

UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY AND CARBON MANAGEMENT

GOLDEN PASS LNG TERMINAL LLC)
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DOCKET NO. 12-156-LNG

ORDER AMENDING LONG-TERM AUTHORIZATION
TO EXPORT LIQUEFIED NATURAL GAS TO
NON-FREE TRADE AGREEMENT NATIONS

DOE/FECM ORDER NO. 3978-E

APRIL 27, 2022

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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
CMI	Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC
CPP	Clean Power Plan
DOE	U.S. Department of Energy
EA	Environmental Assessment
EIA	U.S. Energy Information Administration
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FE	Office of Fossil Energy (prior to July 4, 2021)
FECM	Office of Fossil Energy and Carbon Management
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 August 14, 2020, Golden Pass LNG Terminal LLC (Golden Pass LNG) filed an application (Application)¹ with the Department of Energy’s (DOE) Office of Fossil Energy and Carbon Management (formerly the Office of Fossil Energy)² under section 3 of the Natural Gas Act (NGA).³ Golden Pass LNG submitted a Clarification on August 28, 2020,⁴ and an Information Update to the Application on January 21, 2021.⁵

Golden Pass LNG seeks to amend its existing long-term authorizations⁶ to export an increased volume of domestically produced liquefied natural gas (LNG) by vessel from the export facilities currently under construction at the Golden Pass LNG Terminal (Terminal),⁷ located in Sabine Pass, Texas.⁸ Specifically, in light of improvements in its design and operations analysis, Golden Pass LNG asks DOE to amend its orders to increase the approved export volume under each order to 937 billion cubic feet per year (Bcf/yr) of natural gas, equivalent to 18.1 million metric tons per annum (mtpa) of LNG, on a non-additive basis.⁹ This amendment, if granted, would align Golden Pass LNG’s approved export volume with the total

¹ Golden Pass LNG Terminal LLC, Application for Limited Amendments to Authorizations to Export Liquefied Natural Gas, Docket Nos. 12-88-LNG and 12-156-LNG (Aug. 14, 2020) [hereinafter App.].

² The Office of Fossil Energy changed its name to the Office of Fossil Energy and Carbon Management on July 4, 2021.

³ 15 U.S.C. § 717b. The authority to regulate the imports and exports of natural gas, including liquefied natural gas, under section 3 of the NGA has been delegated to the Assistant Secretary for FECM in Redelegation Order No. S4-DEL-FE1-2021, issued on March 25, 2021.

⁴ Email from Kevin M. Sweeney, Counsel for Golden Pass LNG Terminal LLC, to Amy Sweeney, DOE, Clarification, Docket Nos. 12-88-LNG and 12-156-LNG (Aug. 28, 2020) [hereinafter App. Clarification].

⁵ Golden Pass LNG Terminal LLC, Information Update, Docket Nos. 12-88-LNG and 12-156-LNG (Jan. 21, 2021) [hereinafter Info. Update].

⁶ For purposes of this Order, DOE uses the terms “authorization” and “order” interchangeably.

⁷ References herein to the Golden Pass LNG Terminal include the Golden Pass Export Project facilities (also referred to as the Golden Pass Export Terminal Project).

⁸ DOE notes that, “[s]ubject to final shareholder approvals,” Golden Pass LNG “anticipates becoming operational in 2024.” Golden Pass LNG Terminal LLC, Semi-Annual Report, Docket Nos. 12-88-LNG and 12-156-LNG (Apr. 1, 2022); *see also* App. at 5.

⁹ App. at 1-2; *see also* App. Clarification.

LNG production capacity of the Terminal, as authorized by the Federal Energy Regulatory Commission (FERC) in an order issued on January 19, 2021 (FERC Order).¹⁰

Golden Pass LNG is currently authorized to export LNG from the Terminal under the following orders:

- (i) DOE/FE Order No. 3147, as amended (Docket No. 12-88-LNG),¹¹ authorizing exports to any country with which the United States currently has, or in the future will have, a free trade agreement (FTA) requiring national treatment for trade in natural gas (FTA countries), under NGA section 3(c);¹² and
- (ii) DOE/FE Order No. 3978, as amended (Docket No. 12-156-LNG),¹³ authorizing exports to any other country with which trade is not prohibited by U.S. law or policy (non-FTA countries), under NGA section 3(a).¹⁴

These orders originally authorized exports of LNG in a volume equivalent to 740 Bcf/yr of natural gas to FTA countries and 808 Bcf/yr of natural gas to non-FTA countries, respectively, on a non-additive basis.¹⁵ On June 17, 2021, DOE issued an order granting the FTA portion of

¹⁰ See Info. Update at 1; *see also See Golden Pass LNG Terminal, LLC*, Order Amending Section 3 Authorization, 174 FERC ¶ 61,053, ¶ 1 (Jan. 19, 2021) [hereinafter FERC Order].

¹¹ *Golden Pass LNG Terminal LLC*, DOE/FE Order No. 3147, Docket No. 12-88-LNG, Order Granting Long-Term Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Golden Pass LNG Terminal to Free Trade Agreement Nations (Sept. 27, 2017), *amended by* DOE/FE Order No. 3147-A (Mar. 4, 2020) (transferring authorization from Golden Pass Products LLC to Golden Pass LNG Terminal LLC), *further amended by* DOE/FE Order No. 3147-B (Mar. 24, 2020) (extending export commencement deadline), *further amended by* DOE/FE Order No. 3147-C (May 22, 2020) (amending DOE/FE Order No. 3147-B), *further amended by* DOE/FE Order No. 3147-D (Dec. 10, 2020) (extending export term).

¹² 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.

¹³ *Golden Pass LNG Terminal LLC*, DOE/FE Order No. 3978, 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), *reh'g denied*, DOE/FE Order No. 3978-A (Mar. 30, 2018), *amended by* DOE/FE Order No. 3978-B (Mar. 4, 2020) (transferring authorization from Golden Pass Products LLC to Golden Pass LNG Terminal LLC), *further amended by* DOE/FE Order No. 3978-C (Mar. 24, 2020) (extending export commencement deadline), *further amended by* DOE/FE Order No. 3147-D (Dec. 10, 2020) (extending export term); *see also* App. at 1 n.1.

¹⁴ 15 U.S.C. § 717b(a); *see also* App. at 1-3.

¹⁵ *See, e.g.,* App. at 1-2. In its export application submitted to DOE in 2012, Golden Pass LNG sought authorization to export LNG in a volume equivalent to 740 Bcf/yr of natural gas to both FTA and non-FTA countries, based on its chosen Bcf to mtpa conversion factor. DOE granted that export volume for the FTA order, as required by NGA section 3(c). For the non-FTA order, however, DOE used a different conversion factor than Golden Pass LNG—resulting in an increased non-FTA export volume of 808 Bcf/yr, not to exceed the 15.6 mtpa of LNG approved by

the Application, as required by NGA section 3(c). Accordingly, under Order No. 3147-E,¹⁶ Golden Pass LNG is authorized to export LNG to FTA countries in a volume equivalent to 937 Bcf/yr of natural gas.¹⁷ Both the FTA and non-FTA orders, as amended, authorize exports for a term beginning on the earlier of (i) the date of first export or (ii) September 30, 2025, and extending through December 31, 2050.¹⁸

Previously, on May 21, 2020, Golden Pass LNG filed an application with FERC in its related FERC proceeding.¹⁹ Golden Pass LNG asked FERC to amend its existing NGA section 3 authorization, issued on December 21, 2016,²⁰ to increase the total LNG production capacity of the Golden Pass LNG Terminal (across its three liquefaction trains) from 15.6 mtpa to 18.1 mtpa, equivalent to an increase from 740 Bcf/yr to 937 Bcf/yr of natural gas (referred to by FERC as the Amendment).²¹ To satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA),²² FERC staff prepared an environmental assessment (EA) for the requested

FERC for the Terminal in its December 21, 2016 Order. *See Golden Pass Products LLC and Golden Pass Pipeline LLC*, Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 157 FERC ¶ 61,222 (Dec. 21, 2016). In 2018, FERC authorized the transfer of this authorization from Golden Pass Products LLC to Golden Pass LNG. *See also Golden Pass LNG*, DOE/FE Order No. 3978, at 172 (Term and Condition H) & n.418.

¹⁶ *Golden Pass LNG Terminal LLC*, DOE/FE Order No. 3147-E, Docket No. 12-88-LNG, Order Amending Long-Term Authorization to Export Liquefied Natural Gas to Free Trade Agreement Nations (June 17, 2021).

¹⁷ *Id.* at 5-6 (Ordering Para. A).

¹⁸ *See* App. Clarification; *see also Golden Pass LNG*, DOE/FE Order Nos. 3147-D and 3978-D (and prior amendments); *see also* U.S. Dep't of Energy, Extending Natural Gas Export Authorizations to Non-Free Trade Agreement Countries Through the Year 2050; Notice of Final Policy Statement and Response to Comments, 85 Fed. Reg. 52,237 (Aug. 25, 2020) [hereinafter 2050 Policy Statement]. Additionally, DOE notes that, effective January 12, 2021, long-term export authorizations contain authority to export the same approved volume of LNG pursuant to transactions with terms of less than two years, including commissioning volumes, on a non-additive basis. *See* U.S. Dep't of Energy, Including Short-Term Export Authority in Long-Term Authorizations for the Export of Natural Gas on a Non-Additive Basis; Policy Statement, 86 Fed. Reg. 2,243 (Jan. 12, 2021).

¹⁹ Golden Pass LNG Terminal LLC, Application of Golden Pass LNG Terminal LLC for Limited Amendment to Authorization Granted under Section 3 of the Natural Gas Act, FERC Docket Nos. CP20-459-000 and CP14-517-000 (May 21, 2020) [hereinafter Golden Pass LNG App. to FERC].

²⁰ *See* App. at 4-5 (citing *Golden Pass Products LLC and Golden Pass Pipeline LLC*, Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 157 FERC ¶ 61,222, *supra* note 15).

²¹ *See* Golden Pass LNG App. to FERC at 1-2; *see also* FERC Order at ¶¶ 1, 3 (summarizing FERC's authorization issued to Golden Pass LNG for the construction and operation of the Project); *see also infra* § VI (FERC Proceeding).

²² 42 U.S.C. § 4321 *et seq.*

Amendment in 2020 (EA).²³ DOE participated as a cooperating agency in FERC’s preparation of the EA.²⁴

On January 19, 2021, FERC issued an order granting Golden Pass LNG’s Amendment to its existing NGA section 3 authorization.²⁵ FERC noted that Golden Pass LNG’s requested increase in the production capacity of the Golden Pass LNG Terminal “[was] based on, among other things, capturing the design margins, richer feed-gas composition, and maintenance processes that promote production efficiencies”²⁶ FERC found that the Amendment would not require new construction or modifications to the Terminal facilities, impact the existing Air Permit or the Hazard Analysis Report associated with the Terminal, or “result in any significant adverse environmental impacts.”²⁷ On this basis, FERC granted Golden Pass LNG’s application and amended its section 3 authorization to reflect a total LNG production capacity of 18.1 mtpa, subject to the environmental conditions imposed in the Order.²⁸ FERC further ordered that, in all other respects, Golden Pass LNG’s existing authorization “shall remain in full force and effect.”²⁹

In this proceeding, Golden Pass LNG asks DOE to increase its approved non-FTA export volume in Order No. 3978, as amended, from 808 Bcf/yr to 937 Bcf/yr of natural gas—an increase of 129 Bcf/yr, or 0.35 Bcf per day (Bcf/d), achievable due to its additional design and

²³ Fed. Energy Reg. Comm’n, *Golden Pass LNG Export Project Amendment Environmental Assessment* (Golden Pass LNG Terminal, LLC), Docket No. CP20-459-000 (Nov. 2020), https://cms.ferc.gov/sites/default/files/2020-11/CP20-459%20Golden%20Pass%20Amendment%20EA_11.06.2020.pdf [hereinafter EA].

²⁴ *See id.* at 1; *see also* FERC Order at ¶ 10.

²⁵ *See* FERC Order at ¶¶ 1, 15, and Ordering Para. A.

²⁶ *Id.* at ¶ 6; *see also* EA at 1 (stating that “the increase is based on a recalculation of the maximum design LNG production capability of the facilities ...”).

²⁷ *Id.* at ¶ 9.

²⁸ *Id.* at Ordering Para. A; *see also id.* at ¶¶ 14-15.

²⁹ *Id.* at Ordering Para. B.

operations analysis. Golden Pass LNG requests that the other terms and conditions of Order No. 3978, as amended most recently in Order No. 3978-D, remain the same.³⁰

DOE published a notice of the non-FTA portion of the Application in the *Federal Register* (Notice of Application).³¹ The Notice of Application called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by November 17, 2020.³² DOE received no filings in response to the Notice of Application, and therefore the Application is uncontested.

