

139 FERC ¶ 61,039
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;
Philip D. Moeller, John R. Norris,
and Cheryl A. LaFleur.

Sabine Pass Liquefaction, LLC
Sabine Pass LNG, L.P.

Docket No. CP11-72-000

ORDER GRANTING SECTION 3 AUTHORIZATION

(Issued April 16, 2012)

1. On January 31, 2011, Sabine Pass Liquefaction, LLC (Sabine Pass Liquefaction) and Sabine Pass LNG, L.P. (Sabine Pass LNG)¹ filed an application, as supplemented on August 23, 2011, for authorization under section 3 of the Natural Gas Act (NGA) and the Commission's regulations² to site, construct, and operate facilities for the liquefaction and export of domestically produced natural gas (Liquefaction Project) at the existing Sabine Pass Liquefied Natural Gas (LNG) terminal located in Cameron Parish, Louisiana. As discussed below, the Commission finds the instant proposals are not inconsistent with the public interest³ and will grant the requested authorizations.

I. Background and Proposal

2. In 2004, the Commission issued an order granting Sabine Pass LNG authorization under NGA section 3 to site, construct, and operate the Sabine Pass LNG terminal, with total regasification and send-out capacity of 2.6 billion cubic feet (Bcf) per day and three

¹ Sabine Pass LNG and Sabine Pass Liquefaction are subsidiaries of Cheniere LNG, Inc., which is a subsidiary of Cheniere Energy, Inc.

² 18 C.F.R. Part 153 (2011).

³ NGA section 3(a) provides that the "Commission shall issue such order upon application, unless . . . it finds that the proposed [project] will not be consistent with the public interest."

storage tanks,⁴ to import foreign-sourced LNG. The terminal facility is located on the eastern shore of the Sabine Pass Channel, east of the Town of Sabine Pass, Texas. On June 15, 2006, the Commission issued an order granting Sabine Pass LNG the authority to construct three additional LNG storage tanks, as well as expanded vaporization systems, that would increase the terminal's send-out capacity to 4 Bcf per day and its storage capacity to 16.9 Bcf.⁵ On May 29, 2009, the Commission issued an order amending Sabine Pass LNG's section 3 authorization to allow the facilities to be operated for the additional purpose of exporting LNG that had been previously imported into the United States and stored at the Sabine Pass LNG terminal in liquid form.⁶

3. In this proceeding, Sabine Pass LNG and Sabine Pass Liquefaction are seeking authorization from the Commission to construct and operate facilities which would enable the companies to liquefy and export up to 16 million tons per annum (mtpa),⁷ or 2.2 Bcf per day, of domestically produced natural gas.⁸

4. Specifically, Sabine Pass Liquefaction proposes to construct, own, and operate facilities related to the proposed liquefaction and export activities, including: four LNG process trains,⁹ each with a liquefaction capacity of approximately 4.0 mtpa; feed gas

⁴ *Sabine Pass LNG, L.P.*, 109 FERC ¶ 61,324 (2004) (Phase I). Initiation of Phase I services was authorized by letter order issued September 30, 2008.

⁵ *Sabine Pass LNG, L.P.*, 115 FERC ¶ 61,330 (2006) (Phase II). Initiation of Phase II services was authorized by letter order issued September 15, 2009.

⁶ *Sabine Pass LNG, L.P.*, 127 FERC ¶ 61,200 (2009).

⁷ Sabine Pass Liquefaction received authorization from the Department of Energy/Office of Fossil Energy (DOE/FE) to export up to 16 mtpa, or 2.2 Bcf per day, of domestically produced LNG by vessel to all Free Trade Agreement and non-Free Trade Agreement nations on September 7, 2010, and May 20, 2011, respectively. *See* DOE/FE Order Nos. 2833 (2010) and 2961 (2011).

⁸ The proposed Liquefaction Project will enable the terminal to receive and process an average of approximately 2.6 Bcf per day, including fuel and inerts such as carbon dioxide and water.

