UNITED STATES OF AMERICA

DEPARTMENT OF ENERGY

OFFICE OF FOSSIL ENERGY AND CARBON MANAGEMENT

ENERGÍA COSTA AZUL, S. DE R.L. DE C.V.	)	DOCKET NO. 18-145-LNG

ORDER AMENDING 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 NATIONS

ECA LARGE-SCALE PROJECT

DOE/FECM ORDER NO. 4365-B

DECEMBER 20, 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
CPP	Clean Power Plan
DAN	Centro Mexicano para la Defensa del Medio Ambiente, A.C.
DOE	U.S. Department of Energy
EA	Environmental Assessment
ECA	Energía Costa Azul, S. de R.L. de C.V.
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
FONSI	Finding of No Significant Impact
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GHG	Greenhouse Gas
LCA	Life Cycle Analysis
LNG	Liquefied Natural Gas
Mcf	Thousand Cubic Feet
MMBtu	Million British Thermal Units
mtpa	Million Metric Tons per Annum
NEPA	National Environmental Policy Act
NERA	NERA Economic Consulting
NETL	National Energy Technology Laboratory
NGA	Natural Gas Act
Tcf	Trillion Cubic Feet

I. INTRODUCTION

On September 18, 2020, Energía Costa Azul, S. de R.L. de C.V. (ECA) 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] ECA seeks to amend its two long-term authorizations involving the proposed ECA Large-Scale Project, to be located north of Ensenada in Baja California, Mexico, approximately 31 miles south of the San Diego-Tijuana/San Ysidro border between the United States and Mexico.[4]

ECA is currently authorized to export domestically produced natural gas by pipeline and to re-export[5] the natural gas in the form of liquefied natural gas (LNG) under the following orders:

(i) DOE/FE Order No. 4318,[6] as amended, authorizing exports of U.S.-sourced natural gas by pipeline from the United States to Mexico and, after liquefaction in Mexico, by vessel from the proposed ECA Large-Scale Project to any country with which the United States currently has, or in the future will have, a free trade

[1] Energía Costa Azul, S. de R.L. de C.V., Application to Amend Long-Term, Multi-Contract Authorizations to Export Natural Gas to Mexico and to Export Liquefied Natural Gas from Mexico to Free Trade Agreement and Non-Free Trade Agreement Nations (ECA Large-Scale Project), Docket No. 18-145-LNG (Sept. 18, 2020) [hereinafter App.].

[2] The Office of Fossil Energy (FE) changed its name to the Office of Fossil Energy and Carbon Management (FECM) 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-FE1-2022, issued on June 13, 2022.

[4] App. at 6. ECA's affiliate, ECA Liquefaction, S. de R.L. de C.V. (ECA Liquefaction), has received authorizations from DOE in connection with a separate project, called the ECA Mid-Scale Project, in Docket No. 18-144-LNG. *See id*. at 6 n.11 (stating that the ECA Mid-Scale and Large-Scale Projects are "distinct and independent projects").

[5] For purposes of this Order, "re-export" means to ship or transmit U.S.-sourced natural gas in its various forms (gas, compressed, or liquefied) subject to DOE's jurisdiction under the NGA, 15 U.S.C. § 717b, from one foreign country (*i.e.*, a country other than the United States) to another foreign country.

[6] *Energía Costa Azul, S. de R.L. de C.V.,* DOE/FE Order No. 4318, Docket No. 18-145-LNG, Order Granting Long-Term, Multi-Contract Authorization to Export Natural Gas to Mexico and to Other Free Trade Agreement Nations (ECA Large-Scale Project) (Jan. 25, 2019), *amended by* DOE/FE Order No. 4318-A (Dec. 10, 2020) (extending export term), *further amended by* DOE/FE Order No. 4318-B (June 11, 2021) (increasing export volume).

agreement (FTA) requiring national treatment for trade in natural gas, under NGA section 3(c);[7] and

(ii) DOE/FE Order No. 4365,[8] as amended, authorizing re-exports of U.S.-sourced natural gas in the form of LNG by vessel from the proposed ECA Large-Scale Project to any other country with which trade is not prohibited by U.S. law or policy, under NGA section 3(a).[9]

These orders originally authorized exports in a volume equivalent to 545 Bcf/yr of natural gas under Order No. 4318, and re-exports of 475 Bcf/yr of natural gas under Order No. 4365, on a non-additive basis. Both orders, as amended, authorize the exports (or re-exports) for a term to begin on the earlier of the date of first export or seven years from the date of issuance of the authorization and to extend through December 31, 2050.[10]

In the Application, ECA states that its original authorization, DOE/FE Order No. 4365, "assumed that the ECA Large-Scale Project would be capable of producing and exporting an equivalent of approximately 9.1 metric tons per annum [mtpa] of LNG."[11] ECA states that, due to improvements in its design and operations analysis, the ECA Large-Scale Project will be capable of producing an additional 3.3 mtpa of LNG, for a total productive capacity of 12.4 mtpa of LNG.[12] ECA asserts that this change "will require an additional authorization of 182 Bcf/yr

[7] 15 U.S.C. § 717b(c). The United States currently has FTAs requiring national treatment for trade in natural gas with Australia, Bahrain, Canada, Chile, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, Republic of Korea, and Singapore. FTAs with Israel and Costa Rica do not require national treatment for trade in natural gas.

[8] *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), *amended by* DOE/FE Order No. 4365-A (Dec. 10, 2020) (extending export term).

[9] 15 U.S.C. § 717b(a).

[10] *See supra* notes 6 and 8; *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. 2243 (Jan. 12, 2021).

[11] App. at 7.

[12] *Id*.

of exports to FTA countries and 161 Bcf/yr to non-FTA countries."[13] Accordingly, ECA asks DOE to amend its orders to authorize total exports (and/or re-exports) as follows: (i) 727 Bcf/yr (1.99 Bcf per day (Bcf/d)) of natural gas to FTA countries, and (ii) 636 Bcf/yr (1.74 Bcf/d) to non-FTA countries.[14]

On June 11, 2021, in Order No. 4318 (as amended), DOE granted the FTA portion of the Application, as required by NGA section 3(c).[15] ECA is thus authorized to export natural gas to Mexico in the total requested volume of 727 Bcf/yr of natural gas—which includes both the export of U.S.-sourced natural gas to Mexico by pipeline, and the re-export of LNG after liquefaction in Mexico to FTA countries.[16] The requested increase in ECA's non-FTA re-export volume, if approved, would not be additive to this FTA volume.

DOE published a notice of the non-FTA portion of the Application in the *Federal Register* (Notice of Application) on October 13, 2020.[17] The Notice of Application called on interested persons to submit protests, motions to intervene, notices of intervention, and comments by December 14, 2020.[18] DOE received two timely-filed comments in response to the Notice of Application. One comment was non-responsive,[19] and one comment supported the

[13] *Id.* (stating that approximately 21 Bcf/yr of the requested volumes will be consumed as fuel in Mexico, a FTA country, during the transportation and liquefaction process, with the remaining 161 Bcf/yr of natural gas to be re-exported in the form of LNG to FTA and non-FTA countries).
[14] *Id*. at 7-8, 13.
[15] *Energía Costa Azul, S. de R.L. de C.V*., DOE/FE Order No. 4318-B, Docket No. 18-145-LNG, Order Amending Long-Term Authorization to Export Natural Gas to Mexico and to Other Free Trade Agreement Nations (ECA Large-Scale Project) (June 11, 2021); *see also infra* Appendix A (ECA's long-term authorizations for the Large-Scale Project).
[16] *See id.* at 3. *See also id.* at 3 n.12.
[17] Energía Costa Azul, S. de R.L. de C.V., Application to Amend Long-Term Authorization to Export Natural Gas to Mexico and to Re-Export Liquefied Natural Gas from Mexico to Non-Free Trade Agreement Nations; Notice of Application, 85 Fed. Reg. 64,452 (Oct. 13, 2020) [hereinafter Notice of App.].
[18] 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).
[19] Anonymous Comment, Docket No. 18-145-LNG (Oct. 18, 2020).

Application.[20] No protests or motions to intervene were filed by the deadline set forth in the Notice of Application. However, on November 28, 2022—approximately 1 year and 11 months after the December 14, 2020 deadline—Sierra Club submitted a motion to intervene opposing ECA's Application, together with a protest of the Application filed jointly with Centro Mexicano para la Defensa del Medio Ambiente, A.C., referred to as DAN.[21] ECA submitted an Answer in Opposition to the Sierra Club Motion to Intervene and Protest of Sierra Club and DAN on December 13, 2022.[22] As explained below, DOE finds that Sierra Club and DAN fail to show good cause for their late filing, and therefore DOE dismisses both the motion to intervene and protest as out of time.[23]

Before reaching a final decision on a non-FTA application under NGA section 3(a), DOE must also comply with the National Environmental Policy Act (NEPA).[24] On July 12, 2022, DOE issued a Notice of Environmental Assessment (Notice of EA), in which DOE explained its determination that, consistent with E.O. 14008, *Tackling the Climate Crisis at Home and Abroad*,[25] and its obligations under NEPA, it was appropriate to evaluate the potential environmental impacts of ECA's request to increase its approved re-exports of U.S.-sourced

[20] Comment of the Board of County Commissions of Rio Blanco County, Colorado, Docket No. 18-145-LNG (Nov. 10, 2020).
[21] Sierra Club, *et al*., Motion to Intervene of Sierra Club and Protest of Sierra Club and Centro Mexicano para la Defensa del Medio Ambiente, A.C., Docket No. 18-145-LNG (Nov. 28, 2022) [hereinafter Sierra Club Motion to Intervene and Protest of Sierra Club and DAN].
[22] Energía Costa Azul, S. de R.L. de C.V., Answer in Opposition to Motion to Intervene of Sierra Club and Protest of Sierra Club and Centro Mexicano para la Defensa del Medio Ambiente, A.C., Docket No. 18-145-LNG (Dec. 13, 2022) [hereinafter ECA Answer in Opposition].
[23] *See infra* §§ VIII.A, XI (Ordering Para. M); *see also* 10 C.F.R. §§ 590.303(d), 590.304(e).
[24] 42 U.S.C. § 4321 *et seq*.
[25] E.O. 14008 sets forth policies to address climate change, specifically to "organize and deploy the full capacity of [Federal] agencies to combat the climate crisis." Exec. Order No. 14008 of Jan. 27, 2021, Tackling the Climate Crisis at Home and Abroad, 86 Fed. Reg. 7,619 (Feb. 1, 2021), https://www.federalregister.gov/documents/2021/02/01/2021-02177/tackling-the-climate-crisisat-home-and-abroad. E.O. 14008 further requires the "Federal Government [to] drive assessment, disclosure, and mitigation of climate pollution and climate-related risks in every sector" of the U.S. economy. *Id*.

natural gas in the form of LNG to non-FTA countries by 161 Bcf/yr of natural gas.[26] In the Notice of EA, DOE identified four topics for analysis, but stated that the list was not intended to predetermine any analysis and was subject to change.[27]

On September 29, 2022, DOE provided the draft EA to potentially affected states and tribes for a 15-day comment period that concluded on October 14, 2022.[28] DOE received one comment on the draft EA from the Texas Commission on Environmental Quality (Texas CEQ).[29] DOE issued the final EA on October 28, 2022 [hereinafter EA],[30] and responded to Texas CEQ's comment as part of the EA.[31]

The EA evaluated the Proposed Action of granting ECA's Application (authorizing additional re-exports of 161 Bcf/yr of natural gas in the form of LNG) and a No Action Alternative in which the requested amendment would not be granted.[32] Specifically, the EA analyzed the following potential impacts on the affected environment: (1) incremental production of U.S.-sourced natural gas, (2) incremental cross-border pipeline transportation of natural gas, (3) marine transportation of LNG, and (4) GHG emissions and climate change.[33]

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[26] *See Energía Costa Azul, S. de R.L. de C.V.*, Notice of Environmental Assessment, Docket No. 18-145-LNG (July 12, 2022), at 5 [hereinafter Notice of EA]. ECA subsequently filed a response to the Notice of EA. *See* Energía Costa Azul, S. de R.L. de C.V., Response to Notice of Environmental Assessment, Docket No. 18-145-LNG (Aug. 2, 2022).

[27] *See* Notice of EA at 6 (identifying the following four topics of analysis: (1) production of U.S.-sourced natural gas, (2) cross-border natural gas pipelines, (3) Mexico's environmental review, and (4) greenhouse gas (GHG) emissions).

[28] *See infra* § VII; Notice of EA at 7; *see also* U.S. Dep't of Energy, Energía Costa Azul, S. de R.L. de C.V. Environmental Assessment – ECA Large-Scale Project: Design Increase, DOE/EA-2193, at 21, 23-25, 28 (Oct. 28, 2022), https://www.energy.gov/sites/default/files/2022-10/FINAL%20Environmental%20Assessment%20-%20Energ%C3%ADa%20Costa%20Azul%2010-28-22.pdf [hereinafter EA].

[29] *See* EA at 28 (Appendix D).

[30] *See supra* note 28.

[31] *See* EA at 28 (Appendix D).

[32] *See id*. at 2, 3-4. For the No Action Alternative, DOE assumed that the ECA Large-Scale Project "would not be built and the potential environmental impacts from the Project would not occur." *Id*. at 4. DOE observed, however, that "it is likely that some or all of the demand for LNG that the Project is intended to serve would be met by other LNG facilities." *Id*.

[33] *See id.* at 9-20. Additionally, the EA provided a summary of Mexico's environmental review process for the public's information, but it did not analyze potential environmental impacts associated with elements of the

The EA also incorporated the Marine Transport Technical Support Document (Technical Support Document) previously prepared by DOE to consider the potential effects associated with transporting natural gas, including LNG, on marine vessels.[34]

DOE has reviewed the non-FTA portion of the Application, DOE's economic and environmental studies, the EA, and the most recent long-term projections from the U.S. Energy Information Administration (EIA), among other evidence discussed below. DOE notes that, while ECA is already authorized to re-export U.S.-sourced natural gas as LNG from the proposed ECA Large-Scale Project at its maximum liquefaction capacity to FTA countries, this Order will provide ECA with the flexibility to allow its proposed Project to serve non-FTA countries. These re-exports can diversify global LNG supplies and improve energy security for U.S. allies and trading partners. Based on the substantial administrative record, DOE has determined that it has not been shown that ECA's proposed increase in re-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).

