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March 31, 2022

By Electronic Mail

U.S. Department of Energy
Office of Fossil Energy & Carbon Management
Office of Regulation, Analysis and Engagement
fergas@hq.doe.gov
P.O. Box 44375
Washington, D.C. 20026-4375

Attention: Texas LNG Brownsville LLC, FE Docket No. 13-062-LNG,
Order Nos. 3716 and 4489 Semi-Annual Progress Report

Dear Members of the Office of Regulation, Analysis and Engagement:

By DOE/FE Order No. 3716, the U.S. Department of Energy Office of Fossil Energy (DOE) authorized Texas LNG Brownsville LLC (Texas LNG) to export approximately 204.4 Bcf/yr. of natural gas in the form of liquefied natural gas (LNG) produced from domestic sources from its proposed terminal at the Port of Brownsville, Texas (the Project) to any country with which the United States currently has, or in the future will have, a free trade agreement (FTA). Subsequently, by DOE/FE Order No. 4489, DOE authorized Texas LNG to export that quantity of natural gas from the same facilities to any country with which the United States has not entered into an FTA requiring national treatment for trade in natural gas, and with which trade is not prohibited by U.S. law or policy. The Orders were subject to certain conditions, including a requirement that Texas LNG submit semi-annual progress reports on the Project. Texas LNG submits this progress report pursuant to those Orders.

As described herein, Texas LNG has made important advances during the last six months in the areas of: i) Project design, construction and financing, ii) permitting and other regulatory matters, and iii) commercial negotiations.

Project Design, Construction and Financing

A Final Investment Decision (FID) for the Project is dependent upon completion of Front-End Engineering and Design (FEED) for the Project. After discussion with a number of large, multi-national Engineering, Procurement and Construction (EPC) companies, Texas LNG has reached a preliminary agreement with a major LNG EPC contractor that will complete all remaining pre-FID engineering and, after FID, construct the facility. That agreement is expected to be finalized and signed in the near future. Further, Texas LNG has obtained financing to cover the pre-FID development of the Project, which will commence promptly upon execution of the pre-FID financing agreement.

Permitting and Regulatory Activities

The Project is subject to a number of permitting requirements, and the FERC approval of construction of Texas LNG's export facilities is also subject to a number of environmental conditions. During the last six months, Texas LNG has been actively pursuing compliance with key permitting and environmental conditions.

The Project received an 18-month extension of its air quality permit from the Texas Commission on Environmental Quality. That permit now runs through May 2023.

The Project also requires a permit from the Federal Aviation Administration (FAA) because of its proximity to the Space X rocket launch site in Boca Chica, Texas. The Project recently received an 18-month extension of its FAA permit, extending through April 2023.

The Project, which will be located on a 625-acre site, includes approximately 45 acres of wetlands that will be impacted by the Project. Before construction can commence, Texas LNG must obtain a permit pursuant to Section 404 of the Clean Water Act. To that end, Texas LNG has prepared a wetlands mitigation plan, and the U.S. Army Corps of Engineers (the Corps) has provided its comments on the plan. Texas LNG expects the Corps will issue the mitigation plan for public comment during April 2022, and the Project anticipates the Corps will approve the plan and issue the Section 404 permit during the fourth quarter of this year.

As a condition of the FERC approval of the Project, Texas LNG is also required to develop a plan in consultation with the Texas Parks and Wildlife Department for relocation of Texas tortoises found on the site. The required consultations are underway, and Texas LNG expects to complete the plan during the third quarter of 2023.

As previously reported, on appeal from FERC approval of the Project, the D.C. Circuit concluded that FERC had not adequately considered whether it should take into account the social cost of carbon associated with the Project and the impacts of the Project on environmental justice. The Court did not vacate FERC's authorization of the Project, but it remanded the matter to FERC for further consideration of these issues. *Vecinos para el Bienestar de la Comunidad Costera v. FERC.*,

6 F.4th 1321 (2021). On February 3, 2022, FERC staff issued data requests on the remanded issues. Texas LNG submitted a partial response to data requests on March 4, 2022, and it expects to complete its response by April 29, 2022. Based on the progress at FERC to date, there is no reason to believe that these remand proceedings will adversely affect the Project construction schedule.

On January 7, 2022, following a technical conference on greenhouse gas (GHG) mitigation, Texas LNG also submitted to FERC a description of its "Green by Design" plan for the Project, explaining how, from the outset, the Project has been designed to be among the world's lowest emitters of GHGs measured by million metric tonnes of CO2 equivalents per annum for each one million tonnes per annum of LNG capacity. A copy of that submission is attached hereto as Appendix A.