⁹ Each LNG train contains gas treatment facilities, gas turbine-driven refrigerant compressors, cold boxes and heat exchangers for cooling and liquefying natural gas, waste heat recovery systems, draft air coolers, fire and gas detection and safety systems, control systems and electrical infrastructure, utility connections and distribution systems, piping, pipe racks, foundations, and structures within the LNG train battery.

metering; flares; refrigerant storage; boil-off gas, water handling and other systems; new buildings; and additional new utility and power generation facilities. The Liquefaction Project will involve the permanent use of an additional 191 acres within the existing Sabine Pass LNG terminal site, as well as the re-disturbance of approximately 97 acres within the site. The Liquefaction Project facilities will be constructed west and northwest of Sabine Pass LNG's five existing LNG storage tanks. No additional marine facilities are required for the proposed Liquefaction Project.¹⁰ The applicants state that while the Liquefaction Project will use the five existing LNG storage tanks in the Sabine Pass LNG terminal,¹¹ Sabine LNG will continue to own and operate all existing facilities. Sabine LNG also proposes to construct and operate certain improvements to the existing facilities, such as: replacements of 10 in-tank LNG pumps; piping improvements; road improvements; expansions of security and other systems; and building improvements.

5. Currently, two interstate natural gas pipelines interconnect with the LNG terminal: the affiliated Cheniere Creole Trail Pipeline, L.P. (Creole Trail) and Kinder Morgan Louisiana Pipeline LLC (Kinder Morgan). A third interstate pipeline, Natural Gas Pipeline Company of America LLC, traverses the terminal site but is not directly interconnected. The applicants state they anticipate that these near-by pipelines would construct pipeline facilities as necessary to deliver pipeline quality domestic gas supplies to the Liquefaction Project. Specifically, the applicants note that Creole Trail would require modifications, including 400 feet of new 42-inch diameter pipeline at the inlet to the liquefaction facilities.

6. The applicants propose to construct the Liquefaction Project in two stages, each comprising two LNG process trains with 8 mtpa capacity. Once the Liquefaction Project has been constructed and placed in service, applicants state that the Sabine Pass LNG

¹⁰ The applicants state that no increase in ship traffic, from the currently authorized 400 per year, is proposed. They also state that loading and unloading rates will remain unchanged.

¹¹ The applicants indicate that a sixth LNG storage tank, previously authorized in Docket No. CP05-396-000 as part of Phase II of the import project, "will be constructed as market conditions justify." Although the Commission's order authorizing the Phase II facilities did not specify a date by which the authorized facilities must be constructed and placed into service, the order did note Sabine LNG's intention to have "all facilities in service no later than the 2010 heating season." Phase II, 115 FERC ¶ 61,330 at P 7. Since that date is now past, we will require that any yet to be completed Phase II facilities be constructed and placed in service within five years after the date of issuance of this order.

terminal will be able to operate simultaneously as a bi-directional LNG facility for both export and import service and that there is no physical limitation to simultaneous operation of the regasification capacity of the existing Sabine Pass LNG facilities and the liquefaction service capability proposed by Sabine Pass Liquefaction. When natural gas prices are higher worldwide than in the United States, the applicants anticipate that customers will liquefy domestic gas and export it to receiving points abroad. Alternatively, if natural gas prices are higher in the United States than in international markets, the applicants anticipate that customers will deliver imported LNG to the terminal and use the gasification facilities.

7. Sabine Pass LNG and Sabine Pass Liquefaction will each have rights to use certain limited facilities owned by the other, such as telecommunications facilities and certain buildings. However, the operations of the liquefaction facilities and existing LNG terminal facilities, as improved, will be separate.¹² The applicants state that Sabine Pass LNG will be the sole operator of regasification and import activities and will not be involved in Sabine Pass Liquefaction's liquefaction and export activities other than as a provider of terminal services. Likewise, Sabine Pass Liquefaction will be the sole operator of liquefaction and export activities and will not be involved in Sabine Pass LNG's regasification and import activities other than as a customer pursuant to a Terminal Use Agreement. Sabine Pass Liquefaction will acquire gas supplies, arrange for transportation to the liquefaction facilities, liquefy the gas feedstock, store the LNG in the terminal's storage facilities, and deliver the LNG from the storage tanks into marine vessels for export.

