
**Office of Energy Projects**

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**Freeport LNG Development, L.P.**
**FLNG Liquefaction, LLC**
**FLNG Liquefaction 2, LLC**
**FLNG Liquefaction 3, LLC**

**Docket No. CP21-470-000**

# Freeport LNG Capacity Amendment Project

# Environmental Assessment

**Cooperating Agencies:**
Department of Energy - Office of Fossil Energy and Carbon Management
Department of Transportation - Pipeline and Hazardous Materials Safety Administration

**Washington, DC 20426**

**ENVIRONMENTAL ASSESSMENT - FREEPORT LNG CAPACITY AMENDMENT PROJECT**

**TABLE OF CONTENTS**

## TECHNICAL ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AQCRs | Air quality control regions |
| bcf | Billion cubic feet |
| bcf/y | Billion cubic feet per year |
| CAA | Clean Air Act |
| CFR | Code of Federal Regulations |
| $CH_4$ | Methane |
| CEQ | Council on Environmental Quality |
| $CO_2$ | Carbon dioxide |
| DOE/FE | Department of Energy - Office of Fossil Energy and Carbon Management |
| EA | Environmental Assessment |
| EPA | Environmental Protection Agency |
| FERC or Commission | Federal Energy Regulatory Commission |
| GHG | Greenhouse gas |
| HG-AQCR | Metropolitan Houston-Galveston Intrastate AQCR |
| HGB | Houston-Galveston-Brazoria |
| HMB | Heat and material balances |
| IWG | Interagency Working Group on the Social Cost of Greenhouse Gases |
| LNG | Liquefied natural gas |
| LOD | Letter of Determination |
| $N_2O$ | Nitrous oxide |
| NEPA | National Environmental Policy Act |
| PHMSA | Pipeline and Hazardous Materials Safety Administration |
| NGA | Natural Gas Act |
| SCC | Social Cost of Carbon |
| TCEQ | Texas Council on Environmental Quality |
| USCG | U.S. Coast Guard |
| USGCRP | U.S. Global Change Research Program |
| °F | Degrees Fahrenheit |

**Freeport LNG Capacity Amendment Project**
**Docket No. CP21-470-000**

# ENVIRONMENTAL ASSESSMENT

## A. PROPOSED ACTION

The staff of the Federal Energy Regulatory Commission (Commission or FERC) prepared this environmental assessment (EA) to assess the environmental impacts of the Capacity Amendment Project (Project) proposed by Freeport LNG Development, L.P., FLNG Liquefaction, LLC, FLNG Liquefaction 2, LLC, and FLNG Liquefaction 3, LLC (together referred to as Freeport LNG) in Docket No. CP21-470-000. On June 29, 2021, Freeport LNG filed an application requesting authorization pursuant to Section 3(a) of the Natural Gas Act (NGA) to increase the liquefied natural gas (LNG) production capacity of its existing LNG terminal near the city of Freeport, in Brazoria County, Texas (Freeport LNG Terminal). Specifically, Freeport LNG seeks Commission approval for an increase in the authorized maximum LNG production capacity of Trains 1 through 3 at the Freeport LNG Terminal from 782 billion cubic feet per year (bcf/y) to approximately 870 bcf/y. Freeport LNG's proposal would amend the authorization granted by the Commission in Docket No. CP12-509-000,[1] as previously amended in Docket Nos. CP15-518-000[2] and CP20-532-000.[3]

Freeport LNG has determined that under the upper limit normal operating conditions, 870 bcf/y reflects the maximum quantity of LNG that could be produced in a particular year on the basis of operating at an annualized rate of 2.38 bcf per day at the design condition previously approved by the Commission.[4] The amendment application seeks to align the Freeport LNG Terminal's FERC authorizations with this maximum design LNG production capability. Freeport LNG has stated that no additional construction or modification of previously authorized facilities is required to implement this increase.

