. Therefore, we agree with Rio Grande 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 Rio Grande 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.

1. Adoption of FERC's Final EIS

DOE/FE participated in FERC's environmental review of the proposed Rio Grande LNG 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.[214] 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-0519) (*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.[215] Nevertheless, a

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

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

The Addendum shows that there are potential environmental issues associated with unconventional natural gas production that need to be carefully managed, especially with respect to emissions of volatile organic compounds and methane, and the potential for groundwater contamination. Mr. Young contends that the export of natural gas may lead to these and other adverse environmental impacts.[216] 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.

[216] *See supra* at § VII.

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.[217]

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

Sierra Club and other commenters on the Addendum, 2014 Life Cycle Greenhouse Gas (LCA GHG) Report, the 2019 LCA GHG Update, and the 2018 LNG Export Study (as well as DOE/FE's earlier economic studies), as well as Mr. Young in this proceeding, have expressed concern that exports of U.S. LNG may have a negative effect on the total amount of energy consumed in foreign nations and on global GHG emissions.

As explained above, both the 2014 LCA GHG Report and the 2019 Update estimated the life cycle GHG emissions of U.S. LNG exports to Europe and Asia, compared with certain other fuels used to produce electric power in those importing countries.[218] The 2019 Update was based on the most current available science, methodology, and data from the U.S. natural gas system to assess GHGs associated with exports of U.S. LNG.[219]

The 2019 Update demonstrates that the conclusions of the 2014 LCA GHG Report have not changed.[220] While acknowledging uncertainty, the LCA GHG Update shows that, to the extent U.S. LNG exports are preferred over coal in LNG-importing nations, U.S. LNG exports are likely to reduce global GHG emissions on per unit of energy consumed basis for power

[217] *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.
[218] *See supra* § II.B.
[219] Response to Comments on 2019 Update, 85 Fed. Reg. at 85.
[220] *See id*.

production.[221] 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.[222]

The LCA GHG Update (like the 2014 Report) does not provide information on whether authorizing exports of U.S. LNG to non-FTA nations will increase or decrease GHG emissions on a global scale.[223] Recognizing there is a global market for LNG, exports of U.S. LNG will affect the global price of LNG which, in turn, will affect energy systems in numerous countries. DOE further acknowledges that regional coal and imported natural gas are not the only fuels with which U.S.-exported LNG will compete. U.S. LNG exports may also compete with renewable energy, nuclear energy, petroleum-based liquid fuels, coal imported from outside East Asia or Western Europe, indigenous natural gas, synthetic natural gas derived from coal, and other resources. However, to model the effect that U.S. LNG exports would have on net global GHG emissions would require projections of how each of these fuel sources would be affected in each LNG-importing nation.[224] Such an analysis would not only have to consider market dynamics in each of these countries over the coming decades, but also the interventions of numerous foreign governments in those markets. Moreover, the uncertainty associated with estimating each of these factors would likely render such an analysis too speculative to inform the public interest determination in DOE's non-FTA proceedings.[225] Based on the evidence, however, DOE sees no reason to conclude that U.S. LNG exports will increase global GHG emissions in a material or predictable way.[226]

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[221] *See id*. at 85; *see also id*. at 86.
[222] *See id*.
[223] *See id*. at 81.
[224] Response to Comments on 2019 Update, 85 Fed. Reg. at 81.
[225] *See id*.
[226] See *id.* at 86.

Finally, we note that the D.C. Circuit held in *Sierra Club I* that there was "nothing arbitrary about the Department's decision" to compare emissions from exported U.S. LNG to emissions of coal or other sources of natural gas, rather than renewables or other possible fuel sources.[227] The Court's decision in *Sierra Club I* guided DOE's development of the 2019 Update.[228]

C. Other Considerations

The conclusion of the 2018 LNG Export Study is that the United States will experience net economic benefits from the export of domestically produced LNG. Nonetheless, our decision in this Order is not premised on an uncritical acceptance of that Study. Certain public comments received on the 2018 Study identify significant uncertainties and even potential negative impacts from LNG exports. The economic impacts of higher natural gas prices and potential increases in natural gas price volatility are two of the factors that we view most seriously. Yet, we also have taken into account factors that could mitigate these impacts, such as the current oversupply 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[229] that, under most circumstances, the market is the most efficient means of

[227] *Sierra Club I*, 867 F.3d at 202 (finding that "Sierra Club's complaint 'falls under the category of flyspecking'") (citation omitted).
[228] *See supra* at § II.B, C.
[229] 1984 Policy Guidelines, 49 Fed. Reg. 6684.