8. In this vein, Sabine Pass LNG currently provides import and regasification services under Terminal Use Agreements to three customers, including Cheniere Energy Investments, LLC (Cheniere Energy), an affiliate of Sabine Pass LNG, which holds 2 Bcf per day of capacity in the existing Sabine Pass LNG facilities.¹³ Sabine Pass LNG also has separate re-export services agreements with the same three customers. Sabine Pass Liquefaction will take an assignment of Cheniere Energy's Terminal Use Agreement capacity and will thus be a customer of Sabine Pass LNG. Sabine Pass Liquefaction will pay Sabine Pass LNG for terminal services provided in their Terminal Use Agreement,

¹² Currently, Sabine Pass LNG contracts with Cheniere LNG O&M Services, LLC (Cheniere O&M) for the operation and maintenance of the LNG terminal facilities. The applicants state that Sabine Pass Liquefaction will also enter into an agreement with Cheniere O&M for the operation and maintenance of the liquefaction facilities.

¹³ The other import customers are Total Gas and Power North America, Inc. and Chevron U.S.A. Inc.

including marine berthing services, LNG loading and unloading services, LNG receiving and storage services, the conversion of Sabine Pass Liquefaction's furnished fuel gas into electric power, and regasification services. Sabine Pass Liquefaction states it will provide rights to certain of its affiliates to use Sabine Pass Liquefaction's rights under its Terminal Use Agreement to services provided by Sabine Pass LNG.

9. The applicants state that Sabine Pass Liquefaction will provide its new services to third parties pursuant to long-term LNG Processing Service Agreements to be negotiated between the parties. Sabine Pass Liquefaction announced that it has agreed to sell BG Gulf Coast LNG, LLC (Great Britain), Gas Natural Aprovevisionamientos SDG S.A. (Spain), GAIL (India), and Kogas (Korea) each 3.5 million metric tons per year of LNG (approximately 0.5 Bcf per day) under 20-year contracts. Sabine Pass Liquefaction will sell LNG to its customers for 115 percent of the U.S. benchmark Henry Hub prices, including the cost of gas, fuel, and transportation, plus a fixed sales charge for the full contractual quantity reserved in the liquefaction facilities. Sabine Pass Liquefaction does not intend to provide open-access services under Part 284 of the Commission's regulations.

10. The applicants assert that their proposals are consistent with the public interest because the gas productive capacity from the bi-directional LNG terminal will help stabilize market-price volatility in times of changing demand and will be available to meet unexpected shifts in domestic natural gas market conditions.

II. Public Notice and Comments

11. Notice of the application was published in the *Federal Register* on February 18, 2011, with interventions and protests due on or before March 4, 2011.¹⁴ Timely motions to intervene were filed by the parties listed in Appendix A of this order. The motions to intervene filed by American Public Gas Association (APGA), Chevron U.S.A. Inc. (Chevron), Gulf Coast Environmental Labor Coalition (GCELC), and Kinder Morgan included comments.¹⁵ APGA's motion to intervene included a protest. On March 21, 2011, the applicants filed in opposition to the motions to intervene of the GCELC and the APGA, asserting the movants had failed to demonstrate a specific interest in the

¹⁴ 76 Fed. Reg. 9,573.

¹⁵ On June 6 and July 11, 2011, Chevron filed additional comments. On March 21, 2011, the applicants filed an answer in response to the comments, to which the intervenors filed replies. The Commission will accept the answer and replies because they provide information that has assisted us in our decision making. 18 C.F.R. § 385.213(a)(2) (2011).

proceeding. On March 29 and April 5, 2011, APGA and GCELC, respectively, filed motions for leave to answer and answers to the applicants' motion in opposition. The timely, unopposed motions to intervene are automatically granted pursuant to Rule 214 of the Commission's Rules of Practice and Procedure.¹⁶ In addition, the Commission finds that GCELC and the APGA have demonstrated an interest in this proceeding and grants their motions to intervene.¹⁷

12. BG LNG Services, LLC and Shell US Gas and Power, LLC filed untimely motions to intervene. These movants have demonstrated an interest in this proceeding. The untimely motions to intervene will not delay, disrupt, or unfairly prejudice any party to the proceeding. Thus, the Commission will grant the untimely motion to intervene pursuant to Rule 214(d) of the Commission Rules of Practice and Procedure.¹⁸

13. On January 30, 2012, Sierra Club filed a request to intervene and comments on the EA. On March 23, 2012, the applicants filed a motion to oppose Sierra Club's late intervention. They assert that Sierra Club filed its motion almost eleven months after the due date for filing requests to intervene without good cause shown for the delay and that granting it would disrupt the proceeding.