The FERC's *Notice of Application* for Docket No. CP21-470-000 was issued on July 14, 2021. The notice identified ways for the public to provide comments on the Project and established a deadline for submitting a motion to intervene in the proceeding. FERC received a protest from the Sierra Club requesting that the FERC prepare an environmental review, analyze upstream and downstream environmental impacts, prepare a Clean Air Act General Conformity determination, and analyze the increases in

[1] Freeport LNG Development, L.P. et al., 148 FERC ¶ 61,076 (2014).
[2] Freeport LNG Development, L.P. et al., 156 FERC ¶ 61,019 (2016).
[3] Freeport LNG Development, L.P. et al., 174 FERC ¶ 61,108 (2021).
[4] Freeport LNG Development, L.P. et al., 156 FERC ¶ 61,019 (2016) and Freeport LNG Development, L.P. et al., 174 FERC ¶ 61,108 (2021).

emissions. These comments are addressed below in the Air Quality and Climate Change sections.

Under Section 3 of the NGA, the FERC considers as part of its decision to authorize natural gas facilities, all factors bearing on the public interest. Specifically, regarding whether to authorize natural gas facilities used for importation or exportation, the FERC shall authorize the proposal unless it finds that the proposed facilities will not be consistent with the public interest.

The Department of Transportation - Pipeline and Hazardous Materials Safety Administration (PHMSA), and the Department of Energy - Office of Fossil Energy and Carbon Management (DOE/FE) were cooperating agencies in the preparation of this EA.

**Department of Energy Review**

Under Section 3 of the NGA, the DOE/FE is responsible for authorizing imports and exports of natural gas, including LNG, from or to a foreign country. By law, under Section 3(c) of the NGA, applications to export natural gas to countries with which the United States has free trade agreements (FTA) requiring national treatment for trade in natural gas are deemed to be consistent with the public interest and the Secretary of the DOE/FE must grant authorization without modification or delay. In the case of applications to export LNG to non-FTA nations, NGA Section 3(a) requires DOE/FE to conduct a public interest review and grant authority to export unless DOE/FE finds that the proposed exports would not be consistent with the public interest. Additionally, the National Environmental Policy Act (NEPA) requires DOE/FE to consider the environmental effects of its decisions regarding applications to export natural gas to non-FTA nations.

On September 10, 2021, Freeport LNG Expansion, L.P., FLNG Liquefaction, LLC, FLNG Liquefaction 2, LLC, and FLNG Liquefaction 3, LLC filed an application (Docket No. 21-98-LNG) with the DOE/FE to align its export authorizations to the liquefaction capacity requested in the FERC application for the Project.

The application is currently under the DOE/FE's review. The DOE/FE has indicated that it would consider the following environmental documents and studies examining the cumulative impacts of exporting domestically produced LNG:

- Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports, conducted by NERA Economic Consulting on behalf of DOE (2018 LNG Export Study);
- *Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States*, 79 FR 48132 (Aug. 15, 2014);

- *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States*, 79 FR 32260 (June 4, 2014); and
- *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update*, 84 FR 49278 (Sep. 19, 2019), and DOE's response to comments on that study.

## B. ENVIRONMENTAL ANALYSIS

We[5] prepared this EA in compliance with the requirements of NEPA, the Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40 of the Code of Federal Regulations [CFR] Parts 1500–1508 (2020) [40 CFR Parts 1055–1508])[6] and the Commission's implementing regulations under 18 CFR Part 380. The EA is an integral part of the Commission's decision-making process on whether to authorize Freeport LNG's proposal. We prepared this EA to assess the environmental impacts that would likely occur as a result of the Project.

The proposed Project does not entail the construction of new facilities or the modification of the facilities authorized by the Commission at the Freeport LNG Terminal under Docket Nos. CP12-509-000, CP12-29-000, and CP17-470-000. Additional feed gas may be supplied to the Freeport LNG Terminal to achieve its maximum LNG production level while remaining within previously permitted levels for air emissions and other regulatory requirements. In addition, the Project would not require additional LNG vessel transits beyond those already considered in the Commission's previous NEPA analyses and reviewed by the U.S. Coast Guard (USCG), and the proposed Project would not have any additional environmental impacts beyond those discussed in the June 2014 Final Environmental Impact Statement (FEIS) for the Freeport LNG Liquefaction Project and Phase II Modification Project in Docket Nos. CP12-509-000 and CP12-29-000, respectively, and the March 2016 EA for the Liquefaction Capacity Increase in Docket No. CP15-518-000.