Additionally, DOE has reviewed the EA under NEPA and is issuing a Finding of No Significant Impact (FONSI) as Appendix B to this Order. The FONSI adopts the EA (DOE/EA-2193) and incorporates by reference other DOE documents described below.[35]

Based on this record, DOE grants the requested amendment to increase ECA's non-FTA re-export volume in DOE/FECM Order No. 4365, as amended in Order No. 4365-A, to 636

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proposed Project that would occur within the sovereign territory of Mexico or any other country. *See id.* at 4-6; *see also infra* § VII.C.

[34] 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-tsd-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.

[35] *See infra* § VIII.C.1 and Appendix B.

Bcf/yr of natural gas, or 1.74 Bcf/d.[36] This authorization is subject to the Terms and Conditions and Ordering Paragraphs set forth herein.

Concurrently with this Order, DOE is issuing a long-term non-FTA authorization, DOE/FECM Order No. 4929, to ECA's affiliate Vista Pacifico LNG, S.A.P.I. de C.V. (Vista Pacifico), in a volume equivalent to 200 Bcf/yr of natural gas.[37] The volumes approved in this Order and the Vista Pacifico order are 0.44 Bcf/d and 0.55 Bcf/d, respectively. Together, these orders bring DOE's cumulative total of approved non-FTA exports of LNG from the lower-48 states to 47.06 Bcf/d of natural gas.[38] This cumulative total includes 6.32 Bcf/d of U.S-sourced natural gas authorized for re-export in the form of LNG from Mexico and Canada to non-FTA countries.

DOE is continuing to monitor market developments closely as the impact of successive authorizations of LNG exports (and re-exports) unfolds. DOE also acknowledges that proposals to re-export U.S.-sourced natural gas in the form of LNG from Mexico or Canada to non-FTA countries raise public interest considerations that are not present for domestic exports of LNG. In the case of re-exports, the U.S. economy does not receive a significant portion of the benefits DOE has recognized for LNG exported directly from the United States, particularly with respect to the jobs and infrastructure investment associated with construction and operation of

[36] *See infra* §§ IX-XI.

[37] *Vista Pacifico LNG, S.A.P.I. de C.V.*, DOE/FECM Order No. 4929, Docket No. 20-153-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 Nations (Dec. 20, 2022).

[38] Final non-FTA orders that were later vacated are not included in this total volume. *See infra* § VIII.E (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 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.

liquefication facilities. Additionally, as noted in the EA, long-term consequences may arise from the fact that foreign infrastructure is not directly subject to U.S. environmental laws.[39] For these reasons, DOE will carefully consider the development of this market segment.[40]

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.

[39] *See* EA at 17-18.
[40] *See infra* §§ VIII.B.2, D.

In December 2012, DOE published a notice of availability of the 2012 LNG Export Study in the *Federal Register* for public comment.[41] DOE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[42]

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.[43]

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).[44] 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).[45]

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[41] *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.

[42] *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).

[43] *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).

[44] 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.

[45] 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).[46] 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 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.[47] DOE subsequently responded to the public comments in connection with the LNG export proceedings identified in that notice.[48]

[46] 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.
[47] 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).
[48] *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.[49] 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.[50] 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,[51] and concurrently provided notice of the availability of the Study, as discussed below.[52]

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

(i) Included 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) Included 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);[53]

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[49] *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].

[50] 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.

[51] *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].

[52] *See* 2018 Study Notice.

[53] 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) Examined unconstrained LNG export volumes beyond the levels examined in the previous studies;

(iv) Examined the likelihood of those market-determined LNG export volumes; and

(v) Provided macroeconomic projections associated with several of the scenarios lying within the more likely range of exports.[54]

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 N_{ew} ERA models.[55] The 2018 Study developed 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 included 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.[56] The three cases for U.S. natural gas supply derived from AEO 2017 were:

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

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

iii. Low Oil and Gas Resource and Technology (LOGR) case, which provided less optimistic resource development estimates than the Reference case.[57]

[54] *See* 2018 Study Notice, 83 Fed. Reg. at 27,316.
[55] *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].
[56] 2018 Study Response to Comments, 83 Fed. Reg. at 67,256 (stating that the differences in the natural gas production levels across these cases arose 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).
[57] *See id.*

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

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

ii. A Robust Economic Growth case, which provided 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 provided a low estimate for U.S. natural gas demand driven by the imposition of a stringent renewables mandate.[58]

International assumptions were 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 examined the likelihood of conditions leading to various export scenarios. This unique feature provided 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.[59]

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.[60] 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

[58] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,256.
[59] *See id.*
[60] *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 provided 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 included 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 ranged 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 had a combined probability of 47%.
- Levels of GDP were 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 led to higher levels of GDP. GDP achieved with the highest level of LNG exports in each group exceeded GDP with the lowest level of LNG exports by $13 to $72 billion in 2040 (in constant 2016 dollars). The increase in GDP associated with higher LNG exports was attributed to investment in the liquefaction process, export revenues, resource income, and additional wealth transfer in the form of tolling or liquefaction charges.[61]

[61] *See* 2018 Study at 67.

- About 80% of the increase in LNG exports was 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 relied heavily on natural gas for energy and as a feedstock continued 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 were welfare-improving for the average U.S. household.[62]
- Even the most extreme scenarios of high LNG exports outside the more likely probability range (exhibiting a combined probability of less than 3%) showed higher overall economic performance in terms of GDP, household income, and consumer welfare than lower export levels associated with the same domestic supply scenarios.[63]

d. DOE Proceeding

On June 12, 2018, DOE published a notice of availability of the 2018 LNG Export Study and a request for comments.[64] 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."[65] 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.[66] Of those, nine comments

[62] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,264, 67,266.
[63] *See id.* at 67,255.
[64] *See* 2018 Study Notice.
[65] *Id.* at 27,315.
[66] The public comments are posted on the DOE website at https://fossil.energy.gov/app/docketindex/docket/index/10.

supported the Study,[67] eight comments opposed the 2018 Study and/or exports of LNG,[68] one comment took no position,[69] and one comment was non-responsive.[70]

DOE summarized and responded to these comments in the Response to Comments document, published on December 28, 2018.[71] 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.[72]

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 2018 Study—ranging from 0.1 to 52.8 Bcf/d of natural gas.[73] 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.[74]

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[67] 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.
[68] Opposing comments were filed by Patricia Weber; Oil Change International; Food & Water Watch; Industrial Energy Consumers of America (IECA); Oregon Wild; Sierra Club; Deb Evans and Ron Schaaf (the Evans Schaaf Family); and Jody McCaffree (individually and as executive director of Citizens for Renewables/Citizens Against LNG). Oil Change International and Food & Water Watch filed identical comments.
[69] Comment of John Young.
[70] Comment of Vincent Burke.
[71] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,260-72.
[72] *See id.* at 67,272.
[73] *See id.*
[74] *See id.*

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 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."[75]

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.[76] 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.[77]

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."[78] 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.[79]

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[75] *Id*. at 67,273 (citations to 2018 LNG Export Study omitted).
[76] 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].
[77] 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.
[78] *Id.* (citing 2018 LNG Export Study at 63 & Appendix F to the Study).
[79] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273.

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 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).[80] 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.[81]

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

[80] 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.

[81] 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* https://www.energy.gov/fecm/addendum-environmental-review-documents-concerning-exports-natural-gas-united-states.

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).[82] DOE also received public comments on the LCA GHG Report and responded to those comments in prior orders.[83] 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).[84] 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);[85]

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[82] 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.

[83] *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).

[84] 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].

[85] 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.

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

- Updated the 100-year global warming potential (GWP) for methane (CH_4) to reflect the current Intergovernmental Panel on Climate Change's Fifth Assessment Report.[86]

In all other respects, the LCA GHG Update was unchanged from the 2014 Report.[87]

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.[88] 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.[89] Additional details are discussed below,[90] 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

[86] *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).
[87] *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].
[88] *See id.* at 78, 85.
[89] *See id.* at 86.
[90] *See infra* § VIII.C.3.

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, LP[91]); Sabine Pass Liquefaction, LLC (Sabine Pass); and Cheniere Marketing, LLC and Corpus 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*),[92] and three in a consolidated, unpublished opinion issued on November 1, 2017 (*Sierra Club II*).[93] 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.[94]

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.[95]

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[91] *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).
[92] *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*.).
[93] *Sierra Club v. U.S. Dep't of Energy*, 703 Fed. 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).
[94] *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).
[95] *Sierra Club I*, 867 F.3d at 192.

First, the Court rejected Sierra Club's NEPA argument concerning the indirect effects of export-induced natural gas production.[96] 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."[97] In particular, the Court recognized that DOE had described upstream natural gas impacts generally,[98] while affirming DOE's explanation that particularized impacts are highly location-dependent, and could not be attributed to any given export application.[99] 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."[100]

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.[101] 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.[102]

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."[103] In particular, because Sierra Club "repeats the same argument it made to support its NEPA claim—namely, that the Department arbitrarily failed to

[96] *Id.* at 197-199.
[97] *Id.* at 198.
[98] *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.").
[99] *Id.* at 198-199.
[100] *Id.* at 201.
[101] *Sierra Club I,* 867 F.3d at 201.
[102] *Id.* at 202.
[103] *Id.* at 203.

evaluate foreseeable indirect effects of exports,"[104] 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."[105]

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."[106] 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.[107]

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,[108] DOE is incorporating these studies—as well as the 2019 LCA GHG Update—into the NEPA record in this proceeding.[109]

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.[110]

Additionally, in 2020, DOE conducted a NEPA rulemaking pertaining to authorizations issued under NGA section 3.[111] As relevant here, DOE revised its NEPA procedures that

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[104] *Id.*
[105] *Id.*
[106] *Sierra Club II*, 703 Fed. App'x at *2.
[107] *Id.*
[108] *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.").
[109] *See infra* §§ VII.C, VIII.C, and Appendix B (Finding of No Significant Impact).
[110] *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.
[111] *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].

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*.[112]

In that rulemaking, DOE conducted "a detailed review of technical documents regarding potential effects associated with marine transport of LNG."[113] These documents were identified in an accompanying Marine Transport Technical Support Document.[114] 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."[115] In light of ECA'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.[116]

III. PUBLIC INTEREST STANDARD

Section 3(a) of the NGA sets forth the standard of 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 Energy[117]] 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 in part, with such modification and

[112] *See id.; see also* 10 C.F.R. Part 1021, Subpt. D, App. B, Categorical Exclusion B5.7.
[113] NEPA Implementing Procedures, 85 Fed. Reg. at 78,199.
[114] *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)).
[115] *Id.* at 78,200; *see also id.* at 78,202.
[116] *See infra* §§ VII.C.5, VIII.C.1.
[117] The Secretary's authority was established by the Department of Energy Organization Act, 42 U.S.C. § 7151(b), which transferred jurisdiction over import and export authorizations from the Federal Power Commission to the Secretary of Energy; *see also id*. § 7172(f).

> upon such terms and conditions as the [Secretary] may find necessary or appropriate.[118]

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.[119] 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.[120] Before reaching a final decision, DOE must also comply with NEPA.[121]

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.[122] 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.[123]

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[118] 15 U.S.C. § 717b(a).
[119] *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)).
[120] *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) and 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).
[121] *See Sierra Club I*, 867 F.3d at 192.
[122] U.S. Dep't of Energy, New Policy Guidelines and Delegations Order Relating to Regulation of Imported Natural Gas, 49 Fed. Reg. 6684 (Feb. 22, 1984) [hereinafter 1984 Policy Guidelines].
[123] *Id*. at 6685.

While the Policy Guidelines explicitly discuss only natural gas imports, in 1999 DOE held in Order No. 1473 that the same Policy Guidelines should be applied to natural gas export applications.[124]

In Order No. 1473, DOE stated that it was guided by DOE Delegation Order No. 0204-111.[125] 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."[126]

Although DOE Delegation Order No. 0204-111 is no longer in effect,[127] 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.

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[124] *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)).

[125] *See id*. at 13 & n.45.

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

[127] 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, ECA asks DOE to amend its long-term non-FTA authorization, Order No. 4365 (as amended by Order No. 4365-A) to increase its approved volume of re-exports of U.S.-sourced natural gas in the form of LNG from 475 Bcf/yr of natural gas to 636 Bcf/yr—an additional 161 Bcf/yr of natural gas.[128] ECA states that this requested amendment is necessitated by a design change that will increase the total LNG production capacity of the proposed ECA Large-Scale Project from 9.1 mtpa to 12.4 mtpa of LNG.[129] For additional background information, DOE incorporates by reference Order No. 4365, as amended by Order No. 4365-A.

A. Description of Applicant

ECA is a Mexico variable-capital, limited liability company with its principal place of business in Cuauhtémoc, Mexico.[130] ECA states that the ECA Large-Scale Project is a joint effort between Sempra Energy (a publicly-traded California corporation) and Sempra Energy's Mexican affiliate, Infraestructura Energética Nova, S.A.B. de C.V. (IEnova).[131] Sempra Energy, through one of its U.S. subsidiaries, Sempra Infrastructure Partners, L.P. (Sempra Infrastructure), is also developing three additional LNG projects: Cameron LNG (in operation in Cameron and Calcasieu Parishes, Louisiana); Port Arthur LNG (proposed for Port Arthur, Texas); and Vista Pacifico (proposed for Topolobampo, Sinaloa, Mexico).[132] Additionally, Sempra Infrastructure is the owner of the existing Energía Costa Azul regasification terminal, which has been operational for more than 10 years in Baja California, Mexico.[133] According to ECA, Sempra

[128] *See* App. at 4 and 7-8; *see also id*. at 52.
[129] *Id.* at 7; *see also id.* at 9 n.17, 12; *see infra* at § I.
[130] App. at 11.
[131] *Id*. at 16.
[132] *See* ECA Answer in Opposition, *supra* note 22, at 10-11; *see also* https://www.sempra.com/innovation/lng. As discussed herein, DOE is issuing a long-term export authorization to Vista Pacifico concurrently with the issuance of this Order. DOE previously has issued long-term export authorizations to Cameron LNG and Port Arthur LNG, *see infra* § VIII.E.
[133] *See* ECA Answer in Opposition at 11; *see also infra* § IV.B.