DOE has reviewed the non-FTA portion of the Application, DOE's economic and environmental studies, the EA, the FERC Order, and the most recent long-term projections from the U.S. Energy Information Administration (EIA), among other evidence discussed below. DOE notes that, while Golden Pass LNG is already authorized to export LNG from the Terminal at its maximum liquefaction capacity to FTA countries, this Order will provide Golden Pass LNG with the flexibility to allow its LNG export capacity to additionally serve non-FTA countries. These exports can diversify global LNG supplies and improve energy security for U.S. allies and trading partners in Europe and elsewhere. Based on this substantial administrative record, DOE has determined that it has not been shown that Golden Pass LNG's proposed increase in exports of LNG to non-FTA countries will be inconsistent with the public interest, as would be required to deny the Application under NGA section 3(a).

DOE therefore grants the requested amendment to increase Golden Pass LNG's non-FTA export volume in Order No. 3978, as amended most recently in Order No. 3978-D, to 937 Bcf/yr

³⁰ See App. Clarification; see also generally App. at 1-3, 6-10 (describing requested amendment).

³¹ Golden Pass LNG Terminal LLC, Application for Limited Amendment to Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Countries, 85 Fed. Reg. 58,347 (Sept. 18, 2020).

³² 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).

of natural gas, or 2.57 Bcf/d.³³ This authorization is subject to the Terms and Conditions and Ordering Paragraphs set forth herein, which incorporate by reference the environmental conditions previously imposed in Golden Pass LNG’s FERC authorization for the Terminal.

Additionally, DOE has reviewed FERC’s EA under NEPA. The EA adopted by reference the final environmental impact statement (EIS) prepared by FERC in 2016 for the Golden Pass LNG Terminal.³⁴ As discussed below, DOE has determined that it is appropriate to supplement FERC’s environmental review with DOE’s environmental studies, as well as the Marine Transport Technical Support Document (Technical Support Document) prepared by DOE to consider the potential effects associated with transporting natural gas, including LNG, on marine vessels.³⁵ On the basis of this record, DOE is issuing a Finding of No Significant Impact (FONSI) as the Appendix to this Order. The FONSI adopts the EA (DOE/EA-2176) and incorporates by reference other FERC and DOE documents described below.³⁶

Concurrently with this Order, DOE is issuing Order No. 3909-C to Magnolia LNG LLC (Magnolia LNG), amending its long-term non-FTA authorization to increase its non-FTA export volume.³⁷ The incremental amendment volumes approved in this Order and the Magnolia LNG order are 0.35 Bcf/d and 0.15 Bcf/d, respectively. Together, these amended orders bring DOE’s

³³ See *infra* §§ VIII-X. Because the export volumes authorized in Golden Pass’s FTA order (DOE/FE Order No. 3147-E) and this Order each reflect the planned liquefaction capacity of the Terminal as approved by FERC, the FTA and non-FTA volumes are not additive.

³⁴ See, e.g., FERC Order at ¶ 6; EA at 2; see also *Golden Pass LNG*, DOE/FE Order No. 3978 at 9, 145-46 (discussing DOE’s adoption of the final EIS for the Terminal).

³⁵ U.S. Dep’t of Energy, Technical Support Document, Notice of Final Rulemaking, National Environmental Policy Act Implementing Procedures (10 C.F.R. Part 1021) (Nov. 2020), https://www.energy.gov/sites/prod/files/2020/12/f81/10-cfr-1021-ng-td-2020-11_0.pdf [hereinafter Technical Support Document]. DOE prepared the Technical Support Document in connection with a NEPA rulemaking pertaining to authorizations issued under NGA section 3. See U.S. Dep’t of Energy, National Environmental Policy Act Implementing Procedures, 85 Fed. Reg. 78,197 (Dec. 4, 2020); see also *infra* § II.D.

³⁶ See *infra* § VII and Appendix.

³⁷ *Magnolia LNG, LLC*, DOE/FECM Order No. 3909-C, Docket No. 13-132-LNG, Order Amending Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Apr. 27, 2022).

cumulative total of approved non-FTA exports of LNG and compressed natural gas (CNG) from the lower-48 states to 46.07 Bcf/d of natural gas.³⁸

II. BACKGROUND

A. DOE's LNG Export Studies

1. 2012 EIA and NERA Studies

In 2011, DOE 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. 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.

³⁸ Final non-FTA orders that were later vacated are not included in this total volume. *See infra* § VII.D (identifying long-term orders vacated to date). Additionally, DOE has issued one final long-term order authorizing exports of LNG produced from sources from a proposed facility to be constructed in Alaska to non-FTA countries. *See Alaska LNG Project LLC*, DOE/FE Order No. 3643-A, Docket No. 14-96-LNG, Final Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Aug. 20, 2020), *reh'g granted in part*, DOE/FE Order No. 3642-B (Apr. 15, 2021) (rehearing ongoing). The Alaska volume is not included in the volumes discussed herein, which involve the export of LNG and compressed natural gas produced from the lower-48 states. Because there is no natural gas pipeline interconnection between Alaska and the lower 48 states, DOE generally views those LNG export markets as distinct.

In December 2012, DOE published a notice of availability of the 2012 LNG Export Study in the *Federal Register* for public comment.³⁹ DOE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.⁴⁰

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 and the number of non-FTA export applications still pending, DOE determined that an updated study was warranted to consider the economic impacts of exporting LNG from the lower-48 states to non-FTA countries. DOE announced plans to undertake new economic studies to gain a better understanding of how higher levels of U.S. LNG exports—at levels between 12 and 20 Bcf/d of natural gas—would affect the public interest.⁴¹

DOE commissioned two new macroeconomic studies. The first, *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets*, was performed by EIA and published in October 2014 (2014 LNG Export Study or 2014 Study).⁴² The 2014 Study assessed how specified scenarios of increased natural gas exports could affect domestic energy markets. At DOE's request, this 2014 Study served as an update of EIA's January 2012 study of LNG export scenarios and used baseline cases from EIA's *Annual Energy Outlook 2014* (AEO 2014).⁴³

³⁹ 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), http://energy.gov/sites/prod/files/2013/04/f0/fr_notice_two_part_study.pdf.

⁴⁰ See, e.g., *Freeport LNG Expansion L.P., et al.*, DOE/FE Order No. 3282, 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).

⁴¹ 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, <https://www.energy.gov/fe/downloads/request-update-eia-s-january-2012-study-liquefied-natural-gas-export-scenarios> (May 29, 2014) (memorandum from FE to EIA).

⁴² U.S. Energy Info. Admin., *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets* (Oct. 2014), <https://www.eia.gov/analysis/requests/fe/pdf/lng.pdf>.

⁴³ 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.

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 (together, Rice-Oxford) and published in October 2015 (2015 LNG Export Study or 2015 Study).⁴⁴ 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 time period from 2015 to 2040.

In December 2015, DOE published a Notice of Availability of the 2014 and 2015 Studies in the *Federal Register*, and invited public comment on those Studies.⁴⁵ DOE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.⁴⁶

⁴⁴ Center for Energy Studies at Rice University Baker Institute and Oxford Economics, *The Macroeconomic Impact of Increasing U.S. LNG Exports* (Oct. 29, 2015), http://energy.gov/sites/prod/files/2015/12/f27/20151113_macro_impact_of_lng_exports_0.pdf.

⁴⁵ 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).

⁴⁶ See, e.g., *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3792, 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.⁴⁷ 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 determined that a new macroeconomic study was warranted.⁴⁸ Accordingly, DOE, through its support contractor KeyLogic Systems, Inc., commissioned NERA to conduct the 2018 LNG Export Study. DOE published the 2018 LNG Export Study (or 2018 Study) on its website on June 7, 2018,⁴⁹ and concurrently provided notice of the availability of the Study, as discussed below.⁵⁰

Like the four prior economic studies, the 2018 LNG Export Study examines the impacts of varying levels of LNG exports on domestic energy markets. However, the 2018 LNG Export Study differs from DOE'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),⁵¹

⁴⁷ 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].

⁴⁸ Additionally, as of the date of the 2018 Study, DOE had authorized a cumulative total of LNG exports to FTA countries under NGA section 3(c) in a volume of 59.33 Bcf/d of natural gas. These FTA volumes were not additive to the authorized non-FTA volumes.

⁴⁹ See NERA Economic Consulting, *Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports* (June 7, 2018), <https://www.energy.gov/sites/prod/files/2018/06/f52/Macroeconomic%20LNG%20Export%20Study%202018.pdf> [hereinafter 2018 LNG Export Study or 2018 Study].

⁵⁰ See 2018 Study Notice.

⁵¹ U.S. Energy Info. Admin., *Annual Energy Outlook 2017* (with projections to 2050) (Jan. 5, 2017), <https://www.eia.gov/outlooks/archive/aeo17/> [hereinafter AEO 2017].

- (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.⁵²

b. Methodology and Scenarios

In its Response to Comments published in the *Federal Register* in December 2018, DOE provided a detailed discussion of the methodology and scenarios used in the 2018 Study, including NERA's Global Natural Gas Model (GNGM) and NewERA models.⁵³ 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.⁵⁴ 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.⁵⁵

⁵² See 2018 Study Notice, 83 Fed. Reg. at 27,316.

⁵³ 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].

⁵⁴ 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).

⁵⁵ 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.⁵⁶

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.⁵⁷

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.⁵⁸ DOE 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

⁵⁶ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,256.

⁵⁷ See *id.*

⁵⁸ 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.
- 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, albeit at slightly slower rates of increase than cases with lower LNG export levels.

- All scenarios within the more likely range of results are welfare-improving for the average U.S. household.⁵⁹
- 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.⁶⁰

d. DOE Proceeding

On June 12, 2018, DOE published a notice of availability of the 2018 LNG Export Study and a request for comments.⁶¹ 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.”⁶² DOE received 19 comments on the 2018 LNG Export Study from a variety of sources, including participants in the natural gas industry, industrial users, environmental organizations, and individuals.⁶³ Of those, nine comments supported the Study,⁶⁴ eight comments opposed the 2018 Study and/or exports of LNG,⁶⁵ one comment took no position,⁶⁶ and one comment was non-responsive.⁶⁷

⁵⁹ See *id.* at 67,264, 67,266.

⁶⁰ See *id.* at 67,255.

⁶¹ See 2018 Study Notice.

⁶² *Id.* at 27,315.

⁶³ The public comments are posted on the DOE website at: <https://fossil.energy.gov/app/docketindex/docket/index/10>.

⁶⁴ 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.

⁶⁵ Opposing comments were filed by Patricia Weber; Oil Change International; Food & Water Watch; 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.

⁶⁶ Comment of John Young.

⁶⁷ Comment of Vincent Burke.

DOE summarized and responded to these comments in the Response to Comments document, published on December 28, 2018.⁶⁸ As explained in the Response to Comments, DOE determined that none of the eight comments opposing the 2018 Study provided sufficient evidence to rebut or otherwise undermine the 2018 Study.⁶⁹

DOE 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 Conclusions

Based upon the record in the 2018 Study proceeding, DOE determined that the 2018 Study provides substantial support for non-FTA applications within the export volumes considered by the Study—ranging from 0.1 to 52.8 Bcf/d of natural gas.⁷⁰ 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.⁷¹

DOE highlighted a number of key findings from the 2018 Study, including 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;” increased exports will improve the U.S. balance of trade and GDP; “a large share of the increase in LNG exports is supported by an increase in domestic natural gas production;” and “[n]atural gas

⁶⁸ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.

⁶⁹ See *id.* at 67,272.

⁷⁰ See *id.*

⁷¹ See *id.*

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.”⁷²

DOE also observed that EIA’s projections in *Annual Energy Outlook 2018* (AEO 2018) showed market conditions that will accommodate increased exports of natural gas.⁷³ DOE 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.⁷⁴

For all of these reasons, DOE 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.”⁷⁵ 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.⁷⁶

B. DOE’s Environmental Studies

On June 4, 2014, DOE issued two notices in the *Federal Register* proposing to evaluate different environmental aspects of the LNG production and export chain. First, DOE 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 and to inform DOE’s public interest evaluation on potential environmental impacts of unconventional natural gas exploration and

⁷² *Id.* at 67,273 (citations to 2018 LNG Export Study omitted).

⁷³ U.S. Energy Info. Admin., *Annual Energy Outlook 2018* (with projections to 2050) (Feb. 6, 2018), <https://www.eia.gov/outlooks/archive/aeo18/> [hereinafter AEO 2018].

⁷⁴ 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

⁷⁵ *Id.* (citing 2018 LNG Export Study at 63 & Appendix F to the Study).

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

production activities, including hydraulic fracturing. DOE 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).⁷⁷ DOE 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.⁷⁸

Second, DOE 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 how domestically produced LNG exported from the United States compares with (i) regional coal (or other LNG sources) for electric power generation in Europe and Asia from a life cycle GHG perspective, and (ii) natural gas sourced from Russia and delivered to the same markets via pipeline. In June 2014, DOE published NETL's report entitled, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States* (2014 LCA GHG Report or 2014 Report).⁷⁹ DOE also received public comments

⁷⁷ 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 announced the availability of the Draft Addendum on its website on May 29, 2014.

⁷⁸ 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 Office of Fossil Energy & Carbon Mgmt., *Addendum to Environmental Review Documents Concerning Exports of Natural Gas From the United States*, U.S. Dep't of Energy, <http://energy.gov/fe/addendum-environmental-review-documents-concerning-exports-natural-gas-united-states>.