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

D. Conclusion

We have reviewed the evidence in the record and relevant precedent in earlier non-FTA export decisions and have not found an adequate basis to conclude that Rio Grande LNG's proposed exports will be inconsistent with the public interest. We further find that Mr. Young, the sole commenter opposing the Application, has failed to overcome the statutory presumption that the proposed export authorization is in the public interest.

In deciding whether to grant a final non-FTA export authorization, we also consider the cumulative impacts of the total volume of all non-FTA export authorizations. With the issuance of this Order and the three additional non-FTA orders being issued concurrently (*see supra* § I), there are currently 42 final non-FTA authorizations in a cumulative volume of exports totaling 44.81 Bcf/d of natural gas, or approximately 16.4 trillion cubic feet per year, as follows: Sabine

[230] 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) previously 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.

Pass Liquefaction, LLC (2.2 Bcf/d),[231] Carib Energy (USA) LLC (0.04 Bcf/d),[232] Cameron LNG, LLC (1.7 Bcf/d),[233] FLEX I (1.4 Bcf/d),[234] FLEX II (0.4 Bcf/d),[235] Dominion Cove Point LNG, LP (0.77 Bcf/d),[236] Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),[237] Sabine Pass Liquefaction, LLC Expansion Project (1.38 Bcf/d),[238] American Marketing LLC (0.008 Bcf/d),[239] Emera CNG, LLC (0.008 Bcf/d),[240] Floridian Natural Gas

[231] *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).

[232] *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).

[233] *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).

[234] *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).

[235] *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).

[236] *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).

[237] *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).

[238] *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).

[239] *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).

[240] *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).

Storage Company, LLC,[241] Air Flow North American Corp. (0.002 Bcf/d),[242] Bear Head LNG Corporation and Bear Head LNG (USA), LLC (0.81 Bcf/d),[243] Pieridae Energy (USA) Ltd.,[244] Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),[245] Cameron LNG, LLC Design Increase (0.42 Bcf/d),[246] Cameron LNG, LLC Expansion Project (1.41 Bcf/d),[247] Lake Charles Exports, LLC (2.0 Bcf/d),[248] Lake Charles LNG Export Company, LLC,[249] Carib Energy (USA), LLC (0.004),[250] Magnolia LNG, LLC (1.08 Bcf/d),[251] Southern LNG Company, L.L.C. (0.36

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[241] *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).

[242] *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).

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

[244] *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).

[245] *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).

[246] *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).

[247] *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).

[248] *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).

[249] *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).

[250] *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).

[251] *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).

Bcf/d),[252] the FLEX Design Increase (0.34 Bcf/d),[253] Golden Pass Products LLC (2.21 Bcf/d),[254] Delfin LNG LLC,[255] the Lake Charles LNG Export Company, LLC Design Increase (0.33 Bcf/d),[256] the Lake Charles Exports, LLC Design Increase,[257] Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),[258] Mexico Pacific Limited LLC (1.7 Bcf/d),[259] Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),[260] ECA Liquefaction, S. de R.L. de C.V. (Mid-Scale Project) (0.44 Bcf/d),[261] Energía Costa Azul, S. de R.L. de C.V. (Large-Scale Project) (1.3 Bcf/d),[262] Port Arthur LNG,