Our analysis indicates that because Freeport LNG's Capacity Amendment Project is limited to aligning the FERC authorization with maximum design LNG production capability and does not require the construction of new facilities or modification of previously authorized facilities, it would not affect the following resources and they will not be discussed further:

[5] The pronouns "we," "us," and "our" refer to environmental and engineering staff of the FERC's Office of Energy Projects.

[6] On July 16, 2020, CEQ issued a final rule; Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act (Final Rule, 85 Fed. Reg. 43,304), which was effective as of September 14, 2020. On April 20, 2022, the CEQ issued a final rule; National Environmental Policy Act Implementing Regulations Revisions (Final Rule, 87 FR 23453) that will be effective on May 20, 2022. This EA was prepared in accordance with the 2022 final rule.

- ground water, springs, or aquifers;
- wetlands or waterbodies;
- surface water, water intakes, or sources water protection areas;
- cultural resources;
- forested lands and vegetation;
- residential or commercial areas;
- fish or wildlife including federally threatened and/or endangered species;
- geologic resources and soils;
- noise; and
- state or national parks, forests, recreation areas, or refuge areas.

**Air Quality**

On April 11, 2022, Freeport LNG stated in a data response that the changes described as the basis for increased production capacity would not increase the levels of any criteria pollutants, volatile organic compounds, or hazardous air pollutants above what was authorized by the terminal's air permit issued by the Texas Commission on Environmental Quality. Therefore, no air permit amendment or alteration would be required to authorize the production capacity increase. In addition, with the exception of carbon dioxide ($CO_2$), emissions would not increase over the levels identified in the June 2014 FEIS for the Freeport LNG Liquefaction Project. The effect of the proposed changes in the Project would be to increase equipment efficiency consistent with the maximum combined daily LNG production capacity of the three liquefaction trains previously authorized as part of the Liquefaction Project.

We received a comment from the Sierra Club requesting that we review the Project to determine if a Clean Air Act (CAA) General Conformity Determination is required. A General Conformity Analysis is required when a federal action would generate emissions exceeding conformity threshold levels of pollutants for which an Air Quality Control Region (AQCR) or portion thereof is designated as nonattainment. According to Section 176(c)(1) of the CAA (40 CFR Section 93.153), a federal agency cannot approve or support an activity that does not conform to an approved State Implementation Plan. General Conformity is not applicable to activities at locations in attainment areas or operating emissions covered by an air-quality permit.

The Project is located in Brazoria County, which is in the Metropolitan Houston-Galveston Intrastate AQCR (HG-AQCR).[7] The U.S. Environmental Protection Agency (EPA) has designated the HG-AQCR, Houston-Galveston-Brazoria (HGB) area, as a marginal nonattainment area for the 2015 8-hour Ozone standard. Freeport LNG has

[7] The HG-AQCR is comprised of Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Walker, Waller, and Wharton Counties

indicated that there would be no construction emissions, and that no addition LNG ship transits would be required (i.e. no addition ship calls per year). Additionally, only a minor increase in $CO_2$ emissions would occur. Therefore, we conclude that a General Conformity Determination is not required. Furthermore, with no additional emissions, we conclude that emissions of criteria pollutants, volatile organic compounds, and hazardous air pollutants would not be significant.

Greenhouse Gases (GHG) produced by fossil-fuel use and combustion are $CO_2$, methane ($CH_4$), and nitrous oxide ($N_2O$). GHGs status as a pollutant is not related to toxicity. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHGs under the Clean Air Act. Freeport LNG has stated that certain GHG emissions would increase as a result of increase pass-through GHG emissions in the acid gas removal units . Freeport LNG estimated that $CO_2$ emissions would increase by 31,185 metric tons per year. GHGs and climate change are discussed further below.

**Climate Change**

Climate change is the variation in the Earth's climate (including temperature, precipitation, humidity, wind, and other meteorological variables) over time. Climate change is driven by accumulation of GHGs in the atmosphere due to the increased consumption of fossil fuels (e.g., coal, petroleum, and natural gas) since the early beginnings of the industrial age and accelerating through the present time.[8] The GHGs produced by fossil-fuel use and combustion are $CO_2$, $CH_4$, and $N_2O$.