14. The Commission's regulations provide that timely motions to intervene in Commission proceedings are those filed within the time period prescribed by the Commission's notice of the proceeding for filing interventions and protests.¹⁹ In this case, motions to intervene were due by March 4, 2011. However, the Commission's regulations also provide that in a proceeding dealing with environmental issues, any person may file to intervene on environmental grounds based on the draft environmental impact statement, and that such intervention will be deemed timely as long as it is filed within the comment period for the draft environmental impact statement.²⁰ In this case,

¹⁶ 18 C.F.R. § 385.214 (2011)

¹⁷ 18 C.F.R. § 385.214(b)(2)(iii) (2011).

¹⁸ 18 C.F.R. § 385.214(d) (2011).

¹⁹ 18 C.F.R. § 385.210(b) (2011).

²⁰ 18 C.F.R. § 157.10(a)(2) (2011) and 18 C.F.R. § 380.10(a)(1)(i) (2011).

the Commission issued an EA (rather than an environmental impact statement) with a due date for comments of January 27, 2012.²¹

15. The Commission has a liberal intervention policy in applications for authorization of natural gas projects before an order on the merits has been issued.²² Notwithstanding the fact that its motion to intervene was filed late, the Commission finds that Sierra Club has demonstrated an interest in the proceeding and that granting Sierra Club intervention at this stage of the proceeding will not cause undue delay or disruption or otherwise prejudice the applicant or other parties.²³ Sierra Club's motion to intervene out-of-time will be granted.

16. Chevron, a current terminal customer with a long-term Terminal Use Agreement, seeks a better understanding of how the liquefaction plant will be operated and integrated into existing operations and how existing import terminal customers, facing competing export service rights, will be impacted by these expanded operations. Chevron asserts that the Commission must determine that the terminal with the Liquefaction Project will be operated in a manner consistent with the terminal's original authorization in 2004.²⁴ Chevron argues that after the Energy Policy Act of 2005 (EPAAct 2005),²⁵ the Commission has continued in precedent to reserve section 3 jurisdiction to address complaints of undue discrimination and/or anticompetitive behavior.²⁶

17. In reply, applicants assert that the commercial arrangements at the terminal and the liquefaction plant are confidential, beyond the scope of this proceeding, and not relevant to the Commission's public interest analysis, which mainly considers environmental, safety, and security aspects. The applicants explain that existing

²¹ Sierra Club made its e-filing online after 5:00 p.m. on Friday, January 27, 2012. Thus, pursuant to section 375.105(c) of the Commission's regulations (18 C.F.R. § 375.105(c) (2011)), the comments are deemed to have been filed on the next regular business day, or Monday, January 30.

²² See *Cameron LNG, LLC*, 118 FERC ¶ 61,019, at PP 21-22 (2007).

²³ 18 C.F.R. § 385.214(d) (2011).

²⁴ *Sabine Pass LNG, L.P.*, 109 FERC ¶ 61,324, at P 23 (2004).

²⁵ Energy Policy Act of 2005, Pub. L. No. 109-58, § 311, 119 Stat. 594 (2005).

²⁶ *Dominion Cove Point LNG LP*, 119 FERC ¶ 61,079, at P 21 (2007) and *Crown Landing LLC*, 115 FERC ¶ 61,348, at P 33 (2006).

terminalling services for import, including remedies, are set forth in terminal use agreements between Sabine Pass LNG and each of its customers and are not offered pursuant to a Commission-approved tariff. The applicants state that the commercial arrangements of the terminal and of the liquefaction project are not subject to Commission review in this proceeding, relying on the EPLRA 2005 which states that the Commission may not issue an order conditioning approval of an application for an LNG terminal, including liquefaction facilities, on any regulation of the rates, charges, terms or conditions of service of the terminal.²⁷