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[252] *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).
[253] *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).
[254] *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).
[255] *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).
[256] *Lake Charles LNG Export Co., LLC*, DOE/FE Order No. 4010, FE Docket No. 16-109-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Lake Charles Terminal in Lake Charles, Louisiana, to Free Trade Agreement and Non-Free Trade Agreement Nations (June 29, 2017).
[257] *Lake Charles Exports, LLC*, DOE/FE Order No. 4011, FE Docket No. 16-110-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Lake Charles Terminal in Lake Charles, Louisiana, to Free Trade Agreement and Non-Free Trade Agreement Nations (June 29, 2017).
[258] *Eagle LNG Partners Jacksonville II LLC*, DOE/FE Order No. 4078, FE Docket No. 17-79-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers Loaded at the Eagle Maxville Facility in Jacksonville, Florida, and Exported by Vessel to Free Trade Agreement and Non-Free Trade Agreement Nations (Sept. 15, 2017).
[259] *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).
[260] *Venture Global Calcasieu Pass, LLC*, DOE/FE Order No. 4346, FE Docket Nos. 13-69-LNG, 14-88-LNG, 15-25-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (March 5, 2019).
[261] *Energía Costa Azul, S. de R.L. de C.V.*, DOE/FE Order No. 4364, FE Docket No. 18-144-LNG, Opinion and Order Granting Long-Term Authorization to Re-Export U.S-Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Non-Free Trade Agreement Countries (ECA Mid-Scale Project) (Mar. 29, 2019), *as amended ECA Liquefaction, S. de R.L. de C.V.*, DOE/FE Order No. 4364-A, FE Docket No. 18-144-LNG, Order Granting Request to Transfer Authorizations (Oct. 7, 2019).
[262] *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

LLC (1.91 Bcf/d),[263] Driftwood LNG LLC (3.88 Bcf/d),[264] FLEX4 (0.72 Bcf/d),[265] Gulf LNG Liquefaction Company, LLC (1.5 Bcf/d),[266] Eagle LNG Partners Jacksonville LLC (0.14 Bcf/d),[267] Venture Global Plaquemines LNG, LLC (3.40 Bcf/d),[268] Texas LNG Brownsville LLC (0.56 Bcf/d),[269] Corpus Christi Liquefaction Stage III, LLC (1.59 Bcf/d),[270] Annova LNG Common Infrastructure, LLC (0.99 Bcf/d),[271] 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.[272] Additionally, we note that the volumes authorized for export in the *Lake Charles Exports* and *Lake Charles LNG Export* orders are both 2.0 Bcf/d and 0.33 Bcf/d, respectively, yet are not additive to one another because the source of LNG approved under all of those orders is the Lake Charles

Gas from Mexico to Non-Free Trade Agreement Countries (ECA Large-Scale Project) (Mar. 29, 2019).

263 *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).

264 *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).

265 *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).

266 *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).

267 *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).

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

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

270 *Corpus Christi Liquefaction Stage III, LLC*, DOE/FE Order No. 4490, FE Docket No. 18-78-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).

271 *Annova LNG Common Infrastructure, LLC*, DOE/FE Order No. 4491, FE Docket No. 19-34-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).

272 *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).

Terminal.[273] 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.[274] 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.[275]

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.[276] 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.[277]

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

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[273] *Lake Charles LNG Export Co., LLC*, DOE/FE Order No. 4010, at 55; *see also Lake Charles Exports, LLC*, DOE/FE Order No. 4011, at 54.

[274] *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.").

[275] *See Bear Head LNG Corporation and Bear Head LNG (USA)*, DOE/FE Order No. 3770, at 178-79 (stating that the quantity of LNG authorized for export by Bear Head LNG and Pieridae US "are not additive; together, they are limited to a maximum of 0.81 Bcf/d to reflect the current capacity of the M&N US Pipeline.").

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

[277] U.S. Energy Info. Admin., *U.S. Liquefaction Capacity* (Jan. 30, 2020), *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).

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 Rio Grande LNG's Application, as amended, in FE Docket No. 15-190-LNG subject to the Terms and Conditions and Ordering Paragraphs set forth below.

X. TERMS AND CONDITIONS

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

A. Term of the Authorization

In the Amendment to the Application, Rio Grande LNG requests a 20-year term for the authorization. A 20-year term is consistent with DOE's practice in the final non-FTA authorizations issued to date. The 20-year term will begin on the date when Rio Grande LNG commences first commercial export of domestically sourced LNG from the Rio Grande LNG Project, but not before.

B. Commencement of Operations

As requested by Rio Grande LNG in the Amendment to the Application, and consistent with our final non-FTA authorizations issued to date, DOE/FE will add as a condition of the authorization that Rio Grande 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

Rio Grande LNG will be permitted to apply for short-term export authorizations to export Commissioning Volumes prior to the commencement of the first commercial exports of domestically sourced LNG from the Project. "Commissioning Volumes" are defined as the volume of LNG produced and exported under a short-term authorization during the initial start-up of each LNG train, before each LNG train has reached its full steady-state capacity and begun its commercial exports pursuant to Rio Grande LNG's long-term contracts.[278] The Commissioning Volumes will not be counted against the maximum level of volumes previously authorized in Rio Grande LNG's FTA authorization (DOE/FE Order No. 3869) or in this Order.