In 2017 and 2018, the U.S. Global Change Research Program[9] (USGCRP) issued its Climate Science Special Report: Fourth National Climate Assessment, Volumes I and II.[10] This report and the recently released report by the Intergovernmental Panel on Climate Change entitled *Climate Change 2021: The Physical Science Basis*, state that climate change has resulted in a wide range of impacts across every region of the country and the globe. Those impacts extend beyond atmospheric climate change alone and

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[8] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, UNITED NATIONS, *Summary for Policymakers* of CLIMATE CHANGE 2021: THE PHYSICAL SCIENCE BASIS (Valerie Masson-Delmotte et al. eds.) (2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf (IPCC Report) at SPM-5. Other forces contribute to climate change, such as agriculture, forest clearing, and other anthropogenically driven sources.

[9] The U.S. Global Change Research Program is the leading U.S. scientific body on climate change. It comprises representatives from 13 federal departments and agencies and issues reports every 4 years that describe the state of the science relating to climate change and the effects of climate change on different regions of the United States and on various societal and environmental sectors, such as water resources, agriculture, energy use, and human health.

[10] U.S. Global Change Research Program. *Climate Science Special Report: Fourth National Climate Assessment, Volume 1, Chapter 3 Detection and Attribution of Climate Change* (2017), available at: https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf (accessed May, 2021).

include changes to water resources, agriculture, ecosystems, human health, and ocean systems.[11] According to the Fourth Assessment Report, the United States and the world are warming; global sea level is rising and oceans are acidifying; and certain weather events are becoming more frequent and more severe.[12] These impacts have accelerated throughout the end of the 20th and into the 21st century.[13]

GHG emissions do not result in proportional local and immediate impacts; it is the combined concentration in the atmosphere that affects the global climate system. These are fundamentally global impacts that feed back to local and regional climate change impacts. Thus, the geographic scope for analysis of GHG emissions is global, rather than local or regional. For example, a project 1 mile away emitting 1 ton of GHGs would contribute to climate change in a similar manner as a project 2,000 miles distant also emitting 1 ton of GHGs.

Climate change is a global concern; however, for this analysis, we focus on the existing and potential climate change impacts in the general Project area. The USGCRP's Fourth Assessment Report notes the following observations of environmental impacts are attributed to climate change in the Southern Great Plains and Gulf Coast region: [14]

- the region has experienced an increase in annual average temperature of 1-2 °F since the early 20th century, with the greatest warming during the winter months;
- over the past 50 years, significant flooding and rainfall events followed drought in approximately one-third of the drought-affected periods in the region when compared against the early part of the 20th century;
- the number of strong (Category 4 and 5) hurricanes has increased since the early 1980s; and
- global sea level rise over the past century averaged approximately eight inches; along the Texas coastline, sea levels have risen 5-17 inches over the past 100 years depending on local topography and subsidence.

The USGCRP's Fourth Assessment Report[15] notes the following projections of climate change impacts in the Southern Great Plains region with a high or very high level of confidence (USGCRP, 2018):[16]

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[11] IPCC Report at SPM-5 to SPM-10.

[12] USGCRP Report Volume II at 73-75.

[13] *See, e.g.*, USGCRP Report Volume II at 99 (describing accelerating flooding rates in Atlantic and Gulf Coast cities).

[14] USGCRP Report Volume I and II

[15] USGCRP Report Volume II.

[16] The report authors assessed current scientific understanding of climate change based on available scientific literature. Each "Key Finding" listed in the report is accompanied by a confidence statement

- annual average temperatures in the Southern Great Plains are projected to increase by 3.6–5.1 degrees Fahrenheit (°F) by the mid-21st century and by 4.4-8.4 °F by the late 21st century, compared to the average for 1976-2005;
- the region is projected to experience an additional 30 to 60 days per year above 100 °F than it does currently;
- Texas is projected to see longer dry spells, although the number of days with heavy precipitation is expected to increase by mid-century; longer periods of time between rainfall events may lead to declines in recharge of groundwater, which would likely lead to saltwater intrusion into shallow aquifers and decreased water availability; and
- sea level rise along the western Gulf of Mexico during the remainder of the 21st century is likely to be greater than the projected global average of 1-4 feet or more, which would result in the loss of a large portion of remaining coastal wetlands.