18. Sabine Pass Liquefaction states that it will use the 2 Bcf per day of regasification capacity derived from the rights held by Cheniere Energy under Cheniere Energy's current Terminal Use Agreement. Sabine Pass LNG states that once the Liquefaction Project is operational, it will provide the same basic set of services to Sabine Pass Liquefaction that it now provides to Cheniere Energy and its two other existing customers. According to the applicants, Sabine Pass Liquefaction will be able to use Sabine Pass LNG's regasification, storage tanks, and berthing facilities without affecting services provided by Sabine Pass LNG to the other existing capacity holders at the terminal.²⁸

19. Chevron and Kinder Morgan raise questions regarding future pipeline interconnections with the terminal, noting that affiliated Creole Trail and Kinder Morgan currently interconnect and take gas away from the Sabine Pass LNG terminal. Kinder Morgan asserts that it is positioned to deliver gas to the liquefaction project. The applicants answer that they do not intend to discriminate against any future pipeline interconnection to deliver natural gas to the Liquefaction Project. Sabine Pass Liquefaction adds that it has solicited proposals for transportation services from several pipeline companies with nearby facilities for firm service with a new delivery/receipt interconnect at the liquefaction facilities.

20. The APGA asserts that the project is inconsistent with the public interest because the export of domestic natural gas is at odds with the goal of energy independence and will increase domestic gas prices. The APGA argues that policy-makers instead should encourage the use of domestic natural gas to power automobiles and heat homes and businesses and decrease reliance on coal. In reply, applicants assert that there are abundant domestic supplies of natural gas and that producers will shut-in gas wells and that investment in production basins will decline without adequate incentives. The

²⁷ 15 U.S.C. § 717b(e)(3)(B)(ii) (2006).

²⁸ Applicants' Answer at 5 (filed March 21, 2011).

applicants contend that the addition of export authority will have minimal price impacts on the domestic market and that domestic reserves are sufficient to accommodate multiple future uses. The applicants maintain that the ability to export natural gas will encourage domestic production when the domestic market might not otherwise do so and that domestic resources will be available whenever domestic prices increase. The applicants contend that a restriction on exports conflicts with the Obama Administration's policy goal to increase jobs and economic growth and reduce the trade deficit through export growth.

21. In its motion to intervene, GCELC states that it seeks to comment on and participate in the environmental review of the proposed Liquefaction Project. Accordingly, the concerns raised by GCELC are addressed in the Environmental Assessment which was issued on December 28, 2011, and in the Environment and Safety section of this order.

III. Discussion

22. Because the proposed LNG liquefaction facilities and modified terminal facilities will be used to export natural gas to foreign countries, the construction and operation of the facilities and site of their location require approval by the Commission under section 3 of the NGA.²⁹ While section 3 provides that an application under that section shall be approved if the proposal "will not be inconsistent with the public interest," section 3 also provides that an application may be approved "in whole or in part, with such modification and upon such terms and conditions as the Commission may find necessary or appropriate."³⁰

²⁹ The regulatory functions of section 3 were transferred to the Secretary of Energy in 1977 pursuant to section 301(b) of the Department of Energy Organization Act. 42 U.S.C. § 7151(b) (2006). In reference to regulating the imports or exports of natural gas, the DOE Secretary subsequently delegated to the Commission the authority to approve or disapprove the construction and operation of particular facilities, the site at which facilities shall be located, and with respect to natural gas that involves the construction of new domestic facilities, the place of entry for imports or exit for exports. The Secretary's current delegation of authority to the Commission relating to import and export facilities was renewed by the Secretary's DOE Delegation Order No. 00-044.00A, effective May 16, 2006. Applications for authorization to import or export natural gas (the commodity) must be submitted to DOE.

³⁰ For a discussion of the Commission's authority to condition its approvals of LNG facilities under section 3 of the NGA, *see, e.g., Distrigas Corporation v. FPC*,

(Continued...)

23. Section 311(c) of EPCRA 2005 added a new NGA section 3(e)(3) providing that, before January 1, 2015, the Commission shall not condition an order approving an application to site, construct, or operate an LNG terminal on: (1) a requirement that the LNG terminal offer service to customers other than the applicant, or any affiliate of the applicant securing the order; (2) any regulation of the rates, charges, terms or conditions of service of the LNG terminal; or (3) a requirement to file schedules or contracts related to the rates, charges, terms or conditions of service of the LNG terminal.