D. Make-Up Period

In the Amendment to the Application, Rio Grande LNG requests authority to continue exporting for a total of five years following the end of the requested 20-year term, solely to export any Make-Up Volume that it was unable to export during the original export period.

[278] 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).

However, consistent with DOE's practice in allowing Make-Up Periods for non-FTA authorizations, Rio Grande 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 Rio Grande LNG's FTA authorization (DOE/FE Order No. 3869) or in this Order. Insofar as Rio Grande 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.[279] DOE/FE has found that this requirement applies to any change in control of the authorization holder. This condition was deemed necessary to ensure that DOE/FE will be given an adequate opportunity to assess the public interest impacts of such a transfer or change.

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

[279] 10 C.F.R. § 590.405.

other direct or indirect means.[280] 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.[281]

F. Agency Rights

Rio Grande 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.[282]

To ensure that the public interest is served, this authorization shall be conditioned to require that where Rio Grande 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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[280] *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).
[281] *See id*.
[282] *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 Rio Grande LNG file or cause to be filed with DOE/FE any relevant long-term commercial agreements, including liquefaction tolling agreements, pursuant to which Rio Grande 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).[283]

In addition, DOE/FE finds that section 590.202(c) of DOE/FE's regulations[284] requires that Rio Grande 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 Rio Grande LNG or the Registrant, within 30 days of their execution.

DOE/FE recognizes that some information in Rio Grande 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 Rio Grande LNG the option to file or cause to be filed either unredacted contracts, or in the alternative (A) Rio Grande 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

[283] 10 C.F.R. § 590.202(b).
[284] *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.[285]

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 Rio Grande LNG's Application, as amended, in the full volume of LNG requested for export to non-FTA countries, up to the equivalent of 1,318 Bcf/yr of natural gas.

I. Combined FTA and Non-FTA Export Authorization Volumes

The volumes of LNG authorized for export in Rio Grande LNG's FTA authorization (DOE/FE Order No. 3869) and this Order reflect the planned liquefaction capacity of the Rio Grande LNG Project, as approved by FERC. Accordingly, Rio Grande 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. Rio Grande LNG, LLC (Rio Grande LNG) is authorized to export domestically produced LNG by vessel from the proposed Rio Grande LNG Project (or Project) to be located on the northern embankment of the Brownsville Ship Channel in Cameron County, Texas, in a volume up to the equivalent of 1,318 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. Rio Grande LNG is

[285] 10 C.F.R. § 590.202(e) (allowing confidential treatment of information in accordance with 10 C.F.R. § 1004.11).

authorized to export the LNG on its own behalf and as agent for other entities who hold title to the natural gas, pursuant to one or more long-term contracts (a contract greater than two years).

B. Rio Grande 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 Rio Grande LNG's FTA authorization or in this Order.

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

D. Rio Grande LNG must commence export operations using the planned Rio Grande LNG 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 1,318 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. Rio Grande 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. Rio Grande LNG shall ensure compliance with all terms and conditions established by FERC in the final EIS, including the 143 environmental conditions adopted in the FERC Order issued on November 22, 2019. Additionally, this authorization is conditioned on Rio Grande LNG's on-going compliance with any other preventative and mitigative measures at the Project imposed by federal or state agencies.

I. (i) Rio Grande 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) Rio Grande 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. Rio Grande 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 Rio Grande LNG with all information necessary to permit Rio Grande 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. Rio Grande LNG, or others for whom Rio Grande 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. 4492, issued February 10, 2020, in FE Docket No. 15-190-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 Rio Grande 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 Rio Grande 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, Rio Grande LNG shall provide written notification of the date that the first export occurred.

M. Rio Grande LNG shall file with the Office of Regulation, Analysis, and Engagement, on a semi-annual basis, written reports describing the status of the proposed Rio Grande LNG 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 Rio Grande LNG 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, Rio Grande LNG must comply with DOE/FE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.[286]

O. Monthly Reports: With respect to the exports authorized by this Order, Rio Grande 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,

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

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

Issued in Cairo, Egypt, on February 10, 2020.