Commercial Negotiations

A project such as this entails reaching agreement on three key commercial matters: gas supply, gas transportation, and gas offtake (i.e., purchase commitments). Gas supplies in the region where the Project is located are plentiful, and thus Texas LNG has concluded it is premature to contract for gas supplies. Texas LNG has reached a 20-year precedent agreement to transport domestic natural gas to its export facilities on the Valley Crossing Pipeline, a subsidiary of Enbridge.

With respect to Project offtake, Texas LNG anticipates that affiliate demand for natural gas, particularly in Latin America and Asia, will account for a material portion of its exports. Texas LNG is also actively engaged in discussions with third parties for the offtake of LNG from the Project. Recent global events have led to a rekindling of European interest in U.S.-sourced natural gas, and Texas LNG is in active discussions with major European buyers. Texas LNG is aware of its obligation to report to DOE when it finalizes contracts for the export of LNG, and it will fulfill that obligation.

Conclusion

As the foregoing demonstrates, over the last six months, the Texas LNG Project has experienced important progress across the major fronts that are essential to a successful LNG export project, advancing the Project steadily towards commercial operations.

Texas LNG would be happy to answer any questions DOE may have.

Very truly yours,

Mary Anne Sullivan
Counsel for Texas LNG Brownsville LLC

Attachment

APPENDIX A

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January 7, 2022

Kimberly D. Bose
Office of the Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Greenhouse Gas Mitigation: NGA Sections 3 and 7 Authorizations – Technical Conference Docket No. PL21-3-000

Dear Ms. Bose:

Texas LNG Brownsville LLC (Texas LNG) respectfully submits these comments following the technical conference held by Federal Energy Regulatory Commission (FERC or Commission) on November 19, 2021, regarding "Greenhouse Gas Mitigation: NGA Sections 3 and 7 Authorizations."[1]

The Commission has granted Texas LNG authorization pursuant to Section 3 of the Natural Gas Act (NGA) to site, construct and operate a liquefied natural gas (LNG) export terminal on the north side of the Brownsville Ship Channel in Cameron County, Texas (Texas LNG Project or Project).[2]

Texas LNG designed its Project from the outset to be among the world's lowest emitters of greenhouse gases (GHGs)[3], as measured by million metric tonnes of carbon dioxide equivalents per annum for each one million tonnes per annum of LNG capacity.[4] The "Green by Design"

[1] *See Technical Conference on Greenhouse Gas Mitigation: Natural Gas Act Sections 3 and 7 Authorizations*, Notice Inviting Technical Comments, Docket No. PL21-3-000 (Nov. 16, 2021); *Technical Conference on Greenhouse Gas Mitigation: Natural Gas Act Sections 3 and 7 Authorizations*, Notice Extending Time for Comments, Docket No. PL21-3-000 (Dec. 7, 2021).

[2] *Texas LNG Brownsville LLC*, 169 FERC ¶ 61,130 (2019) (Texas LNG Authorization Order). The D.C. Circuit has remanded certain aspects of the Authorization Order back to the Commission for additional consideration. *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021) ("*Vecinos*"). Notably, the court specifically refused to vacate the Authorization Order, stating that "[w]e find it reasonably likely that on remand the Commission can redress its failure of explanation with regard to its analyses of the projects' impacts . . . while reaching the same result." *Id.* at 1332.

[3] For purposes of this discussion, greenhouse gases absorb and emit radiant energy within the thermal infrared range, thereby causing a greenhouse effect. The primary GHG in Earth's atmosphere are water vapor (H2O), carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and ozone (O3).

[4] *See Texas LNG Brownsville LLC*, Final Environmental Impact Statement at 4-181-4-182, Docket No. CP16-116-000 (Mar. 2019) (noting that GHG emissions from the Project "will be minimized by Texas LNG's proposed operating scenario").

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approach used by Texas LNG provides a model for responsible development of low-carbon LNG facilities in the U.S. and abroad. Texas LNG's Project will achieve lower GHG emissions primarily by avoiding substantial amounts of emissions in the first instance rather than pursuing less robust mitigation measures that only reduce the impacts of emissions after they occur.

As the Commission considers its policies regarding the mitigation of GHG emissions in this proceeding, Texas LNG encourages the Commission to recognize that LNG projects that incorporate emissions avoidance and minimization into the project's design, such as Texas LNG's "Green by Design" approach, provide a superior method for mitigating GHG emissions that should be taken into account in analyzing environmentally responsible energy infrastructure.