24. Chevron asks the Commission to require the applicants to explain how the operation of the Liquefaction Project will affect current import operations, the rights of current affiliated and non-affiliated terminal users, and any jurisdictional implications related to the potential that domestic gas liquefied for export might be regasified and delivered back into interstate pipelines for domestic use, or that imported LNG might be co-mingled in the same tanks as domestically-sourced LNG (since some terminal users have authorization to export only previously-imported gas). As clarified in the applicants' data responses, filed December 22, 2011. Sabine Pass LNG will continue to provide import, regasification, and re-export services, as requested, to customers under existing Terminal Use Agreements. The applicants emphasize that there is no physical limitation to simultaneous operation of the existing regasification and proposed liquefaction capabilities. Thus, at this time, we find no reason to believe that the rights of existing terminal customers would be jeopardized by construction and operation of the liquefaction project. If disputes arise concerning terminal operations once liquefaction commences, we anticipate that those matters will be resolved pursuant to the terms of the various customers' Terminal Use Agreements. In addition, allegations of undue discrimination or anticompetitive behavior can be brought to the Commission's attention in the form of a complaint.

25. With respect to the jurisdictional questions posed, we note that neither Sabine Pass LNG nor Sabine Pass Liquefaction has requested, or is being granted, authority to store interstate gas for reintroduction to the interstate market.³¹ Prior Commission authorization would be needed before the facilities could be operated in such a manner.³²

495 F.2d 1057, 1063-64 (D.C. Cir. 1974), *cert. denied*, 419 U.S. 834 (1974), and *Dynegy LNG Production Terminal, L.P.*, 97 FERC ¶ 61,231 (2001).

³¹ Since such service is not being considered here, we find no cause to address the potential limitations to our ability to regulate such services suggested by the applicants in their December 22, 2011 data responses.

³² The question of the extent to which the co-mingling of liquefied domestic gas

(Continued...)

26. The APGA urges the Commission to deny Sabine Pass Liquefaction and Sabine Pass LNG authority to construct and operate the proposed liquefaction and export facilities. However, the concerns expressed by APGA³³ that the exportation of domestically-produced natural gas will have adverse implications for domestic consumers of natural gas, for U.S. energy supply, and for national security, all relate directly to impacts associated with the exportation of the commodity natural gas, rather than to any impacts that would be associated with the export facilities used to accomplish the exports.

27. Section 3 of the NGA provides, in part, that “no 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 Commission authorizing it to do so.” As noted above, in 1977, the Department of Energy Organization Act transferred the regulatory functions of section 3 of the NGA to Secretary of Energy. Subsequently, the Secretary delegated to the Commission authority to “[a]pprove or disapprove the construction and operation of particular facilities, the site at which such facilities shall be located, and with respect to natural gas that involves the construction of new domestic facilities, the place of entry for imports or exit for exports”³⁴ However, the Secretary has not delegated to the Commission any authority to approve or disapprove the import or export of the commodity itself.³⁵ Nor is there any indication that the Secretary’s delegation authorized the Commission to consider the types of issues raised by APGA as part of the Commission’s public interest determination, thus duplicating and

with imported LNG might affect “re-export” authorizations is beyond the jurisdiction of this Commission.

³³ The Sierra Club and GCELC also make the same arguments in comments on the EA.

³⁴ DOE Delegation Order No. 00-004.00A (effective May 16, 2006).

³⁵ See Order Approving Point of Entry for Importation of Natural Gas, *National Steel Corp.*, 45 FERC ¶ 61,100, at 61,333 (1988). “The [Office of Fossil Energy], pursuant to its exclusive jurisdiction, has approved the importation with respect to every aspect of it except the point of importation The Commission’s authority in this matter is limited to consideration of the place of importation, which necessarily includes the technical and environmental aspects of any related facilities.”

possibly contradicting the Secretary's own decisions.³⁶ In orders dated September 7, 2010, and May 20, 2011, the Department of Energy/Office of Fossil Energy (DOE/FE), pursuant to its authority under section 3 of the NGA, issued Sabine Pass Liquefaction authorization to export up to 16 mtpa, or 2.2 Bcf per day, of domestically-produced natural gas by vessel to all Free Trade Agreement and non-Free Trade Agreement nations, respectively, finding the potential export of such volumes to be not inconsistent with the public interest.³⁷