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

on the LCA GHG Report and responded to those comments in prior orders.⁸⁰ DOE has relied on the 2014 Report in its review of all subsequent applications to export LNG to non-FTA countries.

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).⁸¹ As with the 2014 Report, the LCA GHG Update compared life cycle GHG emissions of exports of domestically produced LNG to Europe and Asia with alternative fuel sources (such as regional coal and other imported natural gas) for electric power generation in the destination countries. Although core aspects of the analysis—such as the scenarios investigated—were the same as the 2014 Report, the LCA GHG Update contained the following three changes:

- Incorporated NETL’s most recent characterization of upstream natural gas production, set forth in NETL’s April 2019 report entitled, *Life Cycle Analysis of Natural Gas Extraction and Power Generation* (April 2019 LCA of Natural Gas Extraction and Power Generation);⁸²
- 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 (CH₄) to reflect the current Intergovernmental Panel on Climate Change’s Fifth Assessment Report.⁸³

⁸⁰ See, e.g., *Magnolia LNG, LLC*, DOE/FE Order No. 3909, 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).

⁸¹ 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), <https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf> [hereinafter 2019 Update].

⁸² Nat’l Energy Tech. Lab., *Life Cycle Analysis of Natural Gas Extraction and Power Generation* (DOE/NETL-2019/2039) (Apr. 19, 2019), <https://www.netl.doe.gov/energy-analysis/details?id=3198>.

⁸³ 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).

In all other respects, the LCA GHG Update was unchanged from the 2014 Report.⁸⁴

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.⁸⁵ On this basis, DOE 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.⁸⁶ Additional details are discussed below,⁸⁷ and in DOE's Response to Comments on the 2019 Update.

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

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

In 2015 and 2016, Sierra Club petitioned the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) for review of five long-term LNG export authorizations issued by DOE under the standard of review discussed below. Sierra Club challenged DOE's approval of LNG exports from projects proposed or operated by the following authorization holders: Freeport LNG Expansion, L.P., *et al.*; Dominion Cove Point LNG, LP (now Cove Point LNG, LP⁸⁸); Sabine Pass Liquefaction, LLC (Sabine Pass); and Cheniere Marketing, LLC and Corpus

⁸⁴ 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].

⁸⁵ See *id.* at 78, 85.

⁸⁶ See *id.* at 86.

⁸⁷ See *infra* § VII.

⁸⁸ See *Cove Point LNG, LP (formerly Dominion Energy Cove Point LNG, LP)*, DOE/FE Order Nos. 3019-C, *et al.*, Docket Nos. 11-115-LNG, *et al.*, Order Granting Request to Amend Authorizations to Import or Export Liquefied Natural Gas to Reflect Corporate Name Change (Dec. 2, 2020).

Christi Liquefaction, LLC (together, CMI). 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*),⁸⁹ and three in a consolidated, unpublished opinion issued on November 1, 2017 (*Sierra Club II*).⁹⁰ 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.⁹¹

In *Sierra Club I*, the D.C. Circuit concluded that DOE had complied with both NGA section 3(a) and NEPA in issuing the challenged non-FTA authorization to Freeport LNG Expansion, L.P. and its related entities (collectively, Freeport). DOE 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 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.⁹²

First, the Court rejected Sierra Club's NEPA argument concerning the indirect effects of export-induced natural gas production.⁹³ The Court found that DOE "offered a reasoned explanation as to why it believed the indirect effects pertaining to increased [natural] gas production were not reasonably foreseeable."⁹⁴ In particular, the Court recognized that DOE had

⁸⁹ *Sierra Club v. U.S. Dep't of Energy*, 867 F.3d 189 (D.C. Cir. 2017) [hereinafter *Sierra Club I*] (denying petition for review of the LNG export authorization issued to Freeport LNG Expansion, L.P., *et al.*).

⁹⁰ *Sierra Club v. U.S. Dep't of Energy*, 703 F. App'x 1 (D.C. Cir. 2017) [hereinafter *Sierra Club II*] (denying petitions for review in Nos. 16-1186, 16-1252, and 16-1253 of the LNG export authorizations issued to Dominion Cove Point LNG, LP; Sabine Pass; and CMI, respectively).

⁹¹ *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).

⁹² *Sierra Club I*, 867 F.3d at 192.

⁹³ *Id.* at 197-99.

⁹⁴ *Id.* at 198.

described upstream natural gas impacts generally,⁹⁵ while affirming DOE’s explanation that particularized impacts are highly location-dependent, and could not be attributed to any given export application.⁹⁶ 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.”⁹⁷

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.⁹⁸ The Court pointed to DOE’s 2014 LCA GHG Report, finding there was “nothing arbitrary” about the scope of DOE’s analysis of GHG emissions in that Report.⁹⁹

Third, in reviewing Sierra Club’s claims under the NGA, the Court held that “Sierra Club has given us no reason to question the Department’s judgment that the [Freeport] application is not inconsistent with the public interest.”¹⁰⁰ In particular, because 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,”¹⁰¹ which the Court “already rejected” 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.”¹⁰²

⁹⁵ *Id.* at 201 (“Generalizing the impacts does not necessarily mean minimizing them; and here, the Addendum candidly discussed significant risks associated with increased gas production.”).

⁹⁶ *Id.* at 198–99.

⁹⁷ *Id.* at 201.

⁹⁸ *Sierra Club I*, 867 F.3d at 201.

⁹⁹ *Id.* at 202.

¹⁰⁰ *Id.* at 203.

¹⁰¹ *Id.*

¹⁰² *Id.*

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.”¹⁰³ 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’s actions in issuing the non-FTA authorizations in those proceedings.¹⁰⁴

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. Moreover, consistent with the Court’s treatment of the 2014 LCA GHG Report and the Addendum as part of DOE’s “hard look” review under NEPA,¹⁰⁵ DOE is incorporating these studies—as well as the 2019 LCA GHG Update—into the NEPA record in this proceeding.¹⁰⁶

D. DOE’s Marine Transport Technical Support Document

Among the transportation scenarios modeled in the 2014 LCA GHG Report and 2019 Update, DOE considered how emissions associated with the ocean transport of U.S. LNG in tankers contribute to total life cycle GHG emissions.¹⁰⁷

Additionally, in 2020, DOE conducted a NEPA rulemaking pertaining to authorizations issued under NGA section 3.¹⁰⁸ As relevant here, DOE revised its NEPA procedures that provide for a categorical exclusion if neither an environmental impact statement (EIS) nor an EA is required—specifically, by promulgating a revised categorical exclusion B5.7, *Export of natural gas and associated transportation by marine vessel*.¹⁰⁹

¹⁰³ *Sierra Club II*, 703 F. App’x at *2.

¹⁰⁴ *Id.*

¹⁰⁵ *Sierra Club I*, 867 F.3d at 197 (“For our purposes, we will consider the supplemental materials to be part of the agency’s environmental review.”).

¹⁰⁶ See *infra* § VII and Appendix (Finding of No Significant Impact).

¹⁰⁷ See, e.g., DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 75, 77, 78 n.69; see also 2019 Update at 17-18 & Appendix B.3.

¹⁰⁸ See U.S. Dep’t of Energy, National Environmental Policy Act Implementing Procedures, Final Rule, 85 Fed. Reg. 78,197 (Dec. 4, 2020) [hereinafter NEPA Implementing Procedures].

¹⁰⁹ See *id.*; see also 10 C.F.R. Part 1021, Subpt. D, App. B, Categorical Exclusion B5.7.

In that rulemaking, DOE conducted “a detailed review of technical documents regarding potential effects associated with marine transport of LNG.”¹¹⁰ These documents were identified in an accompanying Marine Transport Technical Support Document.¹¹¹ On the basis of the data referenced in the Technical Support Document, DOE concluded that “the transport of natural gas by marine vessels adhering to applicable maritime safety regulations and established shipping methods and safety standards normally does not pose the potential for significant environmental impacts.”¹¹² In light of Golden Pass LNG’s proposed transport of LNG via ocean-going carrier to non-FTA countries in this proceeding, DOE is supplementing the record with the Technical Support Document, as set forth below.¹¹³

III. PUBLIC INTEREST STANDARD

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

[N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the [Secretary of Energy¹¹⁴] authorizing it to do so. The [Secretary] shall issue such order upon application, unless after opportunity for hearing, [she] 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.¹¹⁵

¹¹⁰ NEPA Implementing Procedures, 85 Fed. Reg. at 78,199.

¹¹¹ *See id.* at 78,198 n.16 (citing U.S. Dep’t of Energy, Technical Support Document, Notice of Final Rulemaking, National Environmental Policy Act Implementing Procedures (10 C.F.R. Part 1021) (Nov. 2020)).

¹¹² *Id.* at 78,200; *see also id.* at 78,202.

¹¹³ *See infra* § VII.

¹¹⁴ 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.

¹¹⁵ 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.¹¹⁶

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.¹¹⁷ Before reaching a final decision, DOE must also comply with NEPA.¹¹⁸

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. DOE’s prior decisions have looked to certain principles established in its 1984 Policy Guidelines.¹¹⁹ The goals of the Policy Guidelines are to minimize federal control and involvement in energy markets and to promote a balanced and mixed energy resource system. The Guidelines provide that:

The market, not government, should determine the price and other contract terms of imported [or exported] natural gas The federal government’s primary responsibility in authorizing imports [or exports] will be to evaluate the need for the gas and whether the import [or export] arrangement will provide the gas on a competitively priced basis for the duration of the contract while minimizing regulatory impediments to a freely operating market.¹²⁰

¹¹⁶ See *Sierra Club I*, 867 F.3d at 203 (“We have construed [NGA section 3(a)] as containing a ‘general presumption favoring [export] authorization.’”) (quoting *W. Va. Pub. Serv. Comm’n v. U.S. Dep’t of Energy*, 681 F.2d 847, 856 (D.C. Cir. 1982)).

¹¹⁷ 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).

¹¹⁸ See *Sierra Club I*, 867 F.3d at 192.

¹¹⁹ U.S. Dep’t of Energy, New Policy Guidelines and Delegations Order Relating to Regulation of Imported Natural Gas, 49 Fed. Reg. 6,684 (Feb. 22, 1984) [hereinafter 1984 Policy Guidelines].

¹²⁰ *Id.* at 6,685.

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.¹²¹

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.¹²² 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.”¹²³

Although DOE Delegation Order No. 0204-111 is no longer in effect,¹²⁴ DOE has identified a range of factors that it evaluates when reviewing an application for export authorization. Specifically, DOE’s review of export applications focuses 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, such as international and environmental impacts. To conduct this review, DOE looks to record evidence developed in the application proceeding.

¹²¹ *Phillips Alaska Natural Gas Corp., et al.*, DOE/FE Order No. 1473, 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)).

¹²² *See id.* at 13 and n.45.

¹²³ DOE Delegation Order No. 0204-111 (Feb. 22, 1984), at 1 (¶ (b)); *see also* 1984 Policy Guidelines, 49 Fed. Reg. at 6,690 (incorporating DOE Delegation Order No. 0204-111). In February 1989, the Assistant Secretary for Fossil Energy assumed the delegated responsibilities of the Administrator of the Economic Regulatory Administration. *See Applications for Authorization to Construct, Operate, or Modify Facilities Used for the Export or Import of Natural Gas*, 62 Fed. Reg. 30,435, 30,437 n.15 (June 4, 1997) (citing DOE Delegation Order No. 0204-127, 54 Fed. Reg. 11,436 (Mar. 20, 1989)).

¹²⁴ 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

As relevant here, Golden Pass LNG asks DOE to amend its long-term non-FTA authorization, Order No. 3978, to increase its export volume from 808 Bcf/yr of natural gas to 937 Bcf/yr—an additional 129 Bcf/yr in non-FTA exports.¹²⁵ Golden Pass LNG states that this increase would align its non-FTA export volume with the total LNG production capacity of the Terminal (18.1 mtpa, equivalent to 937 Bcf/yr), as approved by FERC.¹²⁶ For additional background information, DOE incorporates by reference Order No. 3978, as amended by Order Nos. 3978-A through 3978-D.

A. Description of Applicant

Golden Pass LNG is a Delaware limited liability company with its principal place of business in Houston, Texas. Golden Pass LNG Terminal is owned by QTL U.S. Terminal LLC (QTL), an affiliate of Qatar Petroleum International Limited (QPI), and Golden Pass LNG Terminal Investments LLC, an affiliate of Exxon Mobil Corporation. According to Golden Pass LNG, QTL and QPI are direct and indirect owners, respectively, in Golden Pass LNG.¹²⁷

B. Golden Pass LNG Terminal

Golden Pass LNG states that, in 2019, it commenced construction of its FERC-approved Export Project facilities at the Golden Pass LNG Terminal.¹²⁸ According to Golden Pass LNG, these facilities are being constructed adjacent to and integrated with the existing LNG import terminal constructed by Golden Pass LNG onshore at the Sabine-Neches Waterway, on the existing Port Arthur Ship Channel, in the vicinity of Sabine Pass in Jefferson County, Texas.¹²⁹

¹²⁵ See App. at 1-3, 6-7.

¹²⁶ See Info. Update at 1; *see also supra* § I.