Texas LNG's "Green by Design" Approach

At the inception of the Texas LNG Project, prior to the front-end engineering stage and before Texas LNG pre-filed its application with the Commission, Texas LNG's management made the strategic decision to take steps to avoid and minimize the Project's GHG and other emissions. This decision recognized that LNG will play a central role in achieving global GHG reductions and that this role will be enhanced by minimizing GHG emissions throughout the LNG value chain. Texas LNG's decision further recognized that the communities located near the Project site in Cameron County, Texas would benefit from the minimization of other Project emissions, including not only carbon dioxide, but also nitrogen oxides (NOx) and sulfur oxides (SOx). This reflects Texas LNG's objective to preserve Cameron County's status as an attainment area for emissions pursuant to the Clean Air Act's National Ambient Air Quality Standards.

To identify and prioritize GHG emissions reductions in Texas LNG's early-stage design decisions, Texas LNG adopted the following hierarchical framework to maximize and consider the overall effectiveness of emissions reductions (see Figure 1).

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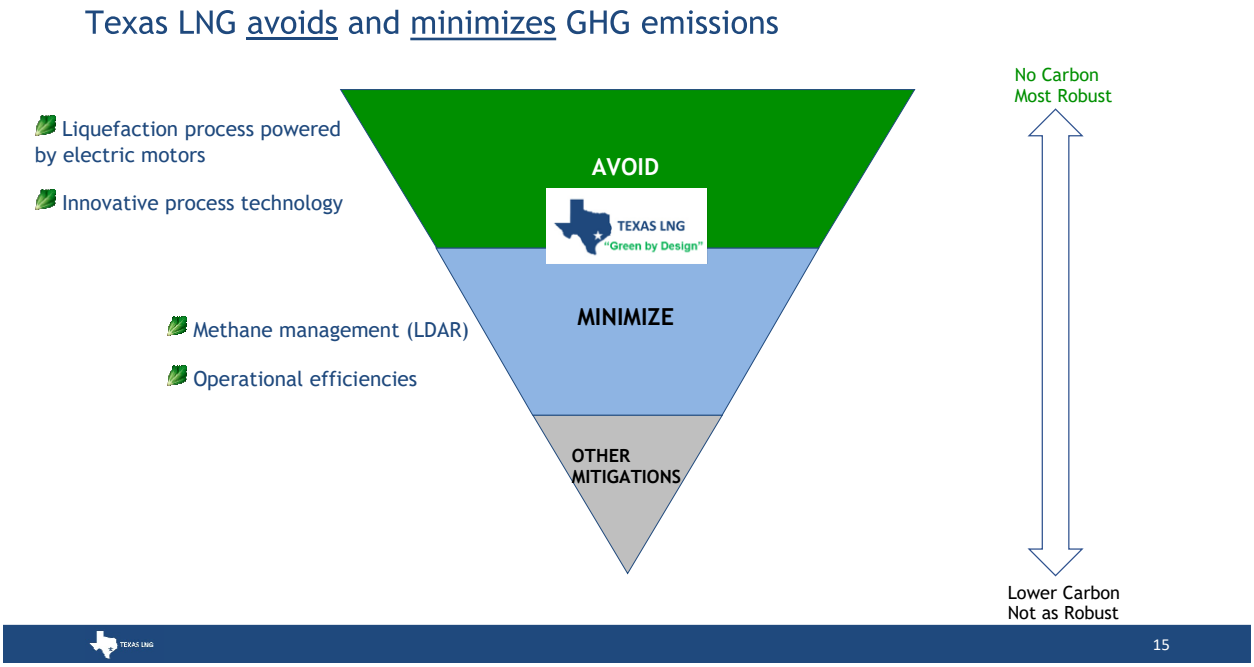

Fig 1: Hierarchy for Lowering GHG Emissions

Figure 1 illustrates how Texas LNG's "Green by Design" approach a*voids* GHG emissions where possible. If GHG emissions cannot be avoided, the next priority is to *minimize* the emissions. As discussed below, Texas LNG has focused its efforts on avoiding and minimizing the GHG emissions from its Project.

The Commission should recognize that Texas LNG's "Green by Design" approach is a viable, and in fact superior, form of GHG emissions mitigation. The Council on Environmental Quality's (CEQ) regulations implementing the National Environmental Policy Act (NEPA) specifically define "mitigation" to include "avoiding" and "minimizing" environmental impacts.[5] Consistent with this definition, Texas LNG's approach to project design specifically seeks to avoid and minimize GHG and other emissions from the Project. In considering GHG mitigation policies, the Commission should recognize the benefits of designing projects to avoid and minimize GHG emissions.

Priority 1: "Avoid" GHG Emissions

To implement its "Green by Design" approach, Texas LNG first considered, during the initial stages of its project design, cost-effective ways to avoid the Project's GHG emissions. Texas LNG noted that most LNG export facilities, including nearly all the plants in Asia, Australia, Africa, and the Middle East, combust large amounts of natural gas within the facilities to power their

[5] 40 CFR § 1508.1(s).