Infrastructure "will bring its extensive experience in operating LNG projects to bear in its development of the ECA facility and to realize the myriad benefits of the proposed exports" requested in the Application.[134]

Since the time the Application was filed, ECA and other affiliates of Sempra Energy have filed Statements of Change in Control on April 30, 2021 (as supplemented on May 3 and May 19, 2021)[135] and on February 22, 2022.[136] Most recently, on May 3, 2022, DOE issued Order No. 4815, approving the change in control described in the February 22, 2022 Statement of Change in Control.[137]

Currently, "[o]ver 99.99% of [ECA] is owned by IEnova," and the remaining shares are owned by a U.S. affiliate of Sempra Energy.[138] Additionally, 99.92% of the ownership interests in IEnova are held by wholly-owned subsidiaries of Sempra Energy jointly with non-controlling minority equity interests by KKR Pinnacle Investor, L.P., a subsidiary of KKR & Co. Inc., and Black Silverback ZC 2022 LP, a wholly owned indirect subsidiary of the Abu Dhabi Investment Authority (ADIA).[139]

B. The Energía Costa Azul Large-Scale Project

ECA states that the proposed liquefaction facilities associated with the ECA Large-Scale Project will be located on the site of ECA's existing LNG import terminal situated approximately

[134] *Id*.
[135] Cameron LNG, LLC, *et al.*, Statement of Change in Control, FE Docket Nos. 11-145-LNG, *et al.* (Apr. 30, 2021) *supplemented by* Cameron LNG, LLC, *et al.*, Supplement to Statement of Change in Control, Docket Nos. 11-145-LNG, *et al*. (May 3, 2021); *further supplemented by* Cameron LNG, LLC, *et al*., Supplemental Service to Statement of Change in Control, Docket Nos. 11-145-LNG, *et al.* (May 19, 2021).
[136] *See* Cameron LNG, LLC, *et al*., Statement of Change in Control, Docket Nos. 11-145-LNG, *et al.* (Feb. 22, 2022) [hereinafter Feb. 22, 2022 Statement].
[137] *Cameron LNG, LLC, et al*., DOE/FECM Order No. 4815, Docket Nos. 11-145-LNG, *et al.*, Order Approving Change in Control (May 3, 2022).
[138] Feb. 22, 2022 Statement at 6; *see also id. at* Appendix B ("Post-Transaction Organizational Structure").
[139] *See* Feb. 22, 2022 Statement at 4-6 and Appendix B; *see also Cameron LNG, LLC, et al*., DOE/FECM Order No. 4815, at 4-5; Email from Brett Snyder, Counsel for ECA, to Amy Sweeney, DOE, Docket No. 18-145-LNG (Dec. 19, 2022) (addressing ECA's upstream ownership).

19 miles north of the city of Ensenada in Baja California, Mexico, along the Pacific Coast.[140] ECA states that the liquefaction facilities will include the following major components: two liquefaction trains, each with a maximum liquefaction capacity of 6.2 mtpa of LNG (for a total productive capacity of 12.4 mtpa of LNG), and a gas pre-treatment unit; new ground flare equipment; piping and utility tie-ins to the existing terminal facilities; and a marine off-loading facility.[141] ECA states that feed gas will be supplied through a dedicated high-pressure spur pipeline, with pipeline quality natural gas exported from the United States, as discussed below.[142]

According to ECA, the location along the West Coast of North America will permit the ECA Large-Scale Project to export U.S.-sourced natural gas as LNG to meet growing global demand and provide access to markets in the Pacific Basin, including Asia, the Middle East, and South America.[143] ECA states that it expects to commence construction activities associated with the ECA Large-Scale Project in the first part of 2024. In its October 2022 Semi-Annual Report, ECA states that "it could begin exports from the ECA Large-Scale Project as soon as 2028-2029."[144]

C. Project Pipelines

ECA states that it plans to export natural gas by pipeline from the United States through existing and, potentially, future additional cross-border pipeline facilities interconnecting the

[140] App. at 16. ECA states that the existing regasification terminal commenced operations in 2008 and consists of two full containment storage tanks with a capacity of 160,000 cubic meters (m3) each, regasification facilities with a capacity of approximately 1.0 Bcf/d, one marine berth capable of transferring up to 266,000 m3 of LNG, and bi-directional interconnections with various Mexican pipeline facilities. *Id*. at 8 n.16.
[141] *Id*. at 8-9, 16. As noted, ECA's affiliate, ECA Liquefaction, is proposing to construct the separate ECA Mid-Scale Project (Docket No. 18-144-LNG). *See supra* § I.
[142] *See* App. at 16.
[143] *Id*. at 17.
[144] Energía Costa Azul, S. de R.L. de C.V., Semi-Annual Report, Docket No. 18-145-LNG, at 2 (Oct. 1, 2022), https://www.energy.gov/sites/default/files/2022-10/ECALargeScaleSemiAnnualDOEProjectStatusReportOct2022.pdf [hereinafter ECA Semi-Annual Report].

United States and Mexico.[145] ECA states that the proposed ECA Large-Scale Project is well-positioned to access numerous existing pipelines in proximity to the Project.[146] According to ECA, the export capacity through existing cross-border pipeline facilities between the United States and Mexico is approximately 14.83 Bcf/d of natural gas. ECA states that its requested amendment, in an additional volume of 0.44 Bcf/d of natural gas, represents a "fraction" of this cross-border pipeline capacity.[147]

ECA anticipates that it will engage an affiliate or a third-party to construct pipeline facilities in Mexico—referred to as the Northern Mexico Pipeline—to interconnect the ECA Large-Scale Project to sources of natural gas supply in northern Mexico.[148] ECA further anticipates that the Northern Mexico Pipeline will be constructed and operated entirely in Mexico.[149]

According to ECA, the Northern Mexico Pipeline can be designed to interconnect with other new or expanded pipelines in Mexico and the United States, or with existing infrastructure to receive and transport natural gas exported from cross-border facilities in West or South Texas and points further west along the border, for transportation to the ECA Large-Scale Project.[150] According to ECA, cross-border facilities through which natural gas may be transported to the proposed ECA Large-Scale Project include the Sierrita Pipeline, Comanche Trail Pipeline, and the Trans-Pecos Pipeline.[151] ECA asserts that "the physical capacity at just these three cross-border locations is approximately 3.03 Bcf/d, which is well above the 0.44 Bcf/d Non-FTA

[145] App. at 4, 5-6.
[146] *Id*. at 20.
[147] *Id.* at 21.
[148] *Id*.
[149] *Id*. at 22.
[150] *Id.* at 21.
[151] App. at 21.

increase in [re-export] volume requested in this Application."[152] ECA notes that, as Appendix E to its Large-Scale Application filed in 2018 in this docket, it identified these and other cross-border facilities "that have either already been approved or have been proposed to the FERC [Federal Energy Regulatory Commission] prior to and independent of the ECA Large-Scale Project."[153]

Additionally, ECA asks DOE to grant the amendment to Order No. 4365 without imposing restrictions on the border-crossing pipeline facilities—specifically, that DOE (i) not limit the locations at which ECA may export natural gas from United States to a "specific set of border-crossing pipeline facilities"; (ii) not tie the quantity of natural gas that may be exported under the authorization to the capacity of any particular cross-border pipeline facilities; and (iii) not require ECA to file additional applications if new U.S. pipelines are constructed in the future that would transport natural gas under the requested exported authorization.[154]

D. Source of Natural Gas

ECA states that plans for the natural gas supply arrangements to provide feed gas for the ECA Large-Scale Project are still in development.[155] ECA asserts that, due to the configuration of the U.S. and Mexican pipeline grids, natural gas necessary to serve as feedstock for the Project "can be sourced from multiple production basins and purchased at various liquid points throughout the United States, exported from existing and future border-crossing facilities across the U.S./Mexican border, and transported by pipelines in Mexico to the planned ECA Large-

[152] *Id*. at 22.
[153] *Id*. at 21 (citing Energía Costa Azul, S. de R.L. de C.V., Application for Long-Term, Multi-Contract Authorizations to Export Natural Gas to Mexico and to Export Liquefied Natural Gas From Mexico to Free Trade Agreement and Non-Free Trade Agreement Nations (ECA Large-Scale Project), FE Docket No. 18-145-LNG (Sept. 27, 2018) [hereinafter Large-Scale App.]; *see also id*. at 8 n.15.
[154] App. at 13; *see also id*. at 42-52.
[155] App. at 21 (ECA is "considering several [natural] gas supply options … that could connect in Mexico to any existing or future cross-border facilities along the U.S./Mexican border.").

Scale Project.[156] Further, in the Large-Scale Application, ECA previously stated that ECA and its terminal customers either may "transport natural gas from the United States on their own behalf" or "purchase natural gas in Mexico from upstream suppliers that have exported the U.S.-sourced natural gas under the suppliers' own FTA export authorizations or under ECA's export authorization for the purpose of selling natural gas to ECA or its terminal customers at the ECA Large-Scale Project."[157]

In sum, given the integrated nature of the U.S. and Mexican pipeline system, ECA states that the Project "will have access to a wide range of natural gas supply and transportation options,"[158] and consequently "it is uncertain where the [natural] gas used by the ECA Large-Scale Project will originate."[159] ECA adds that, as a result of these supply options, the ECA Large-Scale Project "will be able to respond to shifts in the economics and production profiles of different [natural] gas production areas."[160]

E. Environmental Review

ECA states that, because the proposed Project will be constructed and operated in Mexico, DOE's review of the Application is subject to a categorical exclusion under NEPA.[161] ECA points to categorical exclusion B5.7 of DOE/FE's regulations (10 C.F.R. Part 1021, Subpart D, Appendix B5),[162] which was in effect at the time the Application was filed, but which DOE subsequently amended.[163] DOE notes that the current categorical exclusion B5.7, *Export of natural gas and associated transportation by marine vessel*, applies to "[a]pprovals or

[156] *Id*. at 8; *see also id*. at 21.
[157] Large-Scale App. at 14.
[158] App. at 14.
[159] *Id*. at 20.
[160] *Id.*
[161] *Id*. at 36-41.
[162] *Id*. at 37.
[163] *See* U.S. Dep't of Energy, National Environmental Policy Act Implementing Procedures; Final Rule, 85 Fed. Reg. 78,197 (Dec. 4, 2020) (effective Jan. 4, 2021).

disapprovals of new authorizations or amendments of existing authorizations to export natural gas under section 3 of the Natural Gas Act and any associated transportation of natural gas by marine vessel."[164]

ECA further states that "the ECA Large-Scale Project and any pipeline facilities that may be constructed in Mexico are subject to review and approval by Mexican agencies under the state and federal laws of that nation."[165] According to ECA, the Mexican permitting process includes a "thorough environmental review under Mexico state and federal legislation similar to the review conducted by U.S. agencies under NEPA."[166] In addition to describing the Mexican permitting process in its Application,[167] ECA points to Appendix C of the Large-Scale Application entitled, "Permitting Overview for Pipeline and Liquefaction Projects in Mexico," which provides a summary of the Mexican regulatory framework applicable to the siting, construction, and operation of the ECA Large-Scale Project.[168]

Next, ECA states that it has received the necessary permits from Mexican agencies to construct and operate its original liquefaction capacity (9.1 mtpa of LNG), and "will initiate" the permitting process to increase the authorized production capacity of the Project up to 12.4 mtpa.[169] In its October 2022 Semi-Annual Report, ECA adds that it "has continued to … seek authorization by the regulatory agencies in Mexico" to increase the Project's production capacity.[170]

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[164] 10 C.F.R. Part 1021, Subpt. D, App. B, Categorical Exclusion B5.7; *see also supra* § II.D (DOE's Marine Transport Technical Support Document).
[165] App. at 22-23.
[166] *Id*. at 23.
[167] *See id*. at 18-21.
[168] *See id*. at 22-23; *see also* Large-Scale App. at Appendix C.
[169] *Id*.
[170] *See* ECA Semi-Annual Report at 2.

V. APPLICANT'S PUBLIC INTEREST ANALYSIS

ECA asserts that its requested amendment to Order No. 4365 is consistent with the public interest under section 3(a) of the NGA, citing the abundant and robust supply of U.S. natural gas as well as the benefits associated with increased trade in U.S. natural gas.[171]

ECA states that demand for U.S. natural gas will continue to be outpaced by the growth of available supply.[172] ECA thus contends that the current supply of U.S. natural gas is "more than sufficient … to accommodate both domestic demand and the exports proposed in this Application throughout the term of the requested authorization."[173]

In support of this position, ECA cites EIA's *Annual Energy Outlook 2020* (AEO 2020).[174] ECA states that natural gas production grew from 21.3 trillion cubic feet (Tcf) in 2010 to 33.7 Tcf in 2019, and that this growth trend is expected to continue over the next several decades. ECA points to the significant increase in AEO 2020's estimates of shale gas production through 2040 as compared to EIA's projections in 2015. ECA asserts that domestic demand for natural gas will grow at an annual rate of 0.5% from 2019 to 2050, while domestic production of dry gas during the same time period is projected to grow at an annual rate of 0.9%.[175]

Pointing to DOE's LNG export studies (discussed *supra* § II.A), ECA next contends that exports of LNG will not result in adverse economic impacts to U.S. consumers.[176] In particular, ECA states that DOE's 2018 LNG Export Study demonstrates that gross domestic product (GDP) grows as U.S. LNG exports increase, without resulting in significant price impacts to U.S.