Steven Eric Winberg
Assistant Secretary
Office of Fossil Energy

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),[287] and in compliance with the Council on Environmental Quality (CEQ) implementing regulations for NEPA,[288] DOE's implementing procedures for NEPA,[289] and DOE's "Compliance with Floodplain and Wetland Environmental Review Requirements."[290]

As discussed above, DOE/FE participated as a cooperating agency with FERC in preparing an environmental impact statement (EIS) analyzing the potential environmental impacts of the proposed Rio Grande LNG Project (Project), including the associated Rio Bravo Pipeline Project, that would be used to support the export authorization sought from DOE/FE.[291] In accordance with 40 C.F.R. § 1506.3, DOE/FE adopted the final EIS on May 13, 2019 (DOE/EIS-0519),[292] and the U.S. Environmental Protection Agency (EPA) published a notice of the adoption on May 17, 2019.[293]

A. Alternatives

The EIS assessed alternative methods that could be used to achieve the Rio Grande LNG Project objectives. The range of alternatives analyzed included the No-Action Alternative, system alternatives, LNG terminal site alternatives, fill material supply access route alternatives,

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[287] 42 U.S.C. § 4321 *et seq*.
[288] 40 C.F.R. Parts 1500-08.
[289] 10 C.F.R. Part 1021.
[290] *Id*. Part 1022.
[291] Federal Energy Regulatory Comm'n, *Rio Grande LNG Project Final Environmental Impact Statement*, Docket Nos. CP16-454-000 and CP16-455-000 (Apr. 26, 2019), *available at*: https://www.ferc.gov/industries/gas/enviro/eis/2019/04-26-19-FEIS.asp [hereinafter final EIS].
[292] Letter from Amy Sweeney, DOE/FE, to Julie Roemele, U.S. Envtl. Prot. Agency (May 7, 2019) (adoption of final EIS).
[293] U.S. Envtl. Prot. Agency, Environmental Impact Statements; Notice of Availability, 84 Fed. Reg. 22,492 (May. 17, 2019).

pipeline configuration and route alternatives, and aboveground facility site alternatives.[294] Alternatives were evaluated and compared to the proposed Rio Grande LNG Project to determine if the alternatives were environmentally preferable.[295]

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 Gulf Coast region or elsewhere in the United States that could result in both adverse and beneficial environmental impacts.[296] The EIS found that LNG terminal and pipeline expansions of similar scope and magnitude would likely result in environmental impacts of comparable significance, particularly those in a similar regional setting.[297] The EIS concluded, however, that the use of other energy sources in place of the Project would not meet the objectives of the Project, and the development or use of renewable energy technology would not be a reasonable alternative to the proposed Project.[298]

The EIS evaluated system alternatives for the Project's LNG export terminal by assessing the ability of other existing, modified, planned, or proposed facilities to determine whether those facilities could meet the objectives of the Project with less significant environmental impacts than those associated with the proposed Project. The EIS reviewed seven existing, approved, or proposed LNG facilities along the Texas Gulf Coast that could provide export capacities as potential system alternatives to the Project.[299] Based on this evaluation, the EIS concluded that each of the potential alternatives lacked significant environmental advantages over the Project.[300]

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[294] Final EIS at 3-1 to 3-28.
[295] *Id.* at 5-23 to 5-24.
[296] *Id*. at 3-2.
[297] *Id.* at 3-2 to 3-3.
[298] *Id.*
[299] *Id.* at 3-3 to 3-4.
[300] Final EIS at 3-4 to 3-11.