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liquefaction process, and that this is the largest source of the typical LNG export project's GHG emissions. More specifically, Texas LNG estimates that approximately 55-75% of GHG emissions from an LNG export facility are typically generated from the combustion of natural gas to power the compressors in the liquefaction process.

Given that the lion's share of an LNG project's GHG emissions typically comes from the combustion of natural gas for onsite power generation for liquefaction, Texas LNG's management selected electric motors (instead of natural gas turbines) to power the Project's liquefaction process. The use of electric motors avoids substantial Scope 1 GHG emissions that would have resulted if natural gas-fired turbines had been selected to power the Project's liquefaction compressors. [6]

The use of electrification to avoid Scope 1 GHG emissions from the Project's liquefaction process provides a further opportunity to minimize the Project's emissions profile. The Project's Scope 2 emissions, which include emissions from the production of the electricity required to power the Project's liquefaction process, will be minimized by Texas LNG's access to the Texas power grid. Texas LNG is able to rely upon low-cost electric supply available in Texas that is becoming increasingly renewable. In 2020, renewable energy fueled more than 20 percent of all utility-scale net electric generation in Texas, an approximately three-fold increase since 2011.[7] Nearly 30 percent of total U.S. total windpower is now produced in Texas,[8] and approximately 30 percent of utility-scale solar capacity to come on line in the United States in the next two years will be located in Texas.[9]

A significant portion of the Project' Scope 2 emissions will be avoided due to the sourcing of electric supply from the Texas grid, which is already connected to a high percentage of renewable generation. As additional renewable sources are added to the Texas grid over time, Texas LNG's Scope 2 emissions will be further reduced. Moreover, to the extent that market participants demand increased reductions in GHG emissions across the LNG supply chain and renewable electric markets further develop, Texas LNG could potentially enter into arrangements to procure its full electric load directly from renewable sources, which could avoid an even larger portion of the Project's Scope 2 emissions in the future.

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[6] Scope 1 emissions are considered to be the direct emissions from owned or controlled sources. Scope 2 emissions are considered to be the indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company. Scope 3 emissions are considered to be all other indirect emissions that occur in a company's value chain. (Ref: Carbon Trust)

[7] U.S. Energy Information Administration (EIA), Texas State Profile and Energy Estimates: Analysis, available at https://www.eia.gov/state/analysis.php?sid=TX.

[8] *Id.*

[9] EIA, Texas Likely to Add Record Utility Scale Solar Capacity in Next Two Years (Apr. 21, 2021), available at https://www.eia.gov/todayinenergy/detail.php?id=47636#:~:text=According%20to%20survey%20reports%20on,with%203.2%20GW%20in%20California.&text=The%20installation%20of%202.5%20GW,the%20solar%20boom%20in%20Texas.

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Priority 2: "Minimize" GHG Emissions

The next step in Texas LNG's "Green by Design" approach was to consider minimization measures relating to the Project. Texas LNG intends to implement measures to define, measure, account for, and control emissions. Texas LNG intends to assess the effectiveness of these measures through monitoring by using key performance indicators. Operational efficiencies and training of operators play an important role in the minimization of GHG emissions. Texas LNG has incorporated proactive condition-based surveillance methodology in its strategy to monitor the health and condition of all equipment. This will help anticipate any abnormal situations before they occur, thus minimizing GHG emissions.

Priority 3: Other GHG Mitigation Initiatives

Texas LNG is working with its partners across the LNG value chain to reduce Scope 3 emissions. For example, the Valley Crossing Pipeline, owned and operated by Enbridge, will transport feed gas to Texas LNG's facility. Valley Crossing will reduce GHG and other emissions through the use electric motors at its Agua Dulce compressor station.

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Conclusion

Texas LNG's "Green by Design" approach is focused on *avoiding* and *minimizing* GHG emissions. Texas LNG's Project avoids substantial GHG emissions by using electric motors that will be powered from the increasingly renewable Texas electric grid.

In considering its GHG mitigation policies, Texas LNG encourages the Commission to recognize Texas LNG's approach as a viable, and in fact preferred, approach to mitigate a project's GHG emissions, and that, by "avoiding" and "minimizing" GHG emissions, this approach is fully consistent with the definition of "mitigation" in CEQ's NEPA regulations. The Commission should consider using this approach as a model for responsible development of low-carbon LNG facilities in the U.S.

Texas LNG appreciates the opportunity to provide our views to the Commission. Should the Commission have any questions or require clarification, please feel free to contact our counsel.

Sincerely,

Langtry Meyer
Chief Operating Officer
Texas LNG Brownsville LLC

Document Content(s)