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[171] *See* App. at 12, 24-27, 34.
[172] *Id.* at 29.
[173] *Id.* at 27.
[174] *Id.* at 28-29 (citing U.S. Energy Info. Admin., Annual Energy Outlook 2020 (with projections to 2050) (Jan. 29, 2020), https://www.eia.gov/outlooks/archive/aeo20/pdf/AEO2020%20Full%20Report.pdf [hereinafter AEO 2020]).
[175] App. at 29.
[176] *Id*. at 30.

consumers.[177] ECA thus maintains that "[a]bundant natural gas supplies exist to serve the ECA Large-Scale Project without adversely affecting the availability of competitively-priced natural gas for U.S. consumption during the proposed term of the requested authorization."[178]

Additionally, ECA states that DOE's approval of its requested amendment will present numerous benefits to the public, including increased U.S. economic activity, tax revenues, and job creation during both the construction and operation phases of the Project.[179] ECA contends that, although the LNG facility will be located in Mexico, construction and operation of the ECA Large-Scale Project "will result in significant employment benefits across several industries in both the United States and Mexico on a local and nationwide basis."[180]

ECA adds that the proposed re-exports will: (i) favorably influence the U.S. balance of trade with international trading partners; (ii) diversify the global supply of energy resources, thus supporting geopolitical security interests of the United States by providing energy supply alternatives to its allies; and (iii) liberalize the global natural gas market by fostering increased liquidity and trade at market-based prices.[181]

Finally, ECA states that the proposed re-exports of LNG "can help countries move away from less environmentally friendly fuels" by displacing coal consumption in power generation and deterring the construction of additional coal-fired generation capacity."[182]

[177] *See id*. at 34.
[178] *Id*. at 12.
[179] *See id*. at 12; *see also id*. at 34-35.
[180] App. at 34-35.
[181] *See id.* at 35.
[182] *Id*. at 36.

VI. CURRENT PROCEEDING BEFORE DOE

A. Public Comments

In response to the Notice of Application, DOE received two comments.[183] Only one comment, submitted by the Board of County Commissioners of Rio Blanco County, Colorado (the Board), is responsive to the Application.[184] The Board "urge[s] [DOE] to approve the application," emphasizing the importance of the "ECA access point and [ECA's] export ability … not only to the U.S. as a whole, but to Rio Blanco County and Western Colorado."[185] According to the Board, the access point is important for Western Colorado natural gas and offers a "much needed positive economic impact" in the form of jobs, capital investment in local communities, and potential expansion of the natural gas industry.[186]

B. Late-Filed Sierra Club Motion to Intervene and Protest of Sierra Club and DAN

On November 28, 2022, Sierra Club filed a motion to intervene and joint protest with DAN opposing the Application. This filing was submitted more than 23 months after the December 14, 2020 deadline for the submission of motions to intervene, protests, and comments set forth in the Notice of Application published in the *Federal Register* on October 13, 2020.[187]

Sierra Club and DAN do not acknowledge the December 14, 2020 deadline or seek to provide an explanation for their late submission.[188] Rather, in the section of the filing entitled "Intervention," Sierra Club states:

> DOE's rules do not articulate any particular standard for timely intervention, and as such, intervention should be granted liberally. DOE merely requires would-be-intervenors to set out 'the facts upon

[183] *See supra* § I.
[184] Comment of the Board of County Commissions of Rio Blanco County, Colorado, Docket No. 18-145-LNG (Nov. 10, 2020); *see also supra* note 19 (non-responsive comment filed by Anonymous).
[185] *See id*. at 1-2.
[186] *Id.* at 2.
[187] *See* Notice of Application, 85 Fed. Reg. 64,452; *see supra* § I.
[188] *See* Sierra Club Motion to Intervene and Protest of Sierra Club and DAN, at 1-2.

> which [their] claim of interest is based' and 'the position taken by the movant.' 10 C.F.R. § 5903303(b)-(c).[189]

Sierra Club further asserts that its "interests are based on the impact the proposed additional exports will have on its members and mission."[190] Specifically, Sierra Club maintains that its members will be harmed by an increase in natural gas production and air pollution, GHG emissions, and impacts from climate change associated with ECA's proposed exports.[191] Sierra Club adds that it has "many members throughout the southwest, including within the Permian Basin region and other areas that will likely be impacted by increased [natural] gas production."[192]

In the section of the filing entitled "Protest," Sierra Club and DAN present economic, infrastructure, and environmental arguments opposing the Application. First, Sierra Club and DAN assert that "increasing LNG exports will cause real and significant increases in domestic [natural] gas prices."[193] Arguing that "domestic [natural] gas prices remain exceptionally high as a result of LNG exports," Sierra Club and DAN contend that DOE must address, among other things, "the demonstrated connection between LNG exports and domestic prices, in its public interest analysis."[194] They also maintain that "DOE has never grappled with the distributional impacts of LNG exports" which, in their view, will be "exacerbate[d]" by increased prices of domestic natural gas.[195]

Turning to infrastructure, Sierra Club and DAN assert that, "[w]hile the overall pipeline capacity may exist" to transport the proposed volume of LNG from the United States to the ECA

[189] *Id*. at 1-2.
[190] *See id*. at 2.
[191] *See id*. at 2-3.
[192] *Id*. at 2.
[193] *Id*. at 4-5.
[194] Sierra Club Motion to Intervene and Protest of Sierra Club and DAN, at 6.
[195] *Id*. at 9.

Large-Scale Project,[196] "DOE must demonstrate that no additional pipeline capacity is needed before it approves this project" or include in a NEPA review the construction of additional pipelines or pipeline upgrades necessary to carry the full volume requested by ECA.[197]

Addressing environmental issues, particularly "indirect effects," Sierra Club and DAN argue that DOE violated NEPA by conducting the EA, rather than an environmental impact statement (EIS), in evaluating ECA's requested amendment.[198] In particular, they assert that DOE violated NEPA by arbitrarily concluding that the impacts of the proposed exports and re-export would be insignificant, such that an EIS was not required.[199]

C. ECA's Answer in Opposition to Sierra Club Motion to Intervene and Protest of Sierra Club and DAN

On December 13, 2022, ECA submitted an Answer in Opposition to Sierra Club's Motion to Intervene and Sierra Club and DAN's Protest, pursuant to 10 C.F.R. §§ 590.303(e) and 590.304(f).[200] ECA first asserts that DOE should reject Sierra Club's "late-filed motion to intervene that has been filed approximately two years after the close of the intervention period for the … Application."[201] ECA states that Sierra Club has "disregard[ed] each aspect" of DOE's regulation pertaining to timely intervention, 10 C.F.R. § 590.303(d), by failing to make its filing within the time fixed in DOE's notice, not attempting to demonstrate the "requisite good cause" for its "extremely late filing," and making "no attempt to address the impacts of its late-filed intervention."[202] ECA adds that granting Sierra Club's motion to intervene at this late stage will be "highly prejudicial to ECA and disruptive to the proceedings."[203]

[196] *Id*. at 12.
[197] *Id*. at 13.
[198] *See id*. at 13.
[199] *Id*.
[200] *See* ECA Answer in Opposition at 1.
[201] *Id*. at 3.
[202] *Id*. at 4.
[203] *Id*. at 5.

ECA makes substantially the same arguments in asserting that Sierra Club and DAN "fail to acknowledge that their protest is late-filed or to make any attempt to show the requisite good cause for accepting their protest."[204] ECA notes that Sierra Club received an "admonition" from DOE "just five months ago" in a different LNG export proceeding concerning the requirement for Sierra Club to timely file a protest.[205] Further, according to ECA, entertaining Sierra Club's and DAN's arguments at this time would disrupt this proceeding and interfere with DOE's ability to develop a record upon which it can render a final decision, among other concerns.[206]

Next, ECA asserts that, "even putting aside these procedural infirmities," Sierra Club's and DAN's public interest and NEPA-related arguments are unsupported or misleading.[207] For example, ECA states that Sierra Club's and DAN's arguments about higher energy prices during the winter of 2021-22 "ignore the complexity of the domestic and global [natural] gas markets and the fact that various factors have had acute effects on [natural] gas prices over the past year"—such as "the global energy crisis precipitated by Russia's invasion of Ukraine and cuts to Russian-supplied [natural] gas to Europe."[208] ECA contends that, in selectively focusing on this time period, Sierra Club and DAN "cherry picked data to serve their arguments while ignoring broader natural gas price trends."[209]

ECA also responds to Sierra Club's and DAN's arguments concerning distributional impacts, existing pipeline capacity for the incremental volume of natural gas at issue, and DOE's preparation of the EA under NEPA.[210] ECA maintains, for example, that the EA "did in fact

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[204] *Id*. at 6.
[205] *Id.* (citing *Magnolia LNG, LLC*, DOE/FECM Order No. 3909-D, Docket No. 13-132-LNG, Order Denying Request for Rehearing of Order Amending Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, at 7 (June 24, 2022)).
[206] *See* ECA Answer in Opposition at 6.
[207] *Id*. at 7, 11.
[208] *Id*. at 11.
[209] *Id*.
[210] *See id*. at 15-20.

consider the indirect effects of the proposed exports, including potential impacts of the proposed action associated with natural gas production, natural gas pipeline transportation, marine transport of LNG, and life cycle GHG emissions."[211] In sum, ECA contends that, if DOE permits the late-filed protest, "Sierra Club's and DAN's arguments are meritless and should be rejected."[212]

VII. DOE'S ENVIRONMENTAL ASSESSMENT

A. Notice of EA

DOE determined that, to analyze the environmental effects of ECA's request to increase its approved re-exports of U.S. sourced LNG to non-FTA countries by 161 Bcf/yr of natural gas, it was appropriate to prepare an EA under NEPA.[213] In a Notice of EA issued on July 12, 2022, DOE stated that it would prepare the EA in accordance with CEQ regulations at 40 C.F.R. Parts 1500-1508 and DOE's NEPA implementing procedures at 10 C.F.R. Part 1021.[214] DOE identified the following four topics for analysis in the EA (which it stated were subject to change):[215]

> **(1) Production of U.S.-Sourced Natural Gas**: The potential environmental impacts associated with unconventional natural gas exploration and production activities in the lower-48 states, using DOE's *Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States*[216] already in the record for this proceeding;
>
> **(2) Cross-Border Pipelines**: The utilization of the cross-border pipeline facilities in the states of Arizona, Texas, and California that interconnect the United States and Mexico and that ECA may utilize for its U.S. natural gas supply, taking into account any environmental review for such pipelines previously conducted by the Federal Energy Regulatory Commission (FERC) under NGA section 7;[217]

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[211] *Id.* at 19.
[212] ECA Answer in Opposition at 20.
[213] *See* Notice of EA, *supra* § I.
[214] *See id*. at 7.
[215] *See id*. at 6.
[216] *See supra* § II.B (citing the Addendum).
[217] 15 U.S.C. § 717f; *see supra* § IV.C (discussing the cross-border pipelines).

(3) Mexico's Environmental Review: Because the proposed ECA Large-Scale Project will be constructed and operated in Mexico, a description of Mexico's environmental review process for the construction and operation of liquefaction terminals and related facilities;[218] and

(4) GHG Emissions: The global nature of GHG emissions associated with re-exporting U.S.-sourced LNG from Mexico from a life cycle perspective, using DOE's two life cycle GHG reports already in the record for this proceeding.[219]

Pursuant to 10 C.F.R. § 1021.301(c), DOE provided the Notice of EA to the cross-border host states of Arizona, Texas, and California, and to all tribes on or within 100 kilometers of the U.S. border in those three states.[220]

B. Draft EA

On September 29, 2022, DOE provided the draft EA to the three cross-border host states and potentially affected tribes for a 15-day comment period that concluded on October 14, 2022.[221] DOE received one comment on the draft EA from the Texas Commission on Environmental Quality (Texas CEQ).[222] The Texas CEQ's comments addressed air quality, surface and groundwater quality, and the management of industrial and hazardous waste associated with natural gas pipelines to be connected to the proposed ECA Large-Scale Project.[223]

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[218] DOE stated that this description of Mexico's environmental review process will be included in the EA for completeness. In the Application, ECA notes the Mexican Government's process for reviewing and approving the construction of liquefaction terminals and associated pipeline facilities to be located in Mexico, and points to its prior discussion of this process in the Large-Scale Application. *See* App. at 9, 22-23.
[219] *See* Notice of EA at 6 (citations omitted).
[220] *See id*. at 7.
[221] *See* U.S. Dep't of Energy, Energía Costa Azul, S. de R.L. de C.V. Environmental Assessment – ECA Large-Scale Project: Design Increase, DOE/EA-2193, at 21, 23-25, 28 (Oct. 28, 2022), https://www.energy.gov/sites/default/files/2022-10/FINAL%20Environmental%20Assessment%20-%20Energ%C3%ADa%20Costa%20Azul%2010-28-22.pdf [hereinafter EA]. The tribes and states are listed in EA § 3.1 and § 3.2, respectively.
[222] *See* EA at 28 (Appendix D) (summarizing comment from Texas CEQ and DOE's response).
[223] *See id*.