¹²⁷ App. at 5 & n.9.

¹²⁸ *Id.* at 5.

¹²⁹ *Id.* at 4; *see also* App. Clarification.

Golden Pass LNG states that the Export Project comprises three liquefaction trains, authorized by FERC in 2016 to have a production capacity sufficient to produce 5.2 mtpa of LNG each, for a total nameplate production capacity of 15.6 mtpa.¹³⁰ Golden Pass LNG states that this production capacity was based on its original design submitted with its 2014 FERC application. According to Golden Pass LNG, the total LNG production capacity is now “substantially higher” based on, among other things, “capturing the design margins, richer feed-gas composition, and maintenance processes that promote production efficiencies (e.g., reduced downtime).”¹³¹ Golden Pass LNG thus asserts that, based on the permitted design, and assuming optimal operating conditions, the Terminal’s “actual peak LNG production and export capability” is approximately 18.1 mtpa, or 937 Bcf/yr of natural gas.¹³² Golden Pass LNG maintains that this increased production capacity can be accomplished without any additional construction or modification of the previously authorized facilities.¹³³

In the Information Update submitted on January 21, 2021, Golden Pass LNG noted that FERC had issued an order on January 19, 2021, authorizing the requested increase in the Terminal’s LNG production capacity from 15.6 mtpa to 18.1 mtpa of LNG, or 937 Bcf/yr of natural gas.¹³⁴

V. APPLICANT’S PUBLIC INTEREST ANALYSIS

Golden Pass LNG states that NGA section 3(a) creates a rebuttable presumption that a proposed export of LNG is in the public interest. Golden Pass LNG asserts that, under this

¹³⁰ App. at 4-5.

¹³¹ *Id.* at 2, 6-10.

¹³² *Id.* at 7.

¹³³ *See id.* at 3, 10.

¹³⁴ Info. Update at 1 (attaching FERC Order).

standard, its requested additional non-FTA export volume (129 Bcf/yr of natural gas) is consistent with the public interest.¹³⁵

In support of this argument, Golden Pass LNG points to DOE’s 2018 LNG Export Study (discussed *supra* § II.A.3). Golden Pass LNG contends that its requested additional export volume, when combined with DOE’s cumulative volume of non-FTA exports, would remain “well within the 52.8 Bcf/d LNG export level that the 2018 [LNG Export] Study found would result in net economic benefits from the export of domestically produced LNG ...”¹³⁶

Additionally, Golden Pass LNG points to FERC’s finding in its December 21, 2016 order that the Terminal facilities are in the public interest under NGA section 3.¹³⁷ Golden Pass LNG emphasizes that its request does not require the construction of new facilities or the modification of these previously authorized facilities.¹³⁸ It further states that “the Golden Pass LNG Export Project can achieve its maximum LNG production level while remaining in full compliance with applicable air emission and other regulatory requirements,” and thus “will not have any additional environmental impacts.”¹³⁹

VI. FERC PROCEEDING

A. FERC’s Environmental Review

On May 21, 2020, Golden Pass LNG filed its application at FERC requesting to amend its authorization to increase the total LNG production capacity of the Golden Pass Export Project (referred to by FERC as the Amendment).¹⁴⁰ FERC assigned Docket No. CP20-459-000 to

¹³⁵ See App. at 11, 13.

¹³⁶ *Id.* at 13.

¹³⁷ See *id.* at 12.

¹³⁸ See *Id.* at 10, 12.

¹³⁹ *Id.* at 7-8.

¹⁴⁰ See *supra* § I; see also *Golden Pass LNG Terminal LLC, Application of Golden Pass LNG Terminal LLC for Limited Amendment to Authorization Granted under Section 3 of the Natural Gas Act, FERC Docket No. CP20-459-000 (May 21, 2020).*

Golden Pass LNG’s application. FERC staff issued a Notice of Application on June 3, 2020.¹⁴¹ The application was unopposed.¹⁴²

DOE participated as a cooperating agency in FERC’s preparation of the EA for Golden Pass LNG’s requested Amendment. On November 6, 2020, in compliance with NEPA, FERC staff issued the EA.¹⁴³

In the EA, FERC staff adopted by reference the EIS for the Golden Pass Export Project issued in 2016 (in which DOE also participated as a cooperating agency).¹⁴⁴ FERC staff found that the environmental impacts for the following resources “remain unchanged” from that analyzed in the 2016 EIS, and “[were] therefore not addressed further” in the EA: geology and soils; ground water; wetlands; vegetation and terrestrial wildlife; land use, recreation, and visual resources; socioeconomics; cultural resources; and noise.¹⁴⁵ Additionally, “because the proposed action would not involve new construction or modification of facilities, and impacts from potential vessel traffic increases would be minor,” FERC staff “conclude[d] there would be no adverse cumulative impacts when considering the Amendment and other past, present, or reasonably foreseeable projects in the region.”¹⁴⁶ Therefore, cumulative impacts were not addressed further in the EA.¹⁴⁷ On this basis, FERC staff stated that the topics addressed in the EA included surface waters, fisheries, aquatic wildlife, species of special concern, air quality, reliability and safety, and alternatives.¹⁴⁸

¹⁴¹ Fed. Energy Reg. Comm’n, Golden Pass LNG Terminal LLC; Notice of Application, FERC Docket No. CP20-459-000, 85 Fed. Reg. 34,187 (June 3, 2020); *see also* FERC Order at ¶ 7.

¹⁴² *See* FERC Order at ¶ 7.

¹⁴³ Fed. Energy Reg. Comm’n, *Golden Pass LNG Export Project Environmental Assessment* (Golden Pass LNG Terminal, LLC), Docket No. CP20-459-000 (Nov. 2020), https://cms.ferc.gov/sites/default/files/2020-11/CP20-459%20Golden%20Pass%20Amendment%20EA_11.06.2020.pdf [hereinafter EA]; *see also* FERC Order at ¶ 10.

¹⁴⁴ *See* EA at 2, 14-15.

¹⁴⁵ *Id.* at 2-3.

¹⁴⁶ *Id.* at 3.

¹⁴⁷ *Id.*

¹⁴⁸ *See* EA at 2; *see also* FERC Order at ¶ 10.

In assessing water resources, FERC staff noted that Golden Pass LNG had not yet finalized its shipping fleet details with the Coast Guard.¹⁴⁹ FERC staff observed that “the Amendment could result in an increase in the number of LNG carrier transits, and an additional 25 to 45 vessel transits per year may be required over the current level of 200 vessels per year ...”¹⁵⁰ Although finding that increased vessel transit could create water quality impacts in the Gulf of Mexico and the Sabine Neches Waterway, FERC staff found that such impacts would be temporary and localized.¹⁵¹ Accordingly, FERC staff concluded that “increasing the authorized export capacity would not significantly affect water resources.”¹⁵²

Next, FERC staff determined that the increased vessel transit would not have significant impacts on fisheries and marine wildlife.¹⁵³ FERC staff found that the increased vessel transits could, however, “impact endangered and threatened aquatic species.”¹⁵⁴ FERC staff thus initiated Endangered Species Act consultation with the National Marine Fisheries Service, and recommended completion of the consultation prior to construction, among other environmental recommendations.¹⁵⁵

The EA also addressed air quality and safety. In assessing air quality, FERC staff explained that Golden Pass LNG’s requested Amendment would not result in a maximum potential to emit criteria pollutants or greenhouse gas (GHG) emissions beyond the level previously analyzed in the 2016 EIS.¹⁵⁶ FERC staff further found that, although the Amendment

¹⁴⁹ See FERC Order at ¶ 12; EA at 8.

¹⁵⁰ EA at 8.

¹⁵¹ See *id.* at 8-9.

¹⁵² *Id.* at 9.

¹⁵³ *Id.* at 10–11.

¹⁵⁴ FERC Order at ¶ 11; see also EA at 11-12.

¹⁵⁵ See FERC Order at ¶ 11; see also EA at 11-12.

¹⁵⁶ See FERC Order at ¶ 9; EA at 12-13.

could result in an “incremental increase in LNG carriers,” “[n]o increase in GHG emissions is expected, ... [and] overall fuel consumption in loading operations would not change.”¹⁵⁷

In assessing safety and reliability, FERC staff noted that the potential increase in vessel transits could require an amendment to the Coast Guard’s current Waterway Suitability Assessment (or WSA).¹⁵⁸ FERC staff observed that Golden Pass LNG committed to submit an updated letter of intent and Water Suitability Assessment to the Coast Guard at least 30 days prior to commencement of the Terminal’s operations, if there are any changes in the size or frequency of vessel traffic.¹⁵⁹ FERC staff also noted that any increase in LNG vessel traffic or change in LNG vessel sizes “would be subject to [the] Coast Guard review and inspection process, which is responsible for the safety and security of the Port and waterway.”¹⁶⁰

Based on this environmental analysis, FERC staff concluded that, “if Golden Pass operates the proposed facilities in accordance with its application and supplements, approval of the Amendment would not constitute a major federal action significantly affecting the quality of the human environment.”¹⁶¹ FERC staff also recommended four mitigation measures as conditions to any authorization FERC may issue on the requested Amendment.¹⁶²

B. FERC’s Order Granting the Amendment Application

On January 19, 2021, FERC issued its Order amending Golden Pass LNG’s existing NGA section 3 authorization to increase the approved liquefaction production capacity of the Golden Pass Export Project at the Terminal to 18.1 mtpa.¹⁶³

¹⁵⁷ EA at 13.

¹⁵⁸ See FERC Order at ¶ 12; EA at 14-15.

¹⁵⁹ See FERC Order at ¶ 12; EA at 6, 15; see also EA at 5 (stating that “[a]ny changes to the [Water Suitability Assessment] would be driven by ship class optimization and not by the capacity increase.”).

¹⁶⁰ EA at 14.

¹⁶¹ *Id.* at 17; see also FERC Order at ¶ 13.

¹⁶² EA at 17.

¹⁶³ FERC Order at ¶¶ 1, 15, & Ordering Para. A.

First, FERC reviewed Golden Pass LNG’s procedural history. As relevant here, FERC summarized its existing NGA section 3 order authorizing Golden Pass LNG to construct and operate the export facilities.¹⁶⁴

Turning to the requested Amendment, FERC observed that it “may not be possible” to accurately calculate a facility’s production capacity at the time an initial application for construction is filed.¹⁶⁵ For this reason, FERC stated that “it is appropriate for the ultimate authorization to reflect the maximum capacity at optimal conditions ...”¹⁶⁶ Addressing Golden Pass LNG’s application, FERC found that the increased LNG production capacity would not substantially alter the scope of the Terminal’s operation, require any new construction or modification of the Terminal facilities, or impact the existing Air Permit and Hazard Analysis Report for the Terminal.¹⁶⁷ FERC also adopted the four mitigation measures recommended in the EA, as modified, as environmental conditions of the Order.¹⁶⁸

Based on the analysis in the EA, FERC concluded that, if Golden Pass LNG operates its export facilities in accordance with its application and supplements (including any commitments made therein), and complies with the four environmental conditions set forth in the Order, FERC’s approval “would not constitute a major federal action significantly affecting the quality of the human environment.”¹⁶⁹ Subject to those conditions, FERC found that the requested Amendment was not inconsistent with the public interest under NGA section 3.¹⁷⁰ Therefore, FERC ordered that “Golden Pass LNG’s section 3 authorization for the Golden Pass Export

¹⁶⁴ *Id.* at ¶¶ 3, 4 (citing *Golden Pass Products LLC*, Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 157 FERC ¶ 61,222 (Dec. 21, 2016); *Golden Pass LNG Terminal LLC and Golden Pass Products LLC*, Order Authorizing Transfer of NGA Section 3 Authorization, 165 FERC ¶ 61,261 (Dec. 20, 2018)).

¹⁶⁵ FERC Order at ¶ 9.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.* at ¶ 9.

¹⁶⁸ *Id.* at ¶ 11. The four environmental conditions are set forth in Appendix A to FERC’s Order.

¹⁶⁹ *Id.* at ¶ 13.

¹⁷⁰ *Id.* at ¶ 15.

Terminal is amended to reflect a total LNG production capacity of 18.1 mtpa per year.”¹⁷¹

FERC also ordered that, in all other respects, Golden Pass LNG’s existing NGA section 3 authorization issued on December 21, 2016—including the 83 environmental conditions set forth in that order—“shall remain in full force and effect.”¹⁷²

VII. DISCUSSION AND CONCLUSIONS

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

- Golden Pass LNG’s uncontested Application, Clarification, and Information Update;
- FERC’s EA and January 19, 2021 Order, which adopt by reference FERC’s 2016 EIS and existing NGA section 3 authorization for the Terminal;
- The Draft Addendum, comments received in response to the Draft Addendum, and the final Addendum;
- The 2014 LCA GHG Report and the 2019 LCA GHG Update, including comments submitted in response to those documents;
- The 2018 LNG Export Study, including comments received in response to that Study; and
- The Marine Transport Technical Support Document, prepared by DOE as part of its 2020 NEPA rulemaking.

¹⁷¹ FERC Order at Ordering Para. A.