It should be noted that while the impacts described above taken individually may be manageable for certain communities, the impacts of compound events (such as simultaneous heat and drought, or flooding associated with high precipitation on top of saturated soils) can be greater than the sum of the parts. [17]

GHG emissions associated with operation of the Project were identified and quantified above. There would be no construction emissions and only about 31,185 metric tons per year increase of $CO_2$ emissions due to increased pass-through GHG emissions in the acid gas removal units. We received comments from the Sierra Club requesting the Commission to include the impacts of upstream and downstream emissions when reviewing the Project. The courts have explained that because the authority to authorize LNG exports rests with DOE, NEPA does not require the Commission to consider the upstream or downstream GHG emissions that may be indirect effects of the export itself when determining whether the related LNG export facility satisfies section 3 of the NGA.[18] Nevertheless, NEPA requires that the Commission consider the direct GHG emissions associated with a proposed LNG export facility.[19]

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indicating the consistency of evidence or the consistency of model projections. A high level of confidence results from "moderate evidence (several sources, some consistency, methods vary and/or documentation limited, etc.), medium consensus." A very high level of confidence results from "strong evidence (established theory, multiple sources, consistent results, well documented and accepted methods, etc.), high consensus." https://science2017.globalchange.gov/chapter/front-matter-guide/.

[17] USGCRP Report Volume II.

[18] See Freeport, 827 F.3d at 46-47; see also Sierra Club v. FERC, 867 F.3d 1357, 1373 (D.C. Cir. 2017) (Sabal Trail)(discussing Freeport)

[19] See Freeport, 827 F.3d at 41, 46.

Operation of the Project would increase the atmospheric concentration of GHGs in combination with past, current, and future emissions from all other sources globally and contribute incrementally to future climate change impacts. To assess impacts on climate change associated with the Project, Commission staff considered whether it could identify discrete physical impacts resulting from the Project's GHG emissions or compare the Project's GHG emissions to established targets designed to combat climate change.

To date, Commission staff have not identified a methodology to attribute discrete, quantifiable, physical effects on the environment resulting from the Project's incremental contribution to GHGs. Without the ability to determine discrete resource impacts, Commission staff are unable to assess the Project's contribution to climate change through any objective analysis of physical impact attributable to the Project.

Additionally, Commission staff have not been able to find an established threshold for determining the Project's significance when compared to established GHG reduction targets at the state or federal level. Ultimately, this EA is not characterizing the Project's GHG emissions as significant or insignificant because the Commission is conducting a generic proceeding to determine whether and how the Commission will conduct significance determinations going forward.[20] However, as we have done in prior NEPA analyses, we disclose the Project's GHG emissions in comparison to national and state GHG emission inventories. [21]

In order to provide context of the Project emissions on a national level, we compare the Project's operational GHG emissions to the total GHG emissions of the United States as a whole. At a national level, 5,222.4 million metric tons of $CO_2e$ were emitted in 2020 (inclusive of $CO_2e$ sources and sinks).[22] The Project's operational emissions (e.g. 31,185 metric tons $CO_2$ per year) could potentially increase GHG emissions by 0.0006 percent based on the national 2020 Inventory.

In order to provide context of the Project emissions on a state level, we compare the Project's GHG emissions to the state GHG inventories.[23] At the state level, energy related $CO_2$ emissions in Texas were 683.2 million metric tons in 2019. GHG emissions in Texas would result from direct operational emissions. The Project operations could potentially increase state emissions by 0.005 percent.

[20] Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews, 178 FERC ¶ 61,108 (2022); 178 FERC ¶ 61,197 (2022).
[21] Our NEPA analyses also typically compare project GHG emissions to state GHG emission targets or reduction goals; however, Texas does not have any statutory or executive GHG targets.
[22] U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 199o-2020 at ES-9 (Table ES-2) (2022), (accessed April 2022)
[23] U.S. Energy Information Administration, Table 1, State Energy-Related Carbon Dioxide Emissions by Year, Unadjusted. (April 13, 2022)

We include a disclosure of the social cost of GHGs (also referred to as the "social cost of carbon" [SCC]) to assess climate impacts generated by each additional metric ton of GHGs emitted or saved by the Project. We note there is pending litigation challenging federal agencies' use of the Interagency Working Group (IWG) on Social Cost of Greenhouse Gases' interim values for calculating the social cost of GHGs.[24] In addition, the CEQ noted that it is working with representatives on the GHG IWG to develop additional guidance regarding the application of the SCC tool in federal decision-making processes, including in NEPA analyses.[25] The Commission has not determined which, if any, modifications are needed to render the SCC tool useful for project-level analyses.[26]