C. Final EA

DOE issued the final EA on October 28, 2022.[224] DOE explained that the purpose of the EA was to evaluate the Proposed Action of granting the requested authorization to ECA—amending Order No. 4365 to increase re-exports of U.S.-sourced natural gas in the form of LNG from the proposed Project to non-FTA countries in a volume of 161 Bcf/yr of natural gas—and a No Action Alternative in which the requested authorization would not be granted.[225]

1. Scope of EA

The environmental impacts subject to analysis in the EA were "limited to those direct and indirect impacts that would occur in the United States and those that affect the global commons, such as global climate change that results from emissions of [GHGs]."[226] NEPA does not require an analysis of those environmental impacts that occur within another sovereign nation that result from actions approved by that sovereign nation.[227] Accordingly, DOE expressly did not analyze potential environmental impacts associated with the proposed ECA Large-Scale Project that would occur within Mexico or other countries—including the potential local and regional impacts of pipeline transportation of natural gas within Mexico to the proposed Project, the construction and operation of the Project in Mexico (including LNG terminal operations), and terminal operations, transport, and use of LNG within the receiving country.[228]

2. Summary of Mexico's Environmental Review Process

While outside the scope of DOE's analysis, the EA provided information about Mexico's review process under Mexican state and federal laws for the proposed Project and any pipeline

[224] *See supra* note 221.
[225] EA at 2-4. The EA stated, however, that even if the Application for the requested amendment is not granted, "it is likely that some or all of the demand … that the Project is intended to serve would be met by other LNG facilities" due to continued global demand for LNG. *Id*. at 4.
[226] *Id*. at 4.
[227] *Id*. (citing Exec. Order No. 12,114 (Jan. 4, 1979)).
[228] *Id*.

facilities that may be constructed in Mexico.[229] In Table 2, for example, the EA identified the agencies in Mexico with potential jurisdiction over the activities proposed within Mexico and their respective environmental, cultural, and safety assessments.[230]

3. Incremental Natural Gas Production

In the EA, DOE stated that the natural gas to be liquefied and exported by the proposed ECA Large-Scale Project would first have to be produced from natural gas wells in the lower-48 United States.[231] DOE further noted that a "significant majority" of natural gas produced in the United States is from unconventional resources.[232] DOE determined that the "most likely impacts associated with natural gas production would … relate to Project-induced incremental production of those resources."[233] DOE therefore incorporated by reference its *Addendum to Environmental Review Documents Concerning Imports of Natural Gas from the United States* (Addendum), discussed *supra* § II.B.[234]

Citing the Addendum, DOE observed 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. DOE stated, however, that it does not have the ability to determine which specific natural gas resources would be produced to serve the proposed ECA Large-Scale Project.[235]

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[229] *See id*. at 4-6.
[230] *See* EA at 5.
[231] *See id*. at 9.
[232] *Id*. at 9.
[233] *Id*. at 6.
[234] *See supra* note 81, citing Addendum, https://www.energy.gov/fecm/addendum-environmental-review-documents-concerning-exports-natural-gas-united-states.
[235] *See* EA at 9.

DOE also determined that, if natural gas were produced in the lower-48 states for a different North American project, any potential impacts related to incremental natural gas production would similarly occur in the No Action Alternative.[236] Therefore, the EA concluded that the No Action Alternative "would … not have a currently identifiable environmental advantage" over the Proposed Action.[237]

4. Incremental Cross-Border Pipeline Transportation of Natural Gas

ECA proposes to utilize any cross-border pipeline or combination of pipelines that are currently operational or may become operational. The EA observed that natural gas transported on behalf of the proposed ECA Large-Scale Project would increase utilization of pipelines, and therefore has the potential to cause incremental impacts in emissions related to pipeline operations.[238]

First, DOE noted that "there is nearly 15 billion cubic feet per day (Bcf/d) of existing physical cross-border pipeline capacity between the United States and Mexico, including nearly 7 Bcf/d of capacity in California, Arizona, and West Texas, and approximately 8 Bcf/d in South Texas."[239] In Figure 1, the EA identified this "significant and growing natural gas pipeline supply infrastructure."[240] The EA also summarized other details of these pipelines in appendices to the EA, and incorporated by reference the documents in the FERC dockets for the regulatory review of the identified cross-border natural gas pipelines.[241]

Next, DOE considered potential environmental impacts from natural gas pipeline transportation in the lower-48 states that could be caused by the proposed Project's natural gas

[236] *See id*.
[237] *Id*.
[238] *Id.* at 7.
[239] *Id*.
[240] *Id*.
[241] EA at 10.

demand (equal to about 0.66% of U.S. pipeline system throughput in 2020).[242] The EA concluded that, because the incremental pipeline throughput associated with ECA's requested authorization "would not increase the flow of natural gas to levels above those permitted by FERC and/or state regulatory authorities," the natural gas flow caused by the proposed Project's incremental export demand "would … not be expected to cause environmental effects that exceed permitted levels."[243]

The EA also considered the safety of natural gas pipelines—specifically, potential impacts "associated with the operation of these pipelines that might be incrementally greater with marginally higher throughput due to the Project's demand."[244] Based on data from the Pipeline and Hazardous Materials Safety Administration (PHMSA) for U.S. counties associated with border-crossing locations,[245] DOE determined that the pipeline incidence rate from January 2010 to July 2022 "would equate to the accidental emission of less than one-one thousandth of one percent of total exported gas during this period, well below current estimates of average methane emissions associated with upstream production and transport across the U.S. natural gas infrastructure."[246]

Turning to the No Action Alternative, DOE stated that, if the ECA Large-Scale Project were not constructed, any potential local or regional impacts associated with incremental pipeline transportation of natural gas for the Project would not occur.[247] Alternately, if other incremental LNG production capacity were constructed in North America using natural gas from the lower-48 states, local or regional impacts would be similar to natural gas supplied to the

[242] *See id*.
[243] *Id*.
[244] *Id*.
[245] *Id*. at 11-12.
[246] *Id*. at 12-13.
[247] EA at 13.

Project (although perhaps at different locations in the United States). In this scenario, the EA concluded that "the No Action Alternative would not have a currently identifiable environmental advantage over the Proposed Action."[248]

5. Marine Transportation of LNG

Re-exports of U.S.-sourced LNG from the proposed Project in Mexico to non-FTA countries would occur via ocean transport.[249] In the EA, DOE determined that the "potentially affected environment" for the marine transportation of LNG includes "resources that could be impacted by a release of the LNG cargo, in liquid or gaseous form, as well as routine shipping-related risks, such as fuel leaks and engine emissions."[250] Specifically, these resources include the ocean environment and the atmosphere in the area around LNG vessels at sea.[251]

In 2020, as part of its NEPA rulemaking revising categorical exclusion B5.7, DOE conducted a detailed review of technical documents evaluating potential effects associated with marine transport of LNG.[252] These documents were identified in an accompanying Marine Transport Technical Support Document,[253] which DOE incorporated by reference in the EA. The EA pointed to DOE's conclusion in the rulemaking: "'the transport of natural gas by marine vessels … normally does not pose the potential for significant environmental impacts,'" provided the transport adheres to applicable maritime safety regulations and standards.[254]

Under the No Action Alternative, DOE determined that, if the ECA Large-Scale Project were not constructed, "some or all of the volume of LNG the Project would have exported could

[248] *Id*.
[249] *Id*. at 8.
[250] *Id*.
[251] *See id*.
[252] *See supra* § II.D.
[253] *See id*.
[254] EA at 13 (citing U.S. Dep't of Energy, National Environmental Policy Act Implementing Procedures, Final Rule, 85 Fed. Reg. 78,197, 78,200 (Dec. 4, 2020)).

be supplied to markets from other sources."[255] The EA thus concluded that any marine transport impacts under the No Action Alternative "would be similar to those identified in the Marine Transport Technical Support Document."[256]

6. GHG Emissions and Climate Change

In the EA, DOE observed that rising atmospheric GHG concentrations are significantly altering global climate systems with the potential for long-term impacts on human society and the environment.[257] DOE further explained that the region of influence for GHGs differs from other resource areas considered in the EA, since concerns about GHG emissions are primarily related to climate change, which is both global and cumulative in nature.[258]

In addressing potential GHG impacts associated with the requested authorization, DOE stated that the findings of its two LCA studies—the 2014 LCA GHG Report and the 2019 Update, discussed *supra* § II.B (and referred to as the "GHG Studies" in the EA)—are applicable in evaluating the GHG emissions from the proposed ECA Large-Scale Project.[259]

Specifically, DOE determined that the proposed ECA Large-Scale Project is comparable to the representative LNG Project analyzed in the 2014 LCA GHG Report and the 2019 Update. DOE thus found it reasonable to apply the two LCA studies in reviewing the life cycle GHG emissions from the proposed ECA Large-Scale Project.[260] DOE also assumed that marine shipments of LNG from the proposed Project would have similar attributes to shipments from the

[255] *Id*. at 14.
[256] *Id*.
[257] *Id*. at 8.
[258] *See id*. at 8.
[259] *See id*. at 14 (stating that, although the EA does not include a "Project-specific calculation of emissions" from construction and operation of the proposed Project, DOE "finds that its study of Life Cycle GHG emissions provide sufficient consideration of these emissions").
[260] EA at 14.

representative LNG Project in the U.S. Gulf Coast analyzed in the LCA studies, including a focus on exports to Asian markets.[261]

Additionally, DOE determined that differences in GHG emissions between the representative LNG Project located in the U.S. Gulf Coast (analyzed in the two LCA studies) and the proposed ECA Large-Scale Project located in Mexico primarily would result from: (1) any difference in natural gas pipeline transport distance between U.S. producing basins and the liquefaction plants and differences in emission rates between Mexican pipelines and U.S. pipelines; (2) differences in the emission rates associated with liquefaction in Mexico versus the United States; and (3) the difference in nautical distance traveled by a LNG tanker between liquefaction plants and Shanghai, China.[262]

Based on this analysis, DOE assumed that pipeline emissions in Mexico would be the same as from pipelines located in the United States (the same assumption that DOE made in the 2014 LCA GHG Report and the 2019 Update for pipeline emissions in all countries), while describing possible sources of difference.[263] DOE also determined that "it [is] reasonable that, on a per-unit-volume-of-LNG-produced basis, GHG emissions from the proposed Mexican plants and the Gulf Coast plant modeled in the [2014 LCA GHG Report and the 2019 Update] would be similar."[264] Finally, as to marine transport-related GHG emissions, DOE determined that exports from the proposed ECA Large-Scale Project would have a reduction in overall emissions of between 4% and 8% (as compared to the representative LNG Project located in the U.S. Gulf Coast) due to the shorter tanker travel route from Mexico to markets in Asia.[265]

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[261] *See id*.
[262] *See id*. at 16; *see generally id.* at 15-19.
[263] *See id*. at 17-18.
[264] *Id*. at 19 (emphasis in original).
[265] *See id*. at 15 (noting, however, that if the ECA Large-Scale Project were to export LNG to other markets, such as Europe, shipping distances would be longer, and marine transport-related emissions would be commensurately greater).

Addressing the No Action Alternative, DOE stated that "other LNG production capacity could be constructed in the United States or another country to serve some or all of the LNG demand the Project is intended to serve."[266] Therefore, the EA concluded that "it [is] not unreasonable to assume that GHG emissions would be broadly similar [to exports from the proposed ECA Large-Scale Project], and, given the global nature of climate change, would have similar incremental impacts."[267]

7. Response to Comment

DOE responded to Texas CEQ's comment in Appendix D of the EA.[268] As to air quality, DOE agreed with Texas CEQ that "the reasonably foreseeable direct and indirect air emissions associated with the ECA project in Texas would be *de minimis*."[269] Addressing potential impacts from surface and groundwater contamination, DOE stated that it "does not anticipate that the proposed action would appreciably increase the potential for such [contamination] events because of the relatively small additional volume of natural gas that would flow through the pipeline system."[270] With respect to Texas CEQ's comments on both water quality and the management of industrial and hazardous waste, DOE observed that the construction and operation of natural gas pipelines are subject to relevant federal and/or state regulations.[271]

VIII. DISCUSSION AND CONCLUSIONS

In reviewing the non-FTA portion of ECA's Application, DOE has considered its obligations under NGA section 3(a) and NEPA. To accomplish these purposes, DOE has

[266] EA at 20.
[267] *Id*.
[268] *See id*. at 28 (Appendix D).
[269] *Id*.
[270] *Id*.
[271] *Id*.

examined a wide range of information addressing environmental and non-environmental factors, including but not limited to:

- ECA's Application and the responsive comment submitted in support of the Application;
- The EA prepared for the Application;
- 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, including comments received in response to the 2020 NEPA rulemaking and the Marine Transport Technical Support Document.

A. Procedural Matters

Sierra Club seeks to intervene in this proceeding to oppose ECA's Application, and both Sierra Club and DAN seek to protest the Application, in a submission filed more than 23 months after the deadline established in the *Federal Register* for such filings. As noted above, Sierra Club and DAN do not provide an explanation for waiting nearly two years after the time period prescribed by DOE for such submissions. Instead, as to Sierra Club's motion to intervene, Sierra Club states that "DOE's rules do not articulate any particular standard for timely intervention," and thus "intervention should be granted liberally."[272]

DOE finds that Sierra Club's position as to the timeliness of its filing is factually incorrect and does not establish good cause for granting the motion. We begin by noting that Sierra Club cites DOE's regulation for intervention, 10 C.F.R. § 590.303, but asserts that this

[272] Sierra Club Motion to Intervene and Protest of Sierra Club and DAN, at 1.

regulation "merely requires" Sierra Club to set forth the facts supporting its motion and its position.[273] This is not accurate. DOE's regulation at 10 C.F.R. § 590.303(d) speaks directly to the "standard for timely intervention," stating that "[m]otions to intervene may be filed at any time following the filing of an application, but no later than the date fixed for filing such motions or notices in the applicable [FECM] notice or order, unless a later date is permitted by the Assistant Secretary for good cause shown and after considering the impact of granting the late motion of the proceeding."[274] DOE's regulations contain similar language for the timely filing of protests in 10 C.F.R. § 590.304(e),[275] which Sierra Club and DAN likewise do not acknowledge. The Notice of Application issued by DOE in this proceeding specified a deadline of 4:30 p.m. Eastern time on December 14, 2020, and made clear to the public that DOE would be considering the potential economic and environmental impacts of ECA's Application.[276]

Further, Sierra Club's prior actions belie its claim that "DOE's rules do not articulate any particular standard for timely intervention."[277] Over the last decade, Sierra Club has timely filed a motion to intervene and protest in numerous LNG export proceedings on or before the deadline established in DOE's notice of application for each proceeding—including the week after it submitted its filing in this proceeding.[278] Additionally, in a prior proceeding, Sierra Club expressly stated that its filing was "out of time" and asked DOE to accept its "late intervention,"

[273] *Id*. at 1-2 (citing 10 C.F.R. § 590.303(b)-(c)).
[274] 10 C.F.R. § 590.303(d) (emphasis added).
[275] *See Id*. § 590.304(e) ("Protests may be filed at any time following the filing of an application, but no later than the date fixed for filing protests in the applicable FE notice or order, unless a later date is permitted by the Assistant Secretary for good cause shown.").
[276] *See* Notice of Application, 85 Fed. Reg. at 64,452-53.
[277] Sierra Club Motion to Intervene and Protest of Sierra Club and DAN, at 1.
[278] *See*, *e.g.*, Sierra Club, Motion to Intervene and Protest of NFE Altamira FLNG's Request for Export and Re-Export Authorization, Docket No. 22-110-LNG (Dec. 5, 2022) (pending motion to intervene and protest filed on December 5, 2022, the deadline established by DOE in the notice of application, 87 Fed. Reg. 60,667, 60,668 (Oct. 6, 2022)).

citing 10 C.F.R. § 590.303(d).[279] Currently, Sierra Club is in litigation against DOE in the U.S. Court of Appeals for the District of Columbia Circuit in two different cases in which Sierra Club's compliance with the deadline established by DOE in the *Federal Register* to submit a protest and motion to intervene in response to a LNG export application is the central issue.[280] These examples—all in LNG export proceedings like this one—demonstrate that Sierra Club was on notice of DOE's regulations pertaining to timely interventions and protests, as well as DOE's practice of establishing the deadline for such submissions in the notice of application published in the *Federal Register*.