¹⁷² *See id.* at Ordering Para. B; *see also* Appendix A to the FERC Order (Enviro. Condition #3).

A. Non-Environmental Issues

1. Significance of the 2018 LNG Export Study

DOE commissioned the 2018 LNG Export Study and invited public comments on the Study.¹⁷³ DOE analyzed this material in its Response to Comments, published in the *Federal Register* on December 28, 2018. Based on the 2018 LNG Export Study, DOE concluded that the United States will experience net economic benefits from the issuance of authorizations to export domestically produced LNG.¹⁷⁴ 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.¹⁷⁵ As noted herein, DOE’s cumulative volume of approved non-FTA exports from the lower-48 states to date—46.07 Bcf/d of natural gas—is within this upper volume. We previously noted that the Golden Pass LNG Terminal is currently under construction.¹⁷⁶ Therefore, with this Order, the cumulative total of U.S. LNG export capacity that is currently operating or under construction across all U.S. projects is 16.61 Bcf/d.¹⁷⁷

The assumptions underlying the 2018 Study’s findings remain consistent with more recent assessments of current and future natural gas supply, demand, and prices. We take administrative notice of EIA’s recent authoritative projections, set forth in the *Annual Energy Outlook 2022* (AEO 2022), issued on March 3, 2022.¹⁷⁸ DOE has assessed AEO 2022 to

¹⁷³ See *supra* § II.A.3.

¹⁷⁴ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,272.

¹⁷⁵ See *id.* at 67,273.

¹⁷⁶ See *supra* § I.

¹⁷⁷ See U.S. Energy Info. Admin., *U.S. Liquefaction Capacity* (Dec. 8, 2021), <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, plus 0.72 Bcf/d granted in Order Nos. 4799 to CMI and 4800 to Sabine Pass on March 16, 2022, and an additional 0.35 Bcf/d with this Order).

¹⁷⁸ U.S. Energy Info. Admin., *Annual Energy Outlook 2022* (with projections to 2050) (Mar. 3, 2022), https://www.eia.gov/outlooks/aeo/pdf/AEO2022_Narrative.pdf.

evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study. The AEO 2017 Reference case without the Clean Power Plan (CPP)¹⁷⁹ shows net LNG exports of 12.5 Bcf/d of natural gas in 2050, compared with the AEO 2022 Reference case that shows net LNG exports of 15.9 Bcf/d in 2050.

EIA’s projections in AEO 2022 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 2022 Reference case projects increases in domestic natural gas production—well in excess of what is required to meet projected increases in domestic consumption. For example, for the year 2050, the AEO 2022 Reference case anticipates 7.1% more natural gas production, and less than 1% growth in natural gas consumption in the lower-48 states, than the AEO 2017 Reference case without the CPP. Under the AEO 2022 Reference case, EIA projects that, by 2050, “approximately 25% more natural gas will be produced than consumed in the United States.”¹⁸⁰ Based on these projections, the AEO 2022 Reference case is even more supportive of exports than the AEO 2017 Reference case without the CPP.

For these reasons, we reaffirm that the 2018 LNG Export Study is fundamentally sound. The 2018 Study, as well as AEO 2022, support our finding that Golden Pass LNG’s proposed amendment to its non-FTA authorization—increasing its approved export volume by 129 Bcf/yr of natural gas—will not be inconsistent with the public interest.

¹⁷⁹ AEO 2017 included two versions of the Reference case—one with, and one without, the implementation of a rulemaking by the U.S. Environmental Protection Agency (EPA) called the Clean Power Plan. EPA repealed the CPP in 2019. In this Order, we refer only to the AEO 2017 Reference case without the CPP. The AEO 2022 Reference case does not include the CPP, so the comparisons between AEO 2017 and AEO 2022 are consistent in that regard.

¹⁸⁰ See AEO 2022 at 26.

2. Golden Pass LNG's Application

Upon review of the uncontested Application, DOE finds that several factors identified in the Application, as well as in the 2018 LNG Export Study, support a grant of Golden Pass LNG's amendment under NGA section 3(a).

First, Golden Pass LNG points to DOE's 2018 LNG Export Study and DOE precedent 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.¹⁸¹ We agree. Specifically, we find that the 2018 Study and AEO 2022 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.¹⁸²

Second, as noted above, the 2018 LNG Export Study indicates that exports of LNG will generate net economic benefits to the broader U.S. economy.¹⁸³ Indeed, the 2018 Study consistently shows macroeconomic benefits to the U.S. economy across the range of scenarios, as well as positive annual growth across the energy intensive sectors of the economy.¹⁸⁴ U.S. households benefit from the additional wealth transferred into the United States, which increases the value of the dollar and reduces prices of other imported goods.¹⁸⁵ Further, households will receive labor income when they work and income from the capital and resources they own from natural gas-related activities, providing U.S. consumers with additional income to spend on goods and services.¹⁸⁶

¹⁸¹ See App. at 12-13.

¹⁸² See, e.g., 2018 Study Response to Comments, 83 Fed. Reg. at 67,262.

¹⁸³ See, e.g., *id.*

¹⁸⁴ See *id.* at 67,268-69 (citing 2018 LNG Export Study at 67, 70).

¹⁸⁵ See *id.* at 67,266 (citing 2018 LNG Export Study at 64).

¹⁸⁶ See *id.* at 67,259 (citing 2018 LNG Export Study at 73).

Third, over the term of the authorization, the proposed exports will improve the United States' ties with its allies and trade partners and make a positive contribution to the United States' trade balance. Other benefits of this international trade are discussed below. For these reasons, we find that Golden Pass LNG's proposed exports are consistent with U.S. policy.

Accordingly, based on the 2018 Study and the most recent data in AEO 2022, DOE finds that the market will be capable of sustaining the level of additional non-FTA exports requested in Golden Pass 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 cumulative volume of approved non-FTA exports from the lower-48 states to date (equivalent to a total of 46.07 Bcf/d of natural gas with the issuance of this Order and Order No. 3909-C being issued concurrently to Magnolia LNG). The 2018 Study found that “[i]ncreasing U.S. LNG exports under any given set of assumptions about U.S. natural gas resources and their production leads to only small increases in U.S. natural gas prices[.]”¹⁸⁷

Additionally, DOE has analyzed price projections in AEO 2022 to evaluate any differences from AEO 2017, which formed the basis for the 2018 LNG Export Study. The AEO 2022 Reference case projects market conditions in the lower-48 states that include higher production and demand for natural gas coupled with lower prices. Specifically, the AEO 2022 Reference case projects that, “[d]espite LNG export growth and increased domestic demand for natural gas ... the Henry Hub price will remain below \$4/MMBtu throughout the projection

¹⁸⁷ 2018 Study Response to Comments, 83 Fed. Reg. at 67,258 (citing 2018 LNG Export Study at 55).

period in most cases.”¹⁸⁸ For the year 2050, the AEO 2022 Reference case projects an average Henry Hub natural gas price that is lower than the AEO 2017 Reference case without the CPP by 43%. Table 1 below shows these comparisons.

Table 1: Year 2050 Reference Case Comparisons in AEO 2017 Reference Case Without the CPP and AEO 2022 Reference Case

	AEO 2017 Reference Case Without the CPP	AEO 2022 Reference Case
Lower-48 Dry Natural Gas Production (Bcf/d)	107.9	115.6
Total Natural Gas Consumption (Bcf/d)	92.4	93.2
Electric Power Sector Consumption (Bcf/d)	31.8	31.4
<u>Net</u> Exports by Pipeline (Bcf/d)	3.4	6.9
<u>Net</u> LNG Exports (Bcf/d)	12.5	15.9
LNG Exports – Total (Bcf/d)	12.7	16.1
Henry Hub Spot Price (\$/MMBtu) ^(Note 1)	\$6.27 (2021\$)	\$3.59 (2021\$)

Note 1: Prices adjusted to 2021\$ with the AEO 2017 projection of a Gross Domestic Product price index.

¹⁸⁸ AEO 2022 at 30.

For these reasons, and as explained in DOE’s Response to Comments on the 2018 Study, we find that the likely impact of the additional exports requested by Golden Pass LNG will not render those exports inconsistent with the public interest.¹⁸⁹

4. Benefits of International Trade

We have also 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 foreign policy and trade impacts to the United States of exports are factors bearing on that review.

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. For example, in light of the recent Russian invasion of Ukraine, there are renewed concerns about energy security for Europe and Central Asia, particularly given the relative share of Russian natural gas supplies into those regions.¹⁹⁰ By authorizing additional exports to non-FTA countries, including to U.S. allies in Europe and elsewhere, this Order will enable Golden Pass LNG to help mitigate energy security concerns once it begins exporting U.S. LNG.¹⁹¹ More generally, to the extent U.S. exports diversify global LNG supplies and increase the volumes of LNG available globally, these additional exports will improve energy security for many U.S.

¹⁸⁹ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,267-69 (DOE’s response to comments on natural gas price impacts).

¹⁹⁰ According to current EIA data, natural gas imports delivered by pipeline into Europe provide most imported volumes into Europe, with imports sourced from Russia comprising the largest share. See U.S. Energy Info. Admin., *Today in Energy* (Feb. 11, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=51258>.

¹⁹¹ We note that Europe has been the primary destination of U.S. LNG in recent months. In January 2022, for example, the United States supplied more than half of all LNG imports into Europe. See U.S. Dep’t of Energy, *LNG Monthly* (Mar. 2022), at 1, <https://www.energy.gov/sites/default/files/2022-03/LNG%20Monthly%20January%202022.pdf>; see also U.S. Energy Info. Admin., *Today in Energy* (Feb. 22, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=51358>. We expect that relatively high LNG demand in Asia and Europe will support continued U.S. LNG exports. See, e.g., U.S. Energy Info. Admin., *Today in Energy* (Apr. 20, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=52118>.

allies and trading partners. Therefore, we find that authorizing Golden Pass LNG’s requested increase in exports will advance the public interest for reasons that are distinct from and additional to the economic benefits identified in the 2018 LNG Export Study and DOE’s prior macroeconomic studies.

B. Environmental Issues

In reviewing the potential environmental impacts of Golden Pass LNG’s proposal to export additional volumes of LNG to non-FTA countries, DOE has considered both its obligation 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 Environmental Assessment

DOE has reviewed the administrative record compiled at FERC for the Golden Pass LNG Terminal. DOE notes that Golden Pass LNG is already subject to 83 environmental conditions under its existing NGA section 3 authorization.¹⁹² DOE has also reviewed the record compiled in this proceeding, including the four new environmental conditions imposed by FERC in connection with Golden Pass LNG’s Amendment.¹⁹³

Additionally, in light of Golden Pass LNG’s proposed transport of LNG via ocean-going carrier to non-FTA countries, DOE is supplementing the record with the Marine Transport Technical Support Document prepared by DOE in 2020.¹⁹⁴ On the basis of the Technical Support Document, DOE concluded that “the transport of natural gas by marine vessels ...

¹⁹² See *supra* at § VI.B; see also *Golden Pass LNG*, DOE/FE Order No. 3978 at 174 (Ordering Para. H) (conditioning non-FTA order on Golden Pass LNG’s compliance with all terms and conditions established in FERC’s EIS, among other requirements).

¹⁹³ See FERC Order at ¶¶ 13-14 and Appendix A; see *supra* at § VI.B.

¹⁹⁴ See *supra* § II.D.

normally does not pose the potential for significant environmental impacts.”¹⁹⁵ We also note that the 2014 LCA GHG Report and 2019 Update examined, in relevant part, the GHG emissions associated with the ocean transport of LNG in determining total life cycle emissions.¹⁹⁶

Based on this comprehensive review, DOE is issuing a Finding of No Significant Impact (FONSI) as the Appendix to this Order. The FONSI adopts and incorporates by reference the FERC EA (DOE/EA-2179). It also incorporates by reference the 2016 EIS for the Golden Pass LNG Terminal (DOE/EIS-0501), the FERC Order, the Addendum, the 2014 LCA GHG Report, the 2019 LCA GHG Update, and the Marine Transport Technical Support Document, which are discussed further below. On the basis of that record, the FONSI determines that granting the non-FTA portion of Golden Pass LNG’s Application—thus increasing Golden Pass LNG’s by 129 Bcf/yr for a total of 937 Bcf/yr of natural gas—will not have a significant effect on the human environment.

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.¹⁹⁷ Nevertheless, a decision by DOE 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 natural gas

¹⁹⁵ U.S. Dep’t of Energy, National Environmental Policy Act Implementing Procedures, Final Rule, 85 Fed. Reg. 78,197, 78,198 n.16 (Dec. 4, 2020) (citing U.S. Dep’t of Energy, Technical Support Document, Notice of Final Rulemaking, National Environmental Policy Act Implementing Procedures (10 C.F.R. Part 1021) (Nov. 2020)).

¹⁹⁶ See *supra* § II.D (citing DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 75, 77, 78 n.69; 2019 Update at 17–18 and Appendix B-3, which identify the key modeling parameters for ocean transport of LNG and the assumptions used to calculate emissions for ocean transport, respectively).

¹⁹⁷ Addendum at 2.

production, including impacts to water resources, air quality, GHG emissions, induced seismicity, and land use.