As both EPA and CEQ participate in the IWG, Commission staff used the methods and values contained in the IWG's current draft guidance but note that different values will result from the use of other methods.[27] Due to the pass through emissions being only $CO_2$, Commission staff calculated only the social cost of carbon dioxide. For the analysis, staff assumed discount rates of 5 percent, 3 percent, and 2.5 percent,[28] assumed the Project will begin service in 2022 and that the Project's emissions will be at a constant rate throughout a 20-year period. Noting these assumptions, the emissions from operation of this Project is calculated to result in a total social cost of GHGs equal to $7.9 million, $29.8 million, and $45.1 million, respectively (all in 2020 dollars).[29] Using the 95th percentile of the social cost of GHGs using the 3 percent discount rate,[30] the total

[24] Missouri v. Biden, 8th Cir. No. 21-3013; Louisiana v. Biden, No. 21-cv-1074-JDC-KK (W.D. La). On February 11, 2022, the U.S. District Court for the Western District of Louisiana issued a preliminary injunction limiting federal agencies' employment of estimates of the social costs of GHGs and use of the IWG's interim estimates. On March 16, 2022, the U.S. Court of Appeals for the Fifth Circuit issued a stay of the district court's preliminary injunction, finding among other things that the federal agency defendants' continued use of the interim estimates was lawful. Louisiana v. Biden, No. 22-30087 (5th Cir. Mar. 16, 2022).

[25] Council on Environmental Quality's May 27, 2021 Comments filed in Docket No. PL18-1-000, at 2.

[26] See Order Issuing Certificates and Approving Abandonment, 178 FERC ¶ 61,199 (2022) at fn 141.

[27] *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990*, Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, February 2021 (IWG Interim Estimates Technical Support Document).

[28] IWG Interim Estimates Technical Support Document at 24. To quantify the potential damages associated with estimated emissions, the IWG methodology applies consumption discount rates to estimated emissions costs. The IWG's discount rates are a function of the rate of economic growth where higher growth scenarios lead to higher discount rates. For example, IWG's method includes the 2.5 percent discount rate to address the concern that interest rates are highly uncertain over time; the 3 percent value to be consistent with OMB circular A-4 (2003) and the real rate of return on 10-year Treasury Securities from the prior 30 years (1973 through 2002); and the 5 percent discount rate to represent the possibility that climate-related damages may be positively correlated with market returns. Thus, higher discount rates further discount future impacts based on estimated economic growth. Values based on lower discount rates are consistent with studies of discounting approaches relevant for intergenerational analysis. Id. at 18-19, 23-24.

[29] The IWG draft guidance identifies costs in 2020 dollars. Id. at 5 (Table ES-1).

[30] This value represents "higher-than-expected economic impacts from climate change further out in the tails of the [social cost of CO2] distribution." Id. at 11. In other words, it represents a higher impact

social cost of GHGs from the Project is calculated to be $90.5 million (in 2020 dollars).

**Environmental Justice**

We did not perform data analysis to identify environmental justice communities because environmental justice concerns are not present for any resource area (including geology, groundwater, wetlands, surface water, wildlife, land use, cultural resources, visual resources, tourism, socioeconomics, traffic, noise, and air quality) as the Project involves no construction, no increase in noise, and no increase in operational air emissions for any criteria pollutants, volatile organic compounds, or hazardous air pollutants. Therefore, impacts on environmental justice communities related to these resources will not be discussed further. However, impacts on environmental justice communities associated with increases in GHGs may occur and would be cumulative and global in nature as indicated in the Climate Change section. Operation of the Project would increase the atmospheric concentration of GHGs, in combination with past and future emissions from all other sources, and would contribute incrementally to future climate change impacts. While single climate impacts can be manageable for certain communities, the impacts of compounded extreme events (such as simultaneous heat and drought, or flooding associated with high precipitation on top of saturated soils) may exacerbate preexisting environmental justice community vulnerabilities and contribute to a cumulative adverse impact on environmental justice communities[31] (e.g., minority or low-income populations[32]).