Sierra Club and DAN also do not provide any facts to demonstrate that they had "good cause" for failing to file the motion and protest within the time prescribed, as required by both sections 10 C.F.R. §§590.303(d) and 590.304(e).[281] Nor does Sierra Club seek to address "the impact of granting the late motion [on] the proceeding" referenced in section 590.303(d). Sierra Club and DAN thus provide no grounds for DOE to consider the late filing.

Finally, we emphasize again that, in unnecessarily delaying the issuance of final agency action, late filings are both unfairly prejudicial to the applicant (and any other parties) and disruptive to DOE's interests in administrative efficiency and fairness. As DOE previously observed, "at some point, the opportunity for interested persons to intervene as parties in a proceeding must close" to "ensure that the resolution of a proceeding and the issuance of a final order are not unduly delayed by inattentiveness or intentional delay."[282] Here, the 23-month

[279] *See*, *e.g.*, Sierra Club, Motion to Intervene Out of Time, Protest, and Comments, Docket No. 11-111-LNG, at 1 (Apr. 18, 2012) (filing submitted 16 months after the deadline established in the notice of application, which DOE rejected as out of time).
[280] *See Sierra Club v. U.S. Dep't of Energy*, Case No. 22-12-17 (D.C. Cir.) (pending) (Magnolia LNG proceeding); *Sierra Club v. U.S. Dep't of Energy*, Case No. 22-12-18 (D.C. Cir.) (pending) (Golden Pass LNG proceeding).
[281] *See id*. at 5-6.
[282] *Golden Pass LNG Terminal LLC*, Docket No. 12-156-LNG, Order Denying Request for Rehearing of Order Amending Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations, at 7 (June 24, 2022) (internal quotation and citation omitted).

delay far surpasses other late filings rejected by DOE in LNG export proceedings.[283] We thus conclude that accepting Sierra Club's motion to intervene and the joint protest at this time would be prejudicial to ECA,[284] contrary to DOE precedent, and disruptive to this proceeding and DOE's administrative process.[285]

For these reasons, we dismiss Sierra Club's and DAN's filing in its entirety.[286] Because this dismissal is on procedural grounds, we do not address the merits of Sierra Club's and DAN's arguments.

B. 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.[287] 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.[288] 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.[289] As noted herein, DOE's cumulative volume of approved non-FTA exports from the lower-48 states as of today—47.06 Bcf/d of natural gas—is

[283] *See id.* at 7-8 (discussing motions to intervene or protests filed 16 and 18 months after DOE's deadline in LNG export proceedings, which DOE rejected as out of time).
[284] ECA Answer in Opposition at 6.
[285] *See id*. at 6; *see also*, *e.g.*, *Magnolia LNG, LLC*, DOE/FECM Order No. 3909-D, at 8 (DOE rejecting Sierra Club's late-filed protest due to concerns about fairness, due process, and administrative efficiency), *cited in* ECA Answer in Opposition at 6.
[286] *See* 10 C.F.R. §§ 590.303, 590.304; *see also infra* § XI (Ordering Para. M).
[287] *See supra* § II.A.3.
[288] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,272.
[289] *See id.* at 67,273.

within this upper volume. The cumulative total of U.S. and Mexico LNG export capacity, using U.S.-sourced natural gas, that is currently operating or under construction totals 20.53 Bcf/d.[290]

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.[291] DOE has assessed AEO 2022 to 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)[292] 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.[293]

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%

[290] *See* U.S. Energy Info. Admin., *U.S. Liquefaction Capacity* (Aug. 22, 2022), https://www.eia.gov/naturalgas/U.S.liquefactioncapacity.xlsx (showing a total of 20.09 Bcf/d calculated by adding Column N in "Existing & Under Construction" worksheet). Additionally, DOE takes administrative notice that, in 2020, ECA Liquefaction reached a final investment decision (FID) for the development, construction, and operation of the ECA Mid-Scale Project Phase 1, to be located in Baja California, Mexico (0.44 Bcf/d). *See* "Sempra Energy Announces FID for Landmark Energía Costa Azul LNG Export Project" (Nov. 17, 2020), https://www.sempra.com/sempra-energy-announces-fid-landmark-energia-costa-azul-lng-export-project.

[291] 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.

[292] 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.

[293] The AEO Reference cases take into account the amount of U.S. LNG export capacity operating or under construction at the time of publication. The Reference cases have not included re-exports to date, but they do include net exports to Mexico via pipeline volume listed separately. *See infra* § VIII.B.4 (Table 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."[294] 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, both the 2018 Study and AEO 2022 support our finding that ECA's proposed amendment to its non-FTA authorization—increasing its approved re-export volume by 161 Bcf/yr of natural gas—will not be inconsistent with the public interest.

2. ECA's Application

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

First, ECA points to DOE's 2018 LNG Export Study, as well as DOE's older LNG export studies and EIA data, in asserting that the United States has significant natural gas resources available to meet both projected future domestic needs and demand for the proposed re-exports. We agree. Specifically, we find that, based on the 2018 Study and AEO 2022, over the long-term timeline of this authorization, there is likely to be robust domestic supply conditions that are more than adequate to satisfy both domestic needs and exports (or re-exports) of LNG, including those proposed in the Application.[295]

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.[296] The 2018 Study consistently

[294] *See* AEO 2022 at 26.
[295] *See, e.g.*, 2018 Study Response to Comments, 83 Fed. Reg. at 67,262; *supra* § VIII.B.1.
[296] 2018 Study Response to Comments, 83 Fed. Reg. at 67,272.

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.[297] 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.[298] 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.[299]

Because, however, the 2018 Study assumes that LNG exports would occur from the United States—not from Mexico, as is the case here,[300] DOE acknowledges that some of the benefits and outcomes outlined in that Study would be reduced or different in the case of the proposed ECA Large-Scale Project. Specifically, in the calculation of economic benefits, the 2018 Study assumes that the representative liquefaction plant is owned and operated by a domestic firm, and there is an assumed investment cost of $5 billion for each Bcf/d of liquefaction capacity constructed.[301] In the case of ECA's Application for an incremental re-export volume of 0.44 Bcf/d, however, the benefit of the estimated value of ECA's approximately $2 billion in infrastructure investment would occur in Mexico, not in the United States.[302] Nonetheless, the economic benefits from the production and initial sale of the natural gas from U.S. suppliers to ECA or its offtakers would benefit the United States, as considered in the 2018 Study.

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[297] *See id.* at 67,268-69 (citing 2018 LNG Export Study at 67, 70).
[298] *See id*. at 67,266 (citing 2018 LNG Export Study at 64).
[299] *See id.* at 67,259 (citing 2018 LNG Export Study at 73).
[300] *See* 2018 LNG Export Study at 93.
[301] *See id*.
[302] This estimated value is calculated by multiplying the volume requested in ECA's Application, 0.44 Bcf/d, by the estimated investment value of a liquefaction plant in the 2018 LNG Export Study of $5 billion per Bcf/d of liquefaction capacity. The actual project cost is likely to be influenced by numerous factors, such as the conditions of the project site, the proximity to pipeline networks, the price of raw materials, and labor costs.

Third, over the term of the authorization, the proposed re-exports of LNG to non-FTA countries 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 ECA's proposed re-exports of LNG are consistent with U.S. policy.

Accordingly, based on the 2018 Study and the more recent data in AEO 2022, DOE finds that the market will be capable of sustaining the level of additional re-exports requested in ECA's Application over the authorization term without negative economic impacts, including domestic price impacts (discussed below).

3. Pipeline Routes

With respect to the pipelines associated with its proposed exports and re-exports, ECA asks DOE to issue the requested amendment without imposing physical restrictions on the export points, and without requiring a supplemental authorization if new or expanded U.S. pipelines become available for ECA's potential use.[303] This request is consistent with ECA's existing non-FTA authorization, Order No. 4365 (as amended), which does not impose any physical limits on the southbound border-crossing facilities to be used and is not conditioned on the need for a supplemental authorization in the future.[304]

In Order No. 4365, DOE explained that the natural gas pipeline trade between the United States and Mexico is robust, such that multiple border-crossing points are currently available for ECA's use. Additionally, DOE agreed with ECA that the existing cross-border pipeline capacity between the United States and Mexico far exceeds the volume of natural gas requested for re-

[303] App. at 42; *see also id*. at 5, 13, 42-46.
[304] *See Energía Costa Azul, S. de R.L. de C.V.,* DOE/FE Order No. 4365, at 32-33.

export as LNG.[305] We find that the same facts apply with respect to the additional re-exports at issue here.[306] In particular, we note that Appendix B of the EA provides information about the existing cross-border facilities in the states of California, Arizona, and Texas that may be used to transport natural gas from the United States to the proposed ECA Large-Scale Project.[307] Together, these pipelines have a total cross-border capacity of approximately 14.83 Bcf/d, which greatly exceeds ECA's requested volume of 0.44 Bcf/d.[308] For these reasons, DOE finds that it is not necessary to impose conditions related to pipelines in this Order.

4. 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 47.06 Bcf/d of natural gas with the issuance of this Order and Order No. 4929 being issued concurrently to Vista Pacifico). 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[.]"[309]

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

[305] *See id*. at 32.
[306] *See* App. at 20-22; U.S. Energy Info. Admin., *Today in Energy*, "FERC approves new natural gas pipeline projects to increase U.S. exports" (May 24, 2022), available at https://www.eia.gov/todayinenergy/detail.php?id=52478.
[307] *See* EA at 26 (Appendix B); *see also id*. at 7-8, 27 (Appendix C) (identifying natural gas pipeline border crossing locations in California, Arizona, and Texas).
[308] *See id*. at 26; *see also* App. at 21.
[309] 2018 Study Response to Comments, 83 Fed. Reg. at 67,258 (citing 2018 LNG Export Study at 55).

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 period in most cases."[310] 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
Net Exports to Mexico via Pipeline (Bcf/d)	3.4	6.9
Net 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.

[310] 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 long-term impact of the additional re-exports requested by ECA will not render those re-exports inconsistent with the public interest.[311]

5. Benefits of International Trade

We have also considered the international consequences of our decision. As discussed above, we review applications to export (or re-export) LNG to non-FTA nations under section 3(a) of the NGA. The foreign policy and trade impacts to the United States of such 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. By authorizing additional re-exports of U.S.-sourced LNG to non-FTA countries, including to U.S. allies, this Order will enable ECA to help mitigate energy security concerns once it begins re-exports.[312] More generally, to the extent U.S. exports diversify global LNG supplies and increase the volumes of LNG available globally, these re-exports will improve energy security for many U.S. allies and trading partners. We note that, like all authorizations for the export of natural gas, no re-export will be permitted to a country for which exports are otherwise restricted by U.S. law or policy, and such restrictions are enforceable against ECA by virtue of the fact that its majority owner, Sempra Energy, is a U.S. company subject to the jurisdiction of the United

[311] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,267-69 (DOE's response to comments on natural gas price impacts).

[312] We note that Europe has been the primary destination of U.S. LNG in recent months. In July 2022, for example, more than half of all United States LNG exports went to Europe. *See* U.S. Dep't of Energy, *LNG Monthly* (Sept. 2022), https://www.energy.gov/sites/default/files/2022-09/LNG%20Monthly%20July%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.

States.[313] Therefore, we find that authorizing ECA's requested increase in re-exports of U.S.-sourced LNG from Mexico 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.

C. Environmental Issues

In reviewing the potential environmental impacts of ECA's proposal to re-export additional volumes of U.S.-sourced LNG to non-FTA countries, DOE has considered both its obligations under NEPA and its obligation under NGA section 3(a) to ensure that the proposal is not inconsistent with the public interest.

1. Issuance of an Environmental Assessment

DOE prepared an EA for the requested amendment and is issuing a Finding of No Significant Impact (FONSI) as Appendix B to this Order. The FONSI adopts and incorporates by reference DOE's EA (DOE/EA-2193). It also incorporates by reference the Addendum, the 2014 LCA GHG Report, the 2019 LCA GHG Update, and the Marine Transport Technical Support Document. Based on this record, the FONSI determines that granting the non-FTA portion of ECA's Application will not have a significant effect on the human environment. The issuance of the EA and FONSI support a determination that no further environmental review of the Application is necessary.