The Addendum shows that there are potential environmental issues associated with unconventional natural gas production that need to be carefully managed, especially with respect to emissions of volatile organic compounds and methane, and the potential for groundwater contamination. These environmental concerns do not lead us to conclude, however, that the increase in exports requested by Golden Pass LNG to non-FTA nations should be prohibited. A denial of these exports under NGA section 3(a) based on the environmental impacts associated with induced production would be too blunt an instrument to address these environmental concerns efficiently. Moreover, such a finding would cause the United States to forego entirely the economic and international benefits discussed herein.

DOE believes the public interest is also served by addressing these environmental concerns through federal, state, or local regulation. We note that environmental regulators have imposed requirements on natural gas production and transportation to balance benefits and burdens, and have continued to update these regulations as technological practices and scientific understanding evolve.

For these reasons, we conclude that the environmental concerns associated with natural gas production from the lower-48 states do not establish that Golden Pass LNG's requested increase in non-FTA exports are inconsistent with the public interest. We further note that the D.C. Circuit in *Sierra Club I* rejected Sierra Club's arguments regarding the Addendum. In particular, the Court found that DOE offered a reasoned explanation as to why it believed the location-specific indirect effects pertaining to increased "export-induced" natural gas production

“were not reasonably foreseeable” under NEPA.¹⁹⁸ The Court’s conclusions and reasoning guide our review in this proceeding.¹⁹⁹

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

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

As explained above, both the 2014 LCA GHG Report and the 2019 Update estimated the life cycle GHG emissions of U.S. LNG exports to Europe and Asia, compared with certain other fuels used to produce electric power in those importing countries.²⁰⁰ The 2019 Update was based on the most current available science, methodology, and data from the U.S. natural gas system to assess GHG emissions associated with exports of U.S. LNG produced in the lower-48 states.²⁰¹

The conclusions of the 2019 Update are consistent with those of the 2014 LCA GHG Report.²⁰² While acknowledging uncertainty, the LCA GHG Update shows that, to the extent U.S. LNG exports are preferred over coal in LNG-importing nations, U.S. LNG exports are likely to reduce global GHG emissions on per unit of energy consumed basis for power production.²⁰³ Furthermore, 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.²⁰⁴

¹⁹⁸ *Sierra Club I* at 198–99.

¹⁹⁹ *Id.*; see *supra* § II.C.

²⁰⁰ See *supra* § II.B.

²⁰¹ DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 85.

²⁰² *Id.*

²⁰³ *Id.*

²⁰⁴ *Id.*

The 2019 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.²⁰⁵ 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, the net global GHG emission impacts of increased exports will be affected by the market dynamics in importing countries over the coming decades, as well as the potential interventions of numerous foreign governments in those markets. To model the net change that a given amount of U.S. LNG exports would have on global GHG emissions would require projections of how each of these fuel sources would be affected in each LNG-importing nation.²⁰⁶ In responding to comments on the 2019 Update, DOE explained that 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.²⁰⁷ Based on the evidence in this proceeding, DOE is unable to conclude that an increase in exports of U.S. LNG associated with Golden Pass LNG’s Application will increase global GHG emissions in a material or predictable way.²⁰⁸

Finally, we note that the D.C. Circuit held in *Sierra Club I* that there was “nothing arbitrary about the Department’s decision” under NEPA to compare emissions from exported

²⁰⁵ *Id.* at 81.

²⁰⁶ *Id.*

²⁰⁷ DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 81.

²⁰⁸ *See id.* at 86.

U.S. LNG to emissions of coal or other sources of natural gas.²⁰⁹ The Court’s decision in *Sierra Club I* guided DOE’s development of the 2019 Update.

C. Other Considerations

The conclusion of the 2018 LNG Export Study is that the United States will experience net economic benefits from the export of domestically produced LNG in volumes up to and including 52.8 Bcf/d of natural gas. Nonetheless, DOE’s 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.

DOE notes that, although Henry Hub natural gas prices nearly doubled from their historic lows in 2020 to 2021 and have periodically exceeded \$7 in 2022,²¹⁰ prices are projected to average below \$4.00/MMBtu throughout the projection period in AEO 2022 Reference Case in real dollars.²¹¹ At these levels, nominal U.S. natural gas prices are expected to average at levels lower than, or in line with, domestic natural gas prices beginning in approximately 2009, even without the historical prices being adjusted for inflation. Yet, DOE also has taken into account factors that could mitigate these impacts, such as the current long-term oversupply situation and data indicating that the natural gas industry would increase natural gas supply in response to increasing exports. Further, we note continuing uncertainty that all or even most of the proposed

²⁰⁹ *Sierra Club I*, 867 F.3d at 202 (finding that “Sierra Club’s complaint ‘falls under the category of flyspecking’”) (citation omitted).

²¹⁰ Henry Hub prices averaged \$2.03/MMBtu in 2020 and \$3.89/MMBtu in 2021. See U.S. Energy Info. Admin., Table, “Henry Hub Natural Gas Spot Price (Dollars per Million Btu)” (Apr. 27, 2022) (viewing annual history), <https://www.eia.gov/dnav/ng/hist/rngwhhdA.htm>. Certain same-month year-on-year differences were starker, with Henry Hub prices at \$1.91/MMBtu in February 2020 and \$5.35/MMBtu in February 2021. See *id.* (viewing monthly history).

²¹¹ See AEO 2022 at 17.

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 and competition inherent in the global market for LNG.²¹²

More generally, DOE continues to subscribe to the principle set forth in our 1984 Policy Guidelines²¹³ that, under most circumstances, the market is the most efficient means of allocating natural gas supplies. However, agency intervention may be necessary to protect the public in the event there is insufficient domestic natural gas for domestic use, or as a result of other facts or circumstances beyond those presented here.²¹⁴ Given these possibilities, DOE recognizes the need to monitor market developments closely as the impact of successive authorizations of LNG exports unfolds.

D. Conclusion

DOE has reviewed the evidence in the record and relevant precedent in earlier non-FTA export decisions and has not found an adequate basis to conclude that Golden Pass LNG's proposed increase in exports of LNG to non-FTA countries will be inconsistent with the public interest.

This Order and Order No. 3909-C being issued concurrently to Magnolia LNG both amend existing non-FTA orders. Therefore, with the vacatur of previous long-term non-FTA authorizations,²¹⁵ there are currently 40 final non-FTA authorizations from the lower 48-states in

²¹² See *infra* § VII.D (identifying long-term orders vacated to date).

²¹³ 1984 Policy Guidelines, 49 Fed. Reg. 6,684.

²¹⁴ 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) final LNG export authorizations. DOE stated that it could not precisely identify all the circumstances under which such action might be considered. Subsequently, in 2018, DOE 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).

²¹⁵ To date, DOE has vacated seven long-term non-FTA authorizations (none over the objection of the authorization holder) in the following proceedings: *Jordan Cove Energy Project L.P.*, Docket No. 12-32-LNG (Apr. 22, 2022);

a cumulative volume of exports totaling 46.07 Bcf/d of natural gas, or approximately 16.8 trillion cubic feet per year, as follows:²¹⁶ Sabine Pass Liquefaction, LLC (2.2 Bcf/d),²¹⁷ Cameron LNG, LLC (1.7 Bcf/d),²¹⁸ FLEX I (1.4 Bcf/d),²¹⁹ FLEX II (0.4 Bcf/d),²²⁰ Cove Point LNG, LP (0.77 Bcf/d),²²¹ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),²²² Sabine Pass Liquefaction, LLC Expansion Project (1.38 Bcf/d),²²³ American LNG Marketing LLC

Air Flow North America Corp., Docket No. 14-206-LNG (Dec. 30, 2021); *Emera CNG, LLC*, Docket No. 13-157-CNG (Oct. 20, 2021); *Annova LNG Common Infrastructure, LLC*, Docket No. 19-34-LNG (Apr. 23, 2021); *Floridian Natural Gas Storage Co., LLC*, Docket No. 15-38-LNG (Oct. 22, 2020); *Carib Energy (USA) LLC*, Docket No. 11-141-LNG (Nov. 17, 2020); *Flint Hills Resources, LP*, Docket No. 15-168-LNG (Feb. 5, 2019).

²¹⁶ Any number discrepancies are due to rounding. Additionally, this cumulative volume of non-FTA exports from the lower-48 states does not include export volumes granted pursuant to DOE's regulations for small-scale exports of natural gas. See 10 C.F.R. §§ 590.102(p), 208(a); U.S. Dep't of Energy, Office of Fossil Energy and Carbon Management, Long Term Applications Received by DOE/FE to Export Domestically Produced LNG, CNG, CGL from the Lower-48 States, at 11 (as of Mar. 28, 2022), <https://www.energy.gov/fecm/articles/summary-lng-export-applications-lower-48-states> (identifying small-scale applications and status).

²¹⁷ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 2961-A, 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).

²¹⁸ *Cameron LNG, LLC*, DOE/FE Order No. 3391-A, 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).

²¹⁹ *Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 3282-C, 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).

²²⁰ *Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 3357-B, 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).

²²¹ *Cove Point LNG, LP*, DOE/FE Order No. 3331-A, Docket No. 11-128-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Cove Point LNG Terminal in Calvert County, Maryland, to Non-Free Trade Agreement Nations (May 7, 2015), *reh'g denied*, DOE/FE Order No. 3331-B (Apr. 18, 2016), *amended by* DOE/FE Order No. 3331-C (Aug. 4, 2017), *further amended by* DOE/FE Order No. 3331-D (Dec. 2, 2020).

²²² *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FE Order No. 3638, 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).

²²³ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3669, 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).

(0.008 Bcf/d),²²⁴ Bear Head LNG Corporation and Bear Head LNG (USA), LLC (0.81 Bcf/d),²²⁵ Pieridae Energy (USA) Ltd.,²²⁶ Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),²²⁷ Cameron LNG, LLC Design Increase (0.42 Bcf/d),²²⁸ Cameron LNG, LLC Expansion Project (1.41 Bcf/d),²²⁹ Lake Charles Exports, LLC (2.0 Bcf/d),²³⁰ Lake Charles LNG Export Company, LLC,²³¹ Carib Energy (USA), LLC (0.004 Bcf/d),²³² Magnolia LNG, LLC (1.23 Bcf/d),²³³

²²⁴ *American LNG Marketing LLC*, DOE/FE Order No. 3690, 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).

²²⁵ *Bear Head LNG Corp. and Bear Head LNG (USA)*, DOE/FE Order No. 3770, 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).

²²⁶ *Pieridae Energy (USA) Ltd.*, DOE/FE Order No. 3768, Docket No. 14-179-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).

²²⁷ *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 3792, 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).

²²⁸ *Cameron LNG, LLC*, DOE/FE Order No. 3797, Docket No. 15-67-LNG, Final Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Cameron Terminal Located in Cameron and Calcasieu Parishes, Louisiana, to Non-Free Trade Agreement Nations (Mar. 18, 2016).

²²⁹ *Cameron LNG, LLC*, DOE/FE Order No. 3846, 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).

²³⁰ *Lake Charles Exports, LLC*, DOE/FE Order No. 3324-A, 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).

²³¹ *Lake Charles LNG Export Co., LLC*, DOE/FE Order No. 3868, 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).

²³² *Carib Energy (USA) LLC*, DOE/FE Order No. 3937, 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).

²³³ *Magnolia LNG, LLC*, DOE/FE Order No. 3909, 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), *further amended by* DOE/FECM Order No. 3909-C (Apr. 27, 2022) (increasing export volume).

Southern LNG Company, L.L.C. (0.36 Bcf/d),²³⁴ the FLEX Design Increase (0.34 Bcf/d),²³⁵ Golden Pass LNG Terminal LLC (2.57 Bcf/d),²³⁶ Delfin LNG LLC (1.8 Bcf/d),²³⁷ the Lake Charles LNG Export Company, LLC Design Increase (0.33 Bcf/d),²³⁸ the Lake Charles Exports, LLC Design Increase,²³⁹ Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),²⁴⁰ Mexico Pacific Limited LLC (1.7 Bcf/d),²⁴¹ Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),²⁴² ECA Liquefaction, S. de R.L. de C.V. (Mid-Scale Project) (0.44 Bcf/d),²⁴³ Energía Costa Azul, S. de

²³⁴ *Southern LNG Company, L.L.C.*, DOE/FE Order No. 3956, 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).

²³⁵ *Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 3957, 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).

²³⁶ *Golden Pass LNG Terminal LLC*, DOE/FE Order No. 3978, Docket No. 12-156-LNG, Opinion and Order Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel from the Golden Pass LNG Terminal Located in Jefferson County, Texas, to Non-Free Trade Agreement Nations (Apr. 25, 2017), *amended by* DOE/FE Order No. 3978-B (Mar. 4, 2020) (transferring authorization from Golden Pass Products LLC to Golden Pass LNG Terminal LLC), *further amended by* DOE/FECM Order No. 3978-E (Apr. 27, 2022) (increasing export volume).

²³⁷ *Delfin LNG LLC*, DOE/FE Order No. 4028, 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).

²³⁸ *Lake Charles LNG Export Co., LLC*, DOE/FE Order No. 4010, 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).

²³⁹ *Lake Charles Exports, LLC*, DOE/FE Order No. 4011, 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).