This EA is not characterizing the Project's GHG emissions as significant or insignificant because the Commission is conducting a generic proceeding to determine whether and how the Commission will conduct significance determinations going forward.[33]

scenario with a lower probability of occurring.

[31] Exec. Order No. 14,008, 86 Fed. Reg. 7619 (Feb. 1, 2021). The term "environmental justice community" includes disadvantaged communities that have been historically marginalized and overburdened by pollution. Id. § 219, 86 Fed. Reg. 7619, 7629. The term also includes, but may not be limited to, minority populations, low-income populations, or indigenous peoples. *See* EPA, EJ 2020 Glossary (Aug. 2, 2019), https://www.epa.gov/environmentaljustice/ej-2020-glossary.

[32] *See generally* Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 16, 1994). Minority populations are those groups that include: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. CEQ's *Environmental Justice Guidance* at 25.

[33] Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews, 178 FERC ¶ 61,108 (2022); 178 FERC ¶ 61,197 (2022).

## Cumulative Impacts

As defined by the CEQ, a cumulative effect is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. The CEQ guidance states that an adequate cumulative effects analysis may be conducted by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions. Consistent with CEQ guidance, the scope of the cumulative impact analysis is related to the magnitude of the environmental impacts of the proposed action. As the Project involves no new construction or modification of facilities, the potential cumulative impacts associated with the Project are limited to any operational impacts of the Project facilities combined with the impacts of other proposed developments occurring within the vicinity of the Project. In this analysis, we consider the impacts of past projects within the region as part of the affected environmental analysis. We also considered potential cumulative impacts associated with other concurrent projects including recently constructed projects, or proposed projects for which a definitive project scope has been developed and necessary facilities have been identified. Freeport LNG did not identify any activities for which impacts are ongoing or reasonably foreseeable that are also in close enough proximity to be cumulative with the Project. We have also not identified any such impacts.

The changes described as the basis for increased production capacity would not increase the levels of any criteria pollutants, volatile organic compounds, or hazardous air pollutants above what was authorized by the terminal's air permit issued by the Texas Commission on Environmental Quality. Freeport LNG has indicated that certain GHG emissions would increase as a result of the increased pass-through of the feed gas. The increase $CO_2$ in the feed gas would result in additional $CO_2$ venting emissions. However, GHG emissions do not result in proportional local and immediate impacts; it is the combined concentration in the atmosphere that affects the global climate system. GHG emissions are considered in a cumulative context within the Climate Change section of this EA.

## Reliability and Safety

The regulatory oversight, hazards, and engineering designs remain largely unchanged from that analyzed in the June 2014 FEIS for the Freeport LNG Liquefaction Project and Phase II Modification Project in Docket Nos. CP12-509-000 and CP12-29-000, respectively, and the March 2016 EA for the Liquefaction Capacity Increase in Docket No. CP15-518-000.

The USCG has authority over the safety of an LNG terminal's marine transfer area and LNG marine vessel traffic, as well as over security plans for the waterfront

facilities handling LNG and LNG marine vessel traffic. There would be no additional LNG vessel transits beyond the 400 ship visits previously reviewed and authorized by the USCG. The USCG concurred that additional review was not required since the Project would not result in additional vessel transits beyond those previously reviewed and authorized. In addition, unlike the waterfront liquefaction and marine transfer facilities, the remotely located pretreatment facilities do not fall under USCG's regulation.

PHMSA provided a Letter of Determination (LOD) to FERC on March 18, 2022, concluding that, based on their review, the proposed Project complies with the siting requirements in Part 193, Subpart B. The issuance of the LOD does not abrogate PHMSA's continuing authority over the terminal facilities and the operator's obligation to comply with Part 193 during future operation. The liquefaction, storage and marine transfer facilities would remain subject to PHMSA's inspection and enforcement programs to ensure compliance with the requirements of 49 CFR Part 193.