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.[314] Nevertheless, a

[313] *See supra* § IV.A (Description of Applicant); *see infra* § XI (Ordering Paras. B & D).
[314] Addendum at 2.

decision by DOE to authorize re-exports of U.S.-sourced LNG from Mexico 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 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 re-exports to non-FTA nations requested by ECA should be prohibited. A denial of these re-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. In the future, U.S. pipeline operators may be subject to regulatory emission limits,[315] with those pipelines that do not meet regulatory limits subject to a waste emissions charge established in the Inflation Reduction Act of 2022.[316] However, DOE

[315] *See* Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, 86 Fed. Reg. 63,110 (Nov. 15, 2021).
[316] Inflation Reduction Act of 2022, Pub. L. No. 117-169, § 60113 (2022).

recognizes that these regulatory requirements will apply only to the U.S. production and transportation system, and not the Mexican pipeline or liquefaction facilities used to support re-export in this case. Additionally, some companies in the natural gas industry, including Sempra Energy (ECA's majority owner), have begun implementing measures to advance the quantification, monitoring, reporting and verification (or QMRV) of GHG emissions.[317]

For these reasons, we conclude that the environmental concerns associated with natural gas production from the lower-48 states do not establish that ECA's requested increase in re-exports of U.S.-sourced LNG to non-FTA countries is 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.[318] The Court's conclusions and reasoning guide our review in this proceeding.[319]

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

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.

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[317] *See*, *e.g.*, Sempra, "Sempra Infrastructure and RWE Sign Heads of Agreement for U.S. LNG Supply" (May 25, 2022), https://www.sempra.com/sempra-infrastructure-and-rwe-sign-heads-agreement-us-lng-supply. Sempra Energy is also a founding member of Veritas, a GTI Energy Differentiated Gas Measurement and Verification Initiative that is working to measure and verify companies' methane emissions reductions. *See* Veritas, "Accelerating actions to reduce methane leakage across natural gas systems," https://www.gti.energy/veritas-a-gti-methane-emissions-measurement-and-verification-initiative/ (last viewed Dec. 19, 2022).

[318] *Sierra Club I* at 198-199.

[319] *Id.*; *see supra* § II.C.

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.[320] 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.[321]

The conclusions of the 2019 Update are consistent with those of the 2014 LCA GHG Report.[322] 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 a per-unit of energy consumed basis for power production.[323] 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.[324]

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.[325] Recognizing that 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.-sourced LNG will compete. U.S. LNG exports (or re-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

[320] *See supra* § II.B.
[321] DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 85.
[322] *Id.*
[323] *Id.*
[324] *Id.*
[325] *Id.* at 81.

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.[326] 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.[327] Based on the evidence in this proceeding, DOE is unable to conclude that ECA's requested increase in re-exports of U.S.-sourced LNG will increase global GHG emissions in a material or predictable way.[328]

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 U.S. LNG to emissions of coal or other sources of natural gas.[329] The Court's decision in *Sierra Club I* guided DOE's development of the 2019 Update.

D. Other Considerations

The conclusion of the 2018 LNG Export Study is that the United States will experience net economic benefits from the export of domestically produced LNG 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

[326] *Id.*
[327] DOE Response to Comments on 2019 Update, 85 Fed. Reg. at 81.
[328] *See id.* at 86.
[329] *Sierra Club I*, 867 F.3d at 202 (finding that "Sierra Club's complaint 'falls under the category of flyspecking'") (citation omitted).

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 have nearly doubled from their historic lows in 2020 to 2021 and have periodically exceeded $7.00/MMBtu in 2022,[330] prices are projected to average below $4.00/MMBtu throughout the projection period in the AEO 2022 Reference Case in real dollars.[331] 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 current market trends showing that domestic supply is expected to continue exceeding domestic consumption for the foreseeable future and data indicating that the natural gas industry would increase natural gas supply in response to increasing export demand.[332] Further, we note continuing uncertainty that all or even most of the proposed LNG export projects will ever be realized because of the time, difficulty, and expense of commercializing, financing, and constructing LNG export terminals, as well as the uncertainties and competition inherent in the global market for LNG.[333]

More generally, DOE continues to subscribe to the principle set forth in our 1984 Policy Guidelines[334] 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

[330] 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)" (Dec. 7, 2022) (viewing annual history), https://www.eia.gov/dnav/ng/hist/rngwhhdA.htm. Certain same-month year-on-year differences in 2020 and 2021 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).
[331] *See* AEO 2022 at 17, 30.
[332] *See supra* § VIII.B.4 (Table 1).
[333] *See infra* § VIII.E (identifying long-term orders vacated to date).
[334] 1984 Policy Guidelines, 49 Fed. Reg. 6684.

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. Given these possibilities, DOE recognizes the need to monitor continuously whether this authorization remains in the public interest and to monitor market developments closely as the impact of successive authorizations of LNG exports (and re-exports) unfolds.[335]

E. 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 ECA's proposed increase in re-exports from Mexico for delivery to non-FTA countries will be inconsistent with the public interest.

With today's issuance of this Order (amending Order No. 4365) and Order No. 4929 to Vista Pacifico, and the vacatur of previous long-term non-FTA export authorizations,[336] there are currently 41 final non-FTA authorizations from the lower-48 states in a cumulative volume of exports totaling 47.06 Bcf/d of natural gas, or approximately 17.2 Tcf per year, as follows:[337] Sabine Pass Liquefaction, LLC (2.2 Bcf/d),[338] Cameron LNG, LLC (1.7 Bcf/d),[339] FLEX I (1.4

[335] *See supra* § VIII.B.2.

[336] 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); *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).

[337] 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 to Export Domestically Produced LNG, CNG, CGL from the Lower-48 States, at 12 (as of Dec. 16, 2022), https://www.energy.gov/fecm/articles/summary-lng-export-applications-lower-48-states (identifying small-scale applications and status).

[338] *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).

[339] *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).

Bcf/d),[340] FLEX II (0.4 Bcf/d),[341] Cove Point LNG, LP (0.77 Bcf/d),[342] Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (2.1 Bcf/d),[343] Sabine Pass Liquefaction, LLC Expansion Project (1.38 Bcf/d),[344] American LNG Marketing LLC (0.008 Bcf/d),[345] Bear Head LNG Corporation and Bear Head LNG (USA), LLC (0.81 Bcf/d),[346] Pieridae Energy (USA) Ltd.,[347] Sabine Pass Liquefaction, LLC Design Increase (0.56 Bcf/d),[348] Cameron LNG, LLC

[340] *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).

[341] *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).

[342] *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).

[343] *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).

[344] *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).

[345] *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).

[346] *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).

[347] *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 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).

[348] *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).

Design Increase (0.42 Bcf/d),[349] Cameron LNG, LLC Expansion Project (1.41 Bcf/d),[350] Lake Charles Exports, LLC (2.0 Bcf/d),[351] Lake Charles LNG Export Company, LLC,[352] Carib Energy (USA), LLC (0.004),[353] Magnolia LNG, LLC (1.23 Bcf/d),[354] Southern LNG Company, L.L.C. (0.36 Bcf/d),[355] the FLEX Design Increase (0.34 Bcf/d),[356] Golden Pass LNG Terminal LLC (2.57 Bcf/d),[357] Delfin LNG LLC (1.8 Bcf/d),[358] the Lake Charles LNG Export Company, LLC

[349] *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).
[350] *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).
[351] *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).
[352] *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).
[353] *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).
[354] *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), *reh'g denied,* Order No. 3909-A (Apr. 2, 2018), *amended by* Order No. 3909-B (Dec. 10, 2020) (extending export term), *further amended by* DOE/FECM Order No. 3909-C (Apr. 27, 2022) (increasing export volume).
[355] *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).
[356] *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).
[357] *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, Order Granting Request to Transfer Authorizations and Responding to Statement of Change in Control (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).
[358] *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).

Design Increase (0.33 Bcf/d),[359] the Lake Charles Exports, LLC Design Increase,[360] Eagle LNG Partners Jacksonville II LLC (0.01 Bcf/d),[361] Mexico Pacific Limited LLC (1.7 Bcf/d),[362] Venture Global Calcasieu Pass, LLC (1.7 Bcf/d),[363] ECA Liquefaction, S. de R.L. de C.V. (Mid-Scale Project) (0.44 Bcf/d),[364] Energía Costa Azul, S. de R.L. de C.V. (Large-Scale Project) (1.74 Bcf/d),[365] Port Arthur LNG, LLC (1.91 Bcf/d),[366] Driftwood LNG LLC (3.88 Bcf/d),[367] FLEX4 (0.72 Bcf/d),[368] Gulf LNG Liquefaction Company, LLC (1.53 Bcf/d),[369] Eagle LNG

[359] *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).
[360] *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).
[361] *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).
[362] *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).
[363] *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).
[364] *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.).
[365] *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), *amended by* DOE/FE 4365-A (Dec. 10, 2020), *further amended by* DOE/FECM Order No. 4365-B (Dec. 20, 2022) (increasing export volume).
[366] *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).
[367] *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).
[368] *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).
[369] *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).

Partners Jacksonville LLC (0.14 Bcf/d),[370] Venture Global Plaquemines LNG, LLC (3.40 Bcf/d),[371] Texas LNG Brownsville LLC (0.56 Bcf/d),[372] Corpus Christi Liquefaction Stage III, LLC (1.59 Bcf/d),[373] Rio Grande LNG, LLC (3.61 Bcf/d),[374] Epcilon LNG LLC (1.083 Bcf/d),[375] Cheniere Marketing, LLC and Corpus Christi Liquefaction, LLC (0.3 Bcf/d),[376] Sabine Pass Liquefaction, LLC (0.42 Bcf/d),[377] and Vista Pacifico LNG, S.A.P.I. de C.V. (Mid-Scale Project) (0.55 Bcf/d).[378]

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.[379] Additionally, the volumes authorized for export in the *Bear Head* and *Pieridae US*

[370] *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).
[371] *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).
[372] *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).
[373] *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).
[374] *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).
[375] *Epcilon 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).
[376] *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).
[377] *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).
[378] *Vista Pacifico LNG, S.A.P.I. de C.V.*, DOE/FECM Order No. 4929, Docket No. 20-153-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 Nations (Dec. 20, 2022).
[379] *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.

orders are not additive; together, they are limited to the capacity of the Maritimes Northeast Pipeline at the U.S.-Canadian border.[380]

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 inconsistent with the public interest.[381] DOE further notes that, to date, the cumulative total of U.S. and Mexico LNG export capacity, using U.S.-sourced natural gas, that is operating or under construction across 10 mid- or large-scale export projects is 20.53 Bcf/d of natural gas.[382]

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 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

[380] *See Bear Head LNG Corporation and Bear Head LNG (USA)*, DOE/FE Order No. 3770, at 178-79.
[381] *See* 2018 Study Response to Comments, 83 Fed. Reg. at 67,273 (citing 2018 LNG Export Study at 63 & Appendix F to the Study).
[382] *See supra* note 290.

grants of successive applications for exports of domestically produced LNG and to attach terms and conditions to LNG export authorizations to protect the public interest.

IX. FINDINGS

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

X. TERMS AND CONDITIONS

The Terms and Conditions imposed by DOE in Order No. 4365, as amended, remain in effect.[383] As necessitated by this Order, Term and Condition B, H, and I are amended below. ECA must abide by each Term and Condition or face appropriate sanction.

B. Transfer, Assignment, or Change in Control

DOE's natural gas regulations prohibit authorization holders from transferring or assigning authorizations to import or export natural gas without specific authorization by the Assistant Secretary for Fossil Energy and Carbon Management.[384] DOE has found that this requirement applies to any change in control of the authorization holder. This condition was deemed necessary to ensure that DOE will be given an adequate opportunity to assess the public interest impacts of such a transfer or change.

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

[383] For purposes of these Terms and Conditions, references to "re-exports of LNG" means the re-export of U.S.-sourced natural gas in the form of LNG from ECA's proposed ECA Large-Scale Project to non-FTA countries.
[384] 10 C.F.R. § 590.405.

stockholders, or voting trusts, holding trusts, or debt holdings, or contract, or any other direct or indirect means.[385] A rebuttable presumption that control exists will arise from the ownership or the power to vote, directly or indirectly, 10% or more of the voting securities of such entity.[386]

In this Order, DOE's evaluation of the public interest under NGA section 3(a) includes an evaluation of ECA's ownership, including that ECA's majority owner, Sempra Energy, is a U.S. company.[387] Should ECA's ownership change in the future, including a change such that its majority owner is no longer a U.S. company, DOE may evaluate that change in control under the public interest standard as set forth in DOE's Change in Control Procedures.[388]

H. Re-Export Quantity

This Order grants the requested amendment to Order No. 4365 (as most recently amended in Order No. 4365-A), such that ECA is authorized to re-export U.S.-sourced natural gas in the form of LNG to non-FTA countries in a total volume equivalent to 636 Bcf/yr of natural gas.

I. Combined FTA and Non-FTA Export Authorization Volumes

ECA is currently authorized in DOE/FE Order No. 4318, as most recently amended in Order No. 4318-B, to export domestically produced natural gas to Mexico and to re-export the natural gas in the form of LNG to FTA countries in a total volume of 727 Bcf/yr of natural gas.

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[385] *See* U.S. Dep't of Energy, Procedures for Changes in Control Affecting Applications and Authorizations to Import or Export Natural Gas, 79 Fed. Reg. 65,541, 65,542 (Nov. 5, 2014) [hereinafter Change in Control Procedures].
[386] *See id*.
[387] *See supra* § IV.A (Description of Applicant).
[388] *See* Change in Control Procedures, 79 Fed. Reg. at 65,542 (stating that, for final non-FTA authorizations, "[i]f one or more protests are submitted, DOE will review any motions to intervene, protests, and answers, and will issue a determination as to whether the proposed change in control has been demonstrated to render the underlying authorization inconsistent with the public interest.").