²⁴⁰ *Eagle LNG Partners Jacksonville II LLC*, DOE/FE Order No. 4078, 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).

²⁴¹ *See Mexico Pacific Limited LLC*, DOE/FE Order No. 4312, 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).

²⁴² *Venture Global Calcasieu Pass, LLC*, DOE/FE Order No. 4346, Docket Nos. 13-69-LNG, 14-88-LNG, 15-25-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Mar. 5, 2019).

²⁴³ *ECA Liquefaction, S. de R.L. de C.V.*, DOE/FE Order No. 4364, Docket No. 18-144-LNG, Opinion and Order Granting Long-Term Authorization to Re-Export U.S.-Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Non-Free Trade Agreement Countries (ECA Mid-Scale Project) (Mar. 29, 2019), *amended by* DOE/FE Order No. 4364-A (Oct. 7, 2019) (transferring authorization from Energía Costa Azul, S. de R.L. de C.V. to ECA Liquefaction, S. de R.L. de C.V.).

R.L. de C.V. (Large-Scale Project) (1.3 Bcf/d),²⁴⁴ Port Arthur LNG, LLC (1.91 Bcf/d),²⁴⁵ Driftwood LNG LLC (3.88 Bcf/d),²⁴⁶ FLEX4 (0.72 Bcf/d),²⁴⁷ Gulf LNG Liquefaction Company, LLC (1.53 Bcf/d),²⁴⁸ Eagle LNG Partners Jacksonville LLC (0.14 Bcf/d),²⁴⁹ Venture Global Plaquemines LNG, LLC (3.40 Bcf/d),²⁵⁰ Texas LNG Brownsville LLC (0.56 Bcf/d),²⁵¹ Corpus Christi Liquefaction Stage III, LLC (1.59 Bcf/d),²⁵² Rio Grande LNG, LLC (3.61 Bcf/d),²⁵³ Epsilon LNG LLC (1.083 Bcf/d),²⁵⁴ Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (0.3 Bcf/d),²⁵⁵ and Sabine Pass Liquefaction, LLC (0.42 Bcf/d).²⁵⁶

²⁴⁴ *Energía Costa Azul, S. de R.L. de C.V.*, DOE/FE Order No. 4365, Docket No. 18-145-LNG, Opinion and Order Granting Long-Term Authorization to Re-Export U.S.-Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Non-Free Trade Agreement Countries (ECA Large-Scale Project) (Mar. 29, 2019).

²⁴⁵ *Port Arthur LNG, LLC*, DOE/FE Order No. 4372, 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).

²⁴⁶ *Driftwood LNG LLC*, DOE/FE Order No. 4373, 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).

²⁴⁷ *Freeport LNG Expansion, L.P., et al.*, DOE/FE Order No. 4374, 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).

²⁴⁸ *Gulf LNG Liquefaction Co., LLC*, DOE/FE Order No. 4410, 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).

²⁴⁹ *Eagle LNG Partners Jacksonville LLC*, DOE/FE Order No. 4445, 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).

²⁵⁰ *Venture Global Plaquemines LNG, LLC*, DOE/FE Order No. 4446, 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).

²⁵¹ *Texas LNG Brownsville LLC*, DOE/FE Order No. 4489, 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).

²⁵² *Corpus Christi Liquefaction Stage III, LLC*, DOE/FE Order No. 4490, 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).

²⁵³ *Rio Grande LNG, LLC*, DOE/FE Order No. 4492, Docket No. 15-190-LNG, Opinion and Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Feb. 10, 2020).

²⁵⁴ *Epsilon LNG LLC*, DOE/FE Order No. 4629, Docket No. 20-31-LNG, Opinion and Order Granting Long-Term Authorization to Export Natural Gas to Mexico for Liquefaction, and to Re-Export U.S. Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Free Trade Agreement and Non-Free Trade Agreement Nations (Dec. 8, 2020).

²⁵⁵ *Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC*, DOE/FECM Order No. 4799, Docket No. 19-124-LNG, Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Mar. 16, 2022).

²⁵⁶ *Sabine Pass Liquefaction, LLC*, DOE/FECM Order No. 4800, Docket No. 19-125-LNG, Order Granting Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations (Mar. 16, 2022).

We note that the volumes authorized for export in the *Lake Charles Exports* and *Lake Charles LNG Export* orders are both 2.0 Bcf/d and 0.33 Bcf/d, respectively, yet are not additive to one another because the source of LNG approved under all of those orders is the Lake Charles Terminal.²⁵⁷ Additionally, the volumes authorized for export in the *Bear Head* and *Pieridae US* orders are not additive; together, they are limited to the capacity of the Maritimes Northeast Pipeline at the U.S.-Canadian border.²⁵⁸

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 result in economic consequences that would render additional exports to be inconsistent with the public interest.²⁵⁹ DOE further notes that, with this Order, the amount of U.S. LNG export capacity that is currently operating or under construction totals 16.61 Bcf/d of natural gas across eight large-scale export projects in the lower-48 states.²⁶⁰

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

The reasons in support of proceeding cautiously are several: (1) the 2018 LNG Export Study, like any study based on assumptions and economic projections, is inherently limited in its

²⁵⁷ *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.

²⁵⁸ See *Bear Head LNG Corporation and Bear Head LNG (USA)*, DOE/FE Order No. 3770, at 178-79.

²⁵⁹ See 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (citing 2018 LNG Export Study at 63 & Appendix F to the Study).

²⁶⁰ See U.S. Energy Info. Admin., *U.S. Liquefaction Capacity* (Dec. 8, 2021), <https://www.eia.gov/naturalgas/U.S.liquefactioncapacity.xlsx> (showing a total of 15.54 Bcf/d calculated by adding Column N in “Existing & Under Construction” worksheet, plus 0.72 Bcf/d granted in Order Nos. 4799 to CMI and 4800 to Sabine Pass on March 16, 2022, and an additional 0.35 Bcf/d with this Order).

predictive accuracy; (2) applications to export significant quantities of domestically produced LNG are still a relatively new phenomenon 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, geopolitical, technological, regulatory, and climate change-related developments. The market of the future very likely will not resemble the market of today. In recognition of these factors, DOE intends to monitor developments that could tend to undermine the public interest in grants of successive applications for exports of domestically produced LNG and to attach terms and conditions to LNG export authorizations to protect the public interest.

VIII. FINDINGS

On the basis of the findings and conclusions set forth above, DOE grants the non-FTA portion of Golden Pass LNG's Application, subject to the Terms and Conditions and Ordering Paragraphs set forth below.

IX. TERMS AND CONDITIONS

The Terms and Conditions imposed by DOE in Order No. 3978, as amended, remain in effect. As necessitated by this Order, Term and Condition H and I are amended below. Golden Pass LNG must abide by each Term and Condition or face appropriate sanction.

H. Export Quantity

This Order grants the requested amendment to Order No. 3978 (as most recently amended in Order No. 3978-D), such that Golden Pass LNG is authorized to export LNG in the full volume requested for non-FTA countries, equivalent to 937 Bcf/yr of natural gas.

I. Combined FTA and Non-FTA Export Authorization Volumes

With this Order, Golden Pass LNG now holds FTA and non-FTA export authorizations for the entire liquefaction capacity of the Golden Pass LNG Terminal, as approved by FERC (18.1 mtpa of LNG, or 937 Bcf/yr of natural gas). Accordingly, the volume of LNG authorized

in this Order is not additive to the volumes authorized in Golden Pass LNG's long-term FTA order (Order No. 3147-E).

X. ORDER

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

A. Golden Pass LNG Terminal LLC (Golden Pass LNG) is authorized to export domestically produced LNG by vessel from the Golden Pass LNG Terminal in Sabine Pass, Texas, in a volume equivalent to 937 Bcf/yr of natural gas for a term beginning on the earlier of (i) the date of first export or (ii) September 30, 2025, and extending through December 31, 2050. Golden Pass LNG is authorized to export the LNG on its own behalf and as agent for other entities that hold title to the natural gas, pursuant to one or more contracts of any duration.²⁶¹

B. 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.

C. Golden Pass 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.

D. Golden Pass LNG shall ensure compliance with all terms and conditions established by FERC in the orders for the Golden Pass LNG Terminal (FERC Dockets CP14-517-000 and CP20-459-000). This includes the 83 environmental conditions adopted in FERC's December

²⁶¹ These contracts may include the export of commissioning volumes prior to the start of facility operations on a non-additive basis. *See supra* note 18.

21, 2016 order (based on the 2016 EIS) and the environmental conditions set forth in the January 19, 2021 FERC Order (based on the 2020 EA). Additionally, this authorization is conditioned on Golden Pass LNG's on-going compliance with any other preventative and mitigative measures at the Golden Pass LNG Terminal imposed by federal or state agencies.

E. (i) Golden Pass LNG shall file, or cause others to file, with the U.S. Department of Energy, Office of Fossil Energy and Carbon Management, Office of Resource Sustainability, Office of Regulation, Analysis, and Engagement (FE-34) a non-redacted copy of all executed long-term contracts associated with the long-term export of LNG from the Terminal on its own behalf or as agent for other entities. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described in Order No. 3978.

(ii) Golden Pass LNG shall file, or cause others to file, with the Office of Regulation, Analysis, and Engagement a non-redacted copy of all executed long-term contracts associated with the long-term supply of natural gas to the Terminal. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described in Order No. 3978.

F. Golden Pass LNG is permitted to use its authorization to export LNG as agent for other LNG title-holders (Registrants), after registering those entities with DOE. Registration materials shall include an agreement by the Registrant to supply Golden Pass LNG with all information necessary to permit Golden Pass LNG to register that person or entity with DOE, including: (1) the Registrant's agreement to comply with this Order and all applicable requirements of DOE'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, described in Ordering Paragraph E 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 within 30 days of such change(s).

G. Golden Pass LNG, or others for whom Golden Pass LNG acts as agent, shall include the following provision in any agreement or other contract for the sale or transfer of LNG exported 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 B of DOE/FECM Order No. 3978-E, issued April 27, 2022, in Docket No. 12-156-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 Golden Pass LNG Terminal 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 Golden Pass LNG Terminal LLC is made aware of all such actual destination countries.

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

I. Golden Pass LNG shall file with the Office of Regulation, Analysis, and Engagement, on a semi-annual basis, written reports describing the status of the Golden Pass LNG Terminal. 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 Terminal, the date the Terminal is expected to commence first exports of LNG, and the status of any associated long-term supply and export contracts.

J. With respect to any change in control of the authorization holder, Golden Pass LNG must comply with DOE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.²⁶²

K. Monthly Reports: With respect to the exports authorized by this Order, Golden Pass 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 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 have occurred, the report must provide the information specified for each applicable activity and mode of transportation, as set forth in the Guidelines for Filing Monthly Reports. These Guidelines are available at: <https://www.energy.gov/fecm/guidelines-filing-monthly-reports>.

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

L. All monthly report filings on Form FE-746R shall be made to the Office of Regulation, Analysis, and Engagement according to the methods of submission listed on the Form FE-746R reporting instructions available at: <https://www.energy.gov/fecm/regulation>.

Issued in Washington, D.C., on April 27, 2022.

Amy R. Sweeney Digitally signed by Amy R. Sweeney
Date: 2022.04.27 14:21:48 -04'00'

Amy R. Sweeney
Director, Office of Regulation, Analysis, and Engagement
Office of Resource Sustainability

²⁶² See 79 Fed. Reg. at 65,541-42.

APPENDIX: FINDING OF NO SIGNIFICANT IMPACT

FINDING OF NO SIGNIFICANT IMPACT FOR THE APPLICATION OF GOLDEN PASS LNG TERMINAL LLC TO AMEND LONG-TERM AUTHORIZATION TO EXPORT LIQUEFIED NATURAL GAS FROM THE GOLDEN PASS LNG TERMINAL TO NON-FREE TRADE AGREEMENT NATIONS

AGENCY: U.S. Department of Energy, Office of Fossil Energy and Carbon Management (FECM)

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: Previously, under section 3 of the Natural Gas Act (NGA),²⁶³ the Federal Energy Regulatory Commission (FERC) authorized Golden Pass LNG Terminal LLC (Golden Pass LNG) to site, construct, and operate facilities for the export of liquefied natural gas (LNG) at the Golden Pass LNG Terminal (the Terminal),²⁶⁴ located in Sabine Pass, Texas.²⁶⁵ Under this FERC order, Golden Pass LNG was authorized to operate the Golden Pass Export Project facilities with a total LNG production capacity of 15.6 million metric tons per annum (mtpa), or 740 billion cubic feet per year (Bcf/yr) of natural gas.