The remotely located Pretreatment Plant for the Liquefaction Project falls under FERC jurisdiction. However, unlike the liquefaction, storage and marine transfer facilities, the remotely located Pretreatment Plant is not subject to the PHMSA regulations in 49 CFR Part 193 because it meets the exemption under 193.2001(b)(2) as it does not store LNG. However, certain portions of the Pretreatment Plant are subject to the PHMSA regulations in 49 CFR Part 192. As the Pretreatment Plant facilities contain hazardous materials that may impact public safety, we assessed public impacts from the siting of the Pretreatment Plant facilities using an approach consistent to that in Part 193.

The onshore pretreatment, liquefaction, storage, marine transfer and appurtenant facilities are all part of the LNG terminal as defined under the NGA and continue to be subject to our review and approval. The hazards and engineering design remain largely unchanged.

Our analysis indicates that increasing the total LNG production capacity at the Freeport LNG Terminal of Trains 1 through 3 from the currently authorized 782 bcf/y to 870 bcf/y of natural gas would not require any construction and would be in compliance with applicable LNG design and other FERC regulatory requirements. Freeport LNG provided heat and material balances (HMB) that support the requested 870 bcf/y increased capacity. In review of the process design for the capacity increase, Freeport LNG indicated that existing control systems and mechanical specifications would be adequate, and no design changes would be required in association with the requested capacity increase. Freeport's various layers of safeguards in place would remain adequate to reduce the risk of a potentially hazardous scenario from developing into an event that could impact the off-site public. The previously assessed designs under Docket No. CP12-509-000 would remain adequate, including the materials of construction that would be suited to the pressure and temperature conditions of the

process design. Freeport LNG would continue to be subject to conditions of its previous authorizing order that require they report any future changes to design, and we would perform subsequent reviews as applicable.

The existing impoundments at the Freeport LNG Terminal all remain sized appropriately to handle the increased flow rate associated with this capacity increase application. These include the Process Area LNG Drain Sump and Dock Area LNG Drain Sump assessed under Docket No. CP03-75-000; the Propane Collection Areas A and B, Propane and Ethylene Storage Containment Sumps, and the Liquefaction Area LNG Containment Sump assessed under Docket No. CP12-509-000 for the terminal facilities; and the Natural Gas Liquids Surge Drum impoundment, Utility Storage Area impoundment, and Pretreatment Collection Area A and B assessed under Docket No. CP12-509-000 for the pretreatment facilities. Freeport LNG designed the Liquefaction Area LNG Containment Sump to contain a 10-minute spill from a full rupture of the 26-inch-diameter LNG transfer header. With increased flow rates associated with this Project, the sizing spill would be contained in the LNG impoundment sump but would backflow into the troughs. However, the backflow into the troughs would not reach the Inside Battery Limit process equipment area and would not cause a significant change to the radiant heat from a pool fire and would not cause any new potential subsequent cascading impacts not covered by previous conditions of the Commission's Orders for the Freeport LNG Terminal. In addition, the capacity increase would not change the basis of the other layers of protection that mitigate the risk to less than significant levels.

As part of the review required for a FERC authorization, Commission staff must assess whether the proposed facilities would be able to operate safely and securely. Based on our technical review of the engineering information provided, we conclude that the existing facility designs and layers of safeguards would be sufficient to mitigate the potential for an incident that could impact the safety of the public.

## C. Alternatives

NEPA requires the Commission to consider and evaluate the no-action alternative. According to CEQ guidance, in instances involving federal decisions on proposals for projects, no-action would mean the proposed activity would not take place and the resulting environmental effects from taking no-action would be compared with the effects of permitting the proposed activity. Further, the no action alternative provides a benchmark for decisionmakers to compare the magnitude of environmental effects of the proposed activity and alternatives.

The no action alternative would not meet the applicant's objective to increase the efficiency and utilization of Freeport LNG's liquefaction, storage and marine transfer facilities on Quintana Island, Texas.

We have prepared this EA to inform the Commission and stakeholders about the

expected impacts that would occur if the Project is constructed and operated. The Commission will ultimately determine the Project need and could choose the no-action alternative.

Because the proposed Project does not involve any change in the previously authorized LNG terminal site (i.e., "project footprint"), we did not evaluate any site alternatives. Therefore, we conclude that the proposed action is the preferred alternative to meet the Project's objectives.

## D. Conclusions

Based on the analysis in this EA, we have determined that if Freeport LNG operates the proposed facilities in accordance with its application and supplements, approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment.

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