28. In conditionally granting long-term authorization to export LNG from Sabine Pass to non-free trade agreement nations, DOE found that there was substantial evidence of economic and public benefits such that the authorization was not inconsistent with the public interest. We recognize DOE's public interest findings in issuing our order. Among other things, DOE found that natural gas production associated with exports in the Sabine Pass application will result in increased production that could be used for domestic requirements if market conditions warrant such use, and this will tend to enhance U.S. domestic energy security.³⁸ DOE also found several other tangible economic and public benefits that are likely to follow from the requested authorization, including increased economic activity and job creation, support for continued natural gas exploration, and increased tax revenues.³⁹

29. Additionally, the proposed Liquefaction Project is located entirely within the footprint of the previously approved and currently operating Sabine Pass LNG terminal site. As a result, the project's environmental impacts are relatively small in number and well-defined. We conclude in this order that, with the conditions we require, the Liquefaction Project results in only minimal environmental impacts and can be constructed and operated safely.

30. Accordingly, we find that, subject to the conditions imposed in this order, Sabine Pass Liquefaction and Sabine Pass LNG's proposals are not inconsistent with the public interest.

³⁶ We note that AGPA in fact raised similar concerns in Sabine Pass Liquefaction's export authorization proceeding, which are addressed in DOE/FE's Order No. 2961 (2011).

³⁷ See DOE/FE Order Nos. 2833 (2010) and 2961 (2011).

³⁸ See DOE/FE Order No. 2961 at 34-35 (2011).

³⁹ *Id.* at 37-38.

IV. Environment and Safety

31. On October 29, 2010, the Commission issued a Notice of Intent to Prepare an Environmental Assessment (NOI).⁴⁰ The NOI was mailed to interested parties including federal, state, and local officials; agency representatives; environmental and public interest groups; Native American tribes; local libraries and newspapers; and affected property owners.

32. During the scoping process we received comments from two citizens, and comments from the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (FWS), National Park Service, Louisiana State Governor's Office, and Louisiana Department of Wildlife and Fisheries (Louisiana DWF). In response to the Notice of Application, the GCELC and Chevron filed interventions that included environmental comments.

33. To satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA), our staff prepared an environmental assessment (EA) for Sabine Pass' proposal. The EA was prepared with the cooperation of the DOE, U.S. Army Corps of Engineers (COE), and the U.S. Department of Transportation (USDOT). The analysis in the EA addresses geology, soils, water resources, wetlands, vegetation, fisheries, wildlife, threatened and endangered species, land use, recreation, visual resources, socioeconomics, cultural resources, air quality, noise, reliability and safety, climate change, and alternatives. The EA was issued for a 30-day comment period and placed into the public record on December 27, 2011. All substantive comments received in response to the NOI and the interventions were addressed in the EA and are summarized below.

34. The Louisiana DWF's scoping comments focused on avoiding or minimizing impacts on wetlands to the greatest extent practicable. The EA addresses wetland impacts and describes Sabine Pass' wetland mitigation plan for the project, which includes the compensatory mitigation required by the COE, Galveston District. All of the wetland impacts would occur within the fenced boundary of the existing LNG terminal. The EA states that Sabine Pass' purchase of credits from an approved wetland bank fully mitigates the impact of the project on the wetlands within the project site.⁴¹ The EA also

⁴⁰ For the environmental review, Sabine Pass Liquefaction and Sabine Pass LNG are collectively referred to as Sabine Pass. All environmental conditions referring to Sabine Pass apply to both applicants.

⁴¹ EA at 2-16 through 2-19.

notes that the majority of wetlands onsite are previously altered from historic dredge operations within the Sabine Pass Channel.

35. In their scoping comments, John Williams and the GCELC expressed concerns regarding impacts on aquatic resources due to ballast water discharge and cooling water circulation. The EA discusses ballast water discharge and cooling water circulation impacts for the project.⁴² The EA concludes that no impacts on surface waters are anticipated as long as ships visiting the Sabine Pass LNG terminal adhere to the federal ballast water