In an application filed with FERC on May 21, 2020, Golden Pass LNG asked FERC to amend its NGA section 3 authorization to increase the total LNG production capacity of the Golden Pass Export Project from 15.6 mtpa to 18.1 mtpa, equivalent to an increase from 740 Bcf/yr to 937 Bcf/yr of natural gas—for an additional 197 Bcf/yr in LNG production capacity (the Amendment).²⁶⁶ Pursuant to the regulations of the Council on Environmental Quality (CEQ), FERC prepared an environmental assessment (EA) that analyzed the potential environmental impacts associated with this requested Amendment.²⁶⁷ The U.S. Department of Energy (DOE) was a cooperating agency in the preparation of the EA. Under DOE/FE Order No. 3978, as amended, Golden Pass LNG is currently authorized by DOE to export LNG from the Terminal to any country with which the United States has not entered into a free trade agreement (FTA) requiring national treatment for trade in natural gas, and with which trade is not prohibited by U.S. law or policy (non-FTA countries). In this proceeding, Golden Pass LNG filed a related application with DOE requesting authority to amend Order No. 3978 to align its non-FTA export

²⁶³ 15 U.S.C. § 717b.

²⁶⁴ References herein to the Golden Pass LNG Terminal include the Golden Pass Export Project facilities (also referred to as the Golden Pass Export Terminal Project).

²⁶⁵ See *Golden Pass Products LLC and Golden Pass Pipeline LLC*, Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act, 157 FERC ¶ 61,222 (Dec. 21, 2016). In 2018, FERC authorized the transfer of this authorization from Golden Pass Products LLC to Golden Pass LNG. See *Golden Pass LNG Terminal LLC and Golden Pass Products LLC*, Order Authorizing Transfer of NGA Section 3 Authorization, 165 FERC ¶ 61,261 (Dec. 20, 2018).

²⁶⁶ See *Golden Pass LNG Terminal LLC*, Application of Golden Pass LNG Terminal LLC for Limited Amendment to Authorization Granted under Section 3 of the Natural Gas Act, FERC Docket Nos. CP20-459-000 and CP14-517-000 (May 21, 2020) [hereinafter Golden Pass LNG App. to FERC].

²⁶⁷ Fed. Energy Reg. Comm'n, *Golden Pass LNG Export Project Amendment Environmental Assessment* (Golden Pass LNG Terminal, LLC), Docket No. CP20-459-000 (Nov. 2020), https://cms.ferc.gov/sites/default/files/2020-11/CP20-459%20Golden%20Pass%20Amendment%20EA_11.06.2020.pdf [hereinafter EA].

volume with the total LNG production capacity requested in its then-pending Amendment application at FERC.

SUPPLEMENTARY INFORMATION: Golden Pass LNG filed the Amendment application in FERC Docket Nos. CP20-459-000 and CP14-517-000 under NGA section 3 and the procedures of Part 153 of FERC’s regulations.²⁶⁸ In the FERC proceeding, Golden Pass LNG stated that the Terminal’s total LNG production capacity is now “substantially higher” than its original design based on, “among other things, capturing the design margins, richer feed-gas composition, and maintenance processes that promote production efficiencies (e.g., reduced downtime).”²⁶⁹ The capacity increase requested in the Amendment, from 15.6 to 18.1 mtpa, will not require additional construction or modification of facilities beyond those previously approved by FERC.²⁷⁰

FERC prepared an EA for Golden Pass LNG’s Amendment application, *Golden Pass LNG Export Project Amendment Environmental Assessment*. The EA adopted by reference the environmental impact statement (EIS) for the Golden Pass Export Project prepared by FERC in 2016 (in which DOE also participated as a cooperating agency).²⁷¹ FERC placed the EA in the public record in November 2020 and finalized it in its Order Amending Section 3 Authorization, issued on January 19, 2021 (FERC Order).²⁷²

In the FERC Order, FERC granted the Amendment application, thus amending Golden Pass LNG’s existing NGA section 3 authorization to reflect a total LNG production capacity for the Golden Pass Export Project of 18.1 mtpa, or 937 Bcf/yr of natural gas.²⁷³ FERC conditioned the Order on Golden Pass LNG’s compliance with four environmental conditions adopted from the EA.²⁷⁴ FERC ordered that, in all other respects, Golden Pass LNG’s existing NGA section 3 authorization issued on December 21, 2016—including the environmental conditions imposed in that order—remain in full force and effect.²⁷⁵

As relevant here, in Order No. 3978, as amended,²⁷⁶ Golden Pass LNG is currently authorized by DOE to export domestically produced LNG in a volume equivalent to 808 Bcf/yr of natural gas by vessel from the Terminal to non-FTA countries, pursuant to NGA section 3(a).²⁷⁷

²⁶⁸ Golden Pass LNG App. to FERC at 1.

²⁶⁹ *Id.* at 2.

²⁷⁰ *Id.*

²⁷¹ See EA at 2, 14-15.

²⁷² See *Golden Pass LNG Terminal, LLC*, Order Amending Section 3 Authorization, 174 FERC ¶ 61,053 (Jan. 19, 2021) [hereinafter FERC Order].

²⁷³ *Id.* at ¶ 15 and Ordering Para. A.

²⁷⁴ *Id.* at ¶¶ 11-15. The four environmental conditions are set forth in Appendix A to FERC’s Order.

²⁷⁵ *Id.* at Ordering Para. B; see also

²⁷⁶ *Golden Pass LNG Terminal LLC*, DOE/FE Order No. 3978, 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), *reh’g denied*, DOE/FE Order No. 3978-A (Mar. 30, 2018), *amended by* DOE/FE Order No. 3978-B (Mar. 4, 2020) (transferring authorization from Golden Pass Products LLC to Golden Pass LNG Terminal LLC), *further amended by* DOE/FE Order No. 3978-C (Mar. 24, 2020) (extending export commencement deadline), *further amended by* DOE/FE Order No. 3147-D (Dec. 10, 2020) (extending export term).

²⁷⁷ 15 U.S.C. § 717b(a).

On August 14, 2020, Golden Pass LNG filed an Application with DOE’s Office of Fossil Energy and Carbon Management (formerly the Office of Fossil Energy)²⁷⁸ under NGA section 3.²⁷⁹ Golden Pass LNG submitted a Clarification on August 28, 2020,²⁸⁰ and an Information Update to the Application on January 21, 2021.²⁸¹ In the portion of the Application at issue, Golden Pass LNG asks DOE to increase its approved non-FTA export volume in Order No. 3978, as amended, from 808 Bcf/yr to 937 Bcf/yr of natural gas—an increase of 129 Bcf/yr, or 0.35 Bcf per day (Bcf/d), achievable due to its additional design and operations analysis. This amendment would align Golden Pass LNG’s non-FTA export volume with its then-requested liquefaction production capacity of 937 Bcf/yr.²⁸²

Previously, on August 15, 2014, DOE published the *Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States* (Addendum).²⁸³ DOE prepared the Addendum to be responsive to the public and to provide the best information available on a subject that had been raised by commenters in LNG export application dockets. The Addendum addresses unconventional natural gas production in the nation as a whole. It does not attempt to identify or characterize the incremental environmental impacts that would result from LNG exports to non-FTA countries.²⁸⁴

Also in 2014, DOE published a report entitled, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States* (2014 LCA GHG Report or 2014 Report).²⁸⁵ The 2014 LCA GHG Report calculated the life cycle (LCA) greenhouse gas (GHG) emissions for LNG made from natural gas sourced from the lower-48 states and exported to markets in Europe and Asia. DOE commissioned this life cycle analysis to inform its review of non-FTA applications, as part of its broader effort to evaluate different environmental aspects of the LNG production and export chain. The LCA GHG Report 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.

In 2019, DOE published an update to the 2014 LCA GHG Report, entitled *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas From the United States: 2019*

²⁷⁸ The Office of Fossil Energy changed its name to the Office of Fossil Energy and Carbon Management on July 4, 2021.

²⁷⁹ Golden Pass LNG Terminal LLC, Application for Limited Amendments to Authorizations to Export Liquefied Natural Gas, Docket Nos. 12-88-LNG and 12-156-LNG (Aug. 14, 2020) [hereinafter App.].

²⁸⁰ Email from Kevin M. Sweeney, Counsel for Golden Pass LNG Terminal LLC, to Amy Sweeney, DOE, Clarification, Docket Nos. 12-88-LNG and 12-156-LNG (Aug. 28, 2020).

²⁸¹ Golden Pass LNG Terminal LLC, Information Update, Docket Nos. 12-88-LNG and 12-156-LNG (Jan. 21, 2021).

²⁸² See *id.* at 1.

²⁸³ 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).

²⁸⁴ See *Sierra Club v. U.S. Dep’t of Energy*, 867 F.3d 189, 198–99 (D.C. Cir. 2017) (upholding DOE’s conclusion that, without knowing where local production of the incremental natural gas would occur, the corresponding environmental impacts are not reasonably foreseeable under NEPA).

²⁸⁵ 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).

Update (LCA GHG Update or 2019 Update).²⁸⁶ The conclusions of the 2019 Update were consistent with those of the 2014 LCA GHG Report—that, “[w]hile acknowledging uncertainty, to the extent U.S. LNG exports are preferred over coal in LNG-importing nations, U.S. LNG exports are likely to reduce global GHG emissions on per unit of energy consumed basis for power production.”²⁸⁷ 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.”²⁸⁸

Additionally, as part of a NEPA rulemaking finalized on December 4, 2020,²⁸⁹ DOE conducted a detailed review of technical documents regarding potential effects associated with marine transport of LNG.²⁹⁰ These documents were identified in an accompanying Marine Transport Technical Support Document (Technical Support Document).²⁹¹ On the basis of the data referenced in the Technical Support Document, DOE concluded that “the transport of natural gas by marine vessels adhering to applicable maritime safety regulations and established shipping methods and safety standards normally does not pose the potential for significant environmental impacts.”²⁹²

The purpose and need for DOE’s action is to comply with section 3(a) of the NGA, which requires DOE to issue an order granting an application for authority to export natural gas, including LNG, to non-FTA countries unless, after opportunity for hearing, DOE finds that the proposed export will not be consistent with the public interest. DOE’s decision to grant or deny Golden Pass LNG’s requested amendment to its non-FTA export authorization (Order No. 3978, as amended) is based on a public interest review of the proposed increase in exports, which includes completing the environmental review required by NEPA.

ADOPTION: Discussion and analyses related to the potential impacts of a grant of Golden Pass LNG’s Amendment application are contained within the EA prepared by FERC—which is adopted herein (DOE/EA-2179) and incorporated by reference—as well as in the FERC Order. The analysis in the EA was limited to Golden Pass LNG’s proposed improvements in its design and operations analysis, since the application did not require construction of new facilities.²⁹³ On this basis, the EA analyzed water resources, fisheries, marine wildlife, threatened and endangered species, air quality, reliability and safety, and alternatives.²⁹⁴ The EA found that

²⁸⁶ 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), <https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf>.

²⁸⁷ 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, 85 (Jan. 2, 2020).

²⁸⁸ *Id.*

²⁸⁹ See U.S. Dep’t of Energy, *National Environmental Policy Act Implementing Procedures*, Final Rule; 85 Fed. Reg. 78,197 (Dec. 4, 2020).

²⁹⁰ *Id.* at 78,199.

²⁹¹ See *id.* at 78,198 n.16 (citing U.S. Dep’t of Energy, Technical Support Document, Notice of Final Rulemaking, National Environmental Policy Act Implementing Procedures (10 C.F.R. Part 1021) (Nov. 2020)).

²⁹² *Id.* at 78,200; see also *id.* at 78,202. We note that, in the 2014 LCA GHG Report and 2019 Update, DOE also considered how emissions associated with the ocean transport of U.S. LNG in tankers contribute to total life cycle GHG emissions.

²⁹³ See EA at 1-2; FERC Order at ¶¶ 6, 9.

²⁹⁴ See EA at 2; see also FERC Order at ¶ 10.

environmental impacts for the following resources remain unchanged from that analyzed in the 2016 EIS, and thus these resources were not addressed further: geology and soils; groundwater; wetlands; vegetation and terrestrial wildlife; land use, recreation, and visual resources; socioeconomics; cultural resources; and noise.²⁹⁵

The EA concluded, and FERC agreed, that “if Golden Pass operates the proposed facilities in accordance with its application and supplements, approval of the Amendment would not constitute a major federal action significantly affecting the quality of the human environment.”²⁹⁶ The EA also recommended four mitigation measures,²⁹⁷ which (as noted above) FERC adopted as environmental conditions of its Order.²⁹⁸

DETERMINATION: On the basis of the EA (DOE/EA-2179), the 2016 EIS for the Golden Pass LNG Export Project (DOE/EIS-0501), the FERC Order, the Addendum, the 2014 LCA GHG Report and 2019 Update, and the Technical Support Document, DOE has determined that granting the non-FTA portion of Golden Pass LNG’s Application to increase the approved non-FTA export volume in this Order (DOE/FECM Order No. 3978-E) will not have a significant effect on the human environment. The preparation of an EIS, therefore, is not required, and DOE is issuing this Finding of No Significant Impact.

This FONSI will be available on the DOE website at:

https://fossil.energy.gov/ng_regulation/applications-2012-goldenpassproductsllc12-156-lng. The EA and FONSI will also be available at: <https://energy.gov/nepa/doeea-2179-golden-pass-lng-export-project-amendment>.

²⁹⁵ EA at 2.

²⁹⁶ *Id.* at 17; *see also* FERC Order at ¶ 13.

²⁹⁷ *See* EA at 17.

²⁹⁸ *See* FERC Order at ¶¶ 13-14 and Appendix A.