Because the source of LNG for that FTA order and this Order is the ECA Large-Scale Project, ECA may not treat the volumes as additive to one another.[389]

XI. ORDER

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

A. Energía Costa Azul, S. de R.L. de C.V. (ECA) is authorized to re-export U.S.-sourced natural gas in the form of LNG by vessel from the proposed ECA Large-Scale Project, to be located in Ensenada, Baja California, Mexico, in a volume equivalent to 636 Bcf/yr of natural gas. This authorization is for a term to commence on the date of first commercial re-export and to extend through December 31, 2050. ECA is authorized to re-export this LNG on its own behalf and as agent for other entities who hold title to the natural gas, pursuant to one or more contracts of any duration.[390]

B. ECA may re-export the U.S.-sourced natural gas in the form of LNG 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 in natural gas is not restricted by U.S. law or policy. Willful failure to comply with destination restrictions imposed by DOE will result in rescission of this authorization.

C. ECA must commence re-export operations using the planned liquefaction facilities no later than seven years from the date of issuance of Order No. 4365 (*i.e.,* by March 29, 2026).

D. ECA 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.

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[389] As noted above, the ECA Mid-Scale and Large-Scale Projects involve different facilities. This Order does not affect the authorizations issued for the Mid-Scale Project (DOE/FE Order Nos. 4317 and 4364, both as amended).
[390] These contracts may include the export of commissioning volumes prior to the start of facility operations on a non-additive basis. *See supra* note 10.

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

E. (i) ECA 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 re-export of U.S.-sourced natural gas in the form of LNG from the ECA Large-Scale Project on its own behalf or as agent for other entities. In particular, if ECA enters an agreement to sell LNG through an affiliated entity, all long-term contracts entered into by that affiliated entity shall also be subject to the requirements of this paragraph. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described in Order No. 4365.

(ii) ECA 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 ECA Large-Scale Project. The non-redacted copies must be filed within 30 days of their execution and may be filed under seal, as described in Order No. 4365.

F. ECA is permitted to use its authorization to re-export U.S.-sourced natural gas in the form of LNG as agent for other LNG title-holders (Registrants), after registering those entities with DOE.[391] Registration materials shall include an agreement by the Registrant to supply ECA with all information necessary to permit ECA to register that person or entity with DOE,

[391] DOE notes that the registration requirements established in this Order will apply only in circumstances where ECA re-exports U.S.-sourced LNG from Mexico on behalf of an entity that holds title to the LNG at the time that ECA re-exports it. If natural gas or LNG is exported or re-exported by a person or entity other than ECA pursuant to a different authorization issued by DOE, the terms of that authorization will govern the registration requirements that apply. Registration will not be required for purchases of natural gas produced in Mexico for consumption in Mexico (*i.e.*, where the purchase was not part of an arrangement to export the natural gas from the United States on behalf of the purchaser).

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. ECA, or others for whom ECA acts as agent, shall include the following provision in any agreement or other contract for the sale or transfer of U.S.-sourced natural gas re-exported in the form of LNG pursuant to this Order:

> Customer or purchaser acknowledges and agrees that it will resell or transfer U.S.-sourced natural gas, including in the form of LNG, purchased hereunder for delivery to countries identified in Ordering Paragraph B of DOE/FECM Order No. 4365-B, issued December 20, 2022, in Docket No. 18-145-LNG, and/or to purchasers that have agreed in writing to limit their direct or indirect resale or transfer of the natural gas or LNG to such countries. Customer or purchaser further commits to cause a report to be provided to Energía Costa Azul, S. de R.L. de C.V. that identifies the country (or countries) into which the natural gas or re-exported LNG was actually delivered, and to include in any resale contract for such LNG the necessary conditions to ensure that Energía Costa Azul, S. de R.L. de C.V. is made aware of all such actual destination countries.

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

I. ECA shall file with the Office of Regulation, Analysis, and Engagement, on a semi-annual basis, written reports describing the status of the proposed ECA Large-Scale Project. The reports shall be filed on or by April 1 and October 1 of each year, and shall include information on the status of the proposed ECA Large-Scale Project, including but not limited to the following: (i) the status of permits required under Mexican state and federal laws for the siting, construction, and operation of the ECA Large-Scale Project and for the exports of the LNG subject to this authorization; (ii) the date the ECA Large-Scale Project is expected to commence first re-exports of LNG, and (iii) the status of any associated long-term supply and re-export contracts.

J. With respect to any change in control of the authorization holder, ECA must comply with DOE's Procedures for Change in Control Affecting Applications and Authorizations to Import or Export Natural Gas.[392]

K. Monthly Reports: With respect to the re-export of U.S.-sourced natural gas as LNG authorized by this Order, ECA 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 re-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 re-export. In subsequent months, if re-exports have not occurred, a report of "no activity" for that month must be filed. If re-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.

[392] *See* Change in Control Procedures, 79 Fed. Reg. at 65,541-42.

(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.

M. The motion to intervene of Sierra Club and protest of Sierra Club and Centro Mexicano para la Defensa del Medio Ambiente, A.C. (DAN) is dismissed.

Issued in Washington, D.C., on December 20, 2022.

Amy R. Sweeney

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Date: 2022.12.20 14:14:52 -05'00'

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

APPENDIX A: LONG-TERM EXPORT AUTHORIZATIONS ISSUED TO ENERGÍA COSTA AZUL, S. DE R.L. DE C.V. (ECA)

Docket No. 18-145-LNG, ECA Large-Scale Project

Type of Order	Order No., With Amendments	Date Issued	Type of Amendment	Volume (Bcf/yr)
FTA	**4318**	Jan. 25, 2019	-	545
	4318-A	Dec. 20, 2020	Term extension through Dec. 31, 2050	-
	4318-B	June 11, 2021	Volume increase (+182 Bcf/yr)	**727**
Non-FTA	**4365**	March 29, 2019	-	475
	4365-A	Dec. 20, 2020	Term extension through Dec. 31, 2050	-
	4365-B	Dec. 20, 2022	Volume increase (+161 Bcf/yr)	**636**

Notes:

The FTA and non-FTA volumes are not additive.

The smaller non-FTA volume represents a subset of the FTA volume—specifically, the portion of U.S.-sourced natural gas that will be liquefied at the ECA Large-Scale Project and re-exported in the form of LNG to non-FTA countries.

APPENDIX B: FINDING OF NO SIGNIFICANT IMPACT

FINDING OF NO SIGNIFICANT IMPACT FOR THE APPLICATION OF ENERGÍA COSTA AZUL, S. DE R.L. DE C.V. TO AMEND 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

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

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: Under DOE/FE Order No. 4365,[393] as amended, Energía Costa Azul, S. de R.L. de C.V. (ECA) is currently authorized to re-export[394] U.S.-sourced natural gas in the form of liquefied natural gas (LNG) in a volume equivalent to 475 billion cubic feet per year (Bcf/yr) from the proposed ECA Large-Scale Project to be located north of Ensenada, Baja California, Mexico.[395] ECA is authorized to re-export this U.S.-sourced LNG by vessel 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) under section 3(a) of the NGA.[396]

In an application filed on September 18, 2020 (Application),[397] ECA states that the full design of the ECA Large-Scale Project will be capable of producing an additional 3.3 million metric tons per annum (mtpa) of LNG, for a total productive capacity of 12.4 mtpa. Accordingly, in the non-FTA portion of the Application at issue, ECA asks DOE to amend Order No. 4365 to increase its approved volume of re-exports from 475 Bcf/yr to 636 Bcf/yr—an additional 161 Bcf/yr of re-exports (0.44 Bcf per day).[398]

[393] *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), *amended by* DOE/FE Order No. 4365-A (Dec. 10, 2020) (extending export term).

[394] For purposes of ECA's orders, "re-export" means to ship or transmit U.S.-sourced natural gas in its various forms (gas, compressed, or liquefied) subject to DOE's jurisdiction under the Natural Gas Act (NGA), 15 U.S.C. § 717b, from one foreign country (*i.e.*, a country other than the United States) to another foreign country.

[395] In DOE/FE Order No. 4318, as relevant here, ECA is authorized to export U.S.-sourced natural gas by pipeline to the proposed ECA Large-Scale Project for liquefaction. *See Energía Costa Azul, S. de R.L. de C.V.,* DOE/FE Order No. 4318, Docket No. 18-145-LNG, Order Granting Long-Term, Multi-Contract Authorization to Export Natural Gas to Mexico and to Other Free Trade Agreement Nations (ECA Large-Scale Project) (Jan. 25, 2019), *amended by* DOE/FE Order No. 4318-A (Dec. 10, 2020) (extending export term), *further amended by* DOE/FE Order No. 4318-B (June 11, 2021) (increasing export volume).

[396] 15 U.S.C. § 717b(a).

[397] Energía Costa Azul, S. de R.L. de C.V., Application to Amend Long-Term, Multi-Contract Authorizations to Export Natural Gas to Mexico and to Export Liquefied Natural Gas from Mexico to Free Trade Agreement and Non-Free Trade Agreement Nations (ECA Large-Scale Project), Docket No. 18-145-LNG (Sept. 18, 2020) [hereinafter App.].

[398] *See id*. at 4, 7-8, 13.

On July 12, 2022, DOE issued a Notice of Environmental Assessment, in which DOE announced its intention to prepare an environmental assessment (EA) under the National Environmental Policy Act of 1969 (NEPA)[399] to evaluate the potential environmental impacts associated with ECA's Application—specifically, ECA's requested increase of re-exports under Order No. 4365 achievable due to its additional design and operations analysis.[400] On October 28, 2022, pursuant to the regulations of the Council on Environmental Quality (CEQ), DOE issued the final EA (EA) (DOE/EA-2193).[401]

SUPPLEMENTARY INFORMATION: Previously, on August 15, 2014, DOE published the *Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States* (Addendum).[402] 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 (or re-exports) to non-FTA countries.[403]

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).[404] 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*

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[399] 42 U.S.C. § 4321 *et seq.*

[400] *See Energía Costa Azul, S. de R.L. de C.V.*, Notice of Environmental Assessment, Docket No. 18-145-LNG (July 12, 2022), at 5 [hereinafter Notice of EA]. ECA subsequently filed a response to the Notice of EA. *See* Energía Costa Azul, S. de R.L. de C.V., Response to Notice of Environmental Assessment, Docket No. 18-145-LNG (Aug. 2, 2022).

[401] U.S. Dep't of Energy, Energía Costa Azul, S. de R.L. de C.V. Environmental Assessment – ECA Large-Scale Project: Design Increase, DOE/EA-2193 (Oct. 28, 2022), https://www.energy.gov/sites/default/files/2022-10/FINAL%20Environmental%20Assessment%20-%20Energ%C3%ADa%20Costa%20Azul%2010-28-22.pdf [hereinafter EA]; *see also id*. at 28 (Appendix D) (summarizing DOE's process in providing a draft of the EA to affected states and tribes).

[402] 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).

[403] *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).

[404] 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).[405] 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."[406] 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."[407]

Additionally, as part of a NEPA rulemaking finalized on December 4, 2020,[408] DOE conducted a detailed review of technical documents regarding potential effects associated with marine transport of LNG.[409] These documents were identified in an accompanying Marine Transport Technical Support Document (Technical Support Document).[410] 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."[411]

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 U.S.-sourced 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 ECA's requested amendment to its non-FTA authorization (Order No. 4365, as amended) is based on a public interest review of the proposed increase in re-exports, which includes completing the environmental review required by NEPA.

Discussion and analysis related to the potential impacts of a grant of ECA's Application are contained within the EA (DOE/EA-2193), which is incorporated herein by reference. DOE's analysis in the EA was limited to ECA's proposed improvements in its design and operations analysis, since the additional volume of re-exports requested (161 Bcf/yr) does not require construction of new facilities.[412]

Additionally, the EA determined that the environmental impacts subject to analysis are limited to those direct and indirect impacts that would occur in the United States and those that affect the

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[405] 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.
[406] 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).
[407] *Id.*
[408] *See* U.S. Dep't of Energy, National Environmental Policy Act Implementing Procedures, Final Rule; 85 Fed. Reg. 78,197 (Dec. 4, 2020).
[409] *Id.* at 78,199.
[410] *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)).
[411] *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.
[412] *See* EA at 2-3.

global commons. Therefore, DOE did not analyze potential environmental impacts associated with elements of the proposed Project that would occur within the sovereign territory of Mexico or any other country.[413]

In the EA, DOE evaluated potential environmental impacts of the requested amendment in the following areas: incremental U.S. natural gas production, incremental cross-border pipeline transportation of U.S.-sourced natural gas to Mexico, marine transportation of LNG, and GHG emissions and climate change.[414] The EA incorporated by reference the Addendum, the 2014 LCA GHG Report and 2019 Update, the Marine Transport Technical Support Document, and documents in the Federal Energy Regulatory Commission (FERC) dockets for the regulatory review of the identified cross-border natural gas pipelines.

Based on the analysis in these areas, the EA concluded that the Proposed Action (increasing ECA's re-exports by an additional 161 Bcf/yr of U.S.-sourced natural gas) would not pose the potential for significant environmental impacts, and that a No Action Alternative would not have a currently identifiable environmental advantage over the Proposed Action.

DETERMINATION: On the basis of the EA (DOE/EA-2193)—including but not limited to the Addendum, the 2014 LCA GHG Report and 2019 Update, and the Technical Support Document referenced therein—DOE has determined that granting the non-FTA portion of ECA's Application to increase ECA's approved non-FTA re-export volume in this Order (DOE/FECM Order No. 4365-B) will not have a significant effect on the human environment. The preparation of an environmental impact statement, therefore, is not required, and DOE is issuing this Finding of No Significant Impact.

The EA and this FONSI are available at DOE's website at https://www.energy.gov/fecm/articles/energia-costa-azul-s-de-rl-de-cv-dkt-no-18-145-lng-eca-large-scale-project. The EA and FONSI are also available at https://www.energy.gov/nepa/nepa-documents.

[413] *See id*. at 4. Although outside the scope of the EA, DOE summarized Mexico's environmental review process for the public's information. *See id*. at 4-6.
[414] *See id*. at 6-20.