The EIS also reviewed four pipeline systems within the vicinity of the proposed Project as potential alternatives to the Rio Bravo Pipeline.[301] The EIS concluded that none of these pipeline systems could be considered viable alternative systems to the proposed Rio Bravo Pipeline, as one pipeline system was eliminated from consideration due to constructability issues, two would result in similar or greater environmental impacts when compared to the proposed Rio Bravo Pipeline, and one appeared to lack the necessary available volume of natural gas.[302]

The EIS also evaluated LNG terminal site alternatives, including both alternative terminal sites along the Texas Coast and alternative terminal sites at the Port of Brownsville. The EIS assessed four potential alternative sites along the Texas Coast that met minimum Project site criteria.[303] The EIS concluded that none of the alternative terminal sites on the Texas Coast met the Project's needs, precluding all of them from serving as viable alternative sites.[304] The EIS reviewed six alternative sites within the Port of Brownsville. The EIS determined that none of the alternative sites examined provided any significant environmental advantage when compared to the proposed Project, nor could any of the alternative sites completely fulfill the Project's purpose and need.[305]

Additionally, the EIS examined two alternatives to the proposed fill material supply access routes. During coordination with cooperating agencies, the U.S. Fish and Wildlife Service identified a third alternative.[306] Following the draft EIS, Rio Grande LNG eliminated the temporary haul road from its proposal and adopted an alternative to pursue transportation of fill

[301] *Id.* at 3-11 to 3-15.
[302] *Id.*
[303] *Id.* at 3-15 to 3-19.
[304] *Id.*
[305] *Id.* at 3-22.
[306] Final EIS at 3-25.

material using barges.[307]

The EIS also evaluated pipeline configuration and route alternatives. The EIS considered the use of a single, large diameter pipeline as an alternative to the proposed configuration of dual pipelines.[308] The EIS, however, concluded that this alternative configuration was infeasible.[309] The EIS also determined that there was no environmental benefit to altering the pipeline route or construction method.[310]

Finally, the EIS evaluated alternative aboveground facility locations, considering alternative locations for compressor stations. The EIS concluded that the proposed sites for Compressor Stations 1 and 2 (of 3) were acceptable locations and that their construction would not result in significant environmental impacts.[311] The EIS also determined there was no need to review alternative sites for Compressor Station 3.[312]

B. Environmentally Preferred Alternative

When compared against the alternatives assessed in the EIS, the Rio Grande LNG Project—as modified by the mitigation measures recommended in the EIS—is the environmentally preferred alternative to meet the Project's objectives.[313]

C. Decision

DOE/FE has decided to issue Order No. 4492 authorizing Rio Grande LNG to export domestically produced LNG by vessel from the proposed Rio Grande LNG Project to non-FTA countries in a volume equivalent to 1,318 Bcf/yr of natural gas for a term of 20 years. DOE/FE's

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[307] *See, e.g.*, *Rio Grande LNG, LLC & Rio Bravo Pipeline Company, LLC*, Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 169 FERC ¶ 61,131, at ¶ 121 (citing final EIS at 3-24) (Nov. 22, 2019).
[308] *Id.* at 3-25 to 3-26.
[309] *Id.* at 3-26.
[310] *Id.* at 3-26 to 3-27.
[311] Final EIS at 3-28.
[312] *Id.*
[313] *Id.* at ES-18.

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 commenter opposing Rio Grande LNG's Application and Amendment has failed to show that the proposed exports will be inconsistent with the public interest, as would be required to deny the Application and Amendment under NGA section 3(a).[314] DOE also considered the Addendum, which summarizes available information on potential upstream impacts associated with unconventional natural gas activities, such as hydraulic fracturing.[315]

D. Mitigation

As a condition of its decision to issue Order No. 4492, DOE/FE is imposing requirements that will avoid or minimize the environmental impacts of the Project. These conditions include the 143 environmental conditions adopted by FERC in its order authorizing the Project on November 22, 2019.[316] Mitigation measures beyond those included in DOE/FE Order No. 4492 that are enforceable by other federal and state agencies are additional conditions of DOE/FE Order No. 4492. With these conditions, DOE/FE has determined that all practicable means to avoid or minimize environmental harm from the Project have been adopted.

[314] 15 U.S.C. § 717b(a). DOE/FE further notes that the Application and Amendment are uncontested.
[315] U.S. Dep't of Energy, Addendum to Environmental Review Documents Concerning Exports of Natural Gas From the United States, 79 Fed. Reg. 48,132 (Aug. 15, 2014).
[316] *See* FERC Order, *supra* note 307.

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."[317] 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 floodplain.[318] Rio Grande LNG maintains the Project's facilities would be designed to withstand a 500-year storm surge, in accordance with FERC recommendations.[319] While the 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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[317] 10 C.F.R. Part 1022.
[318] Final EIS at 4-348 to 4-349.
[319] *Id*. at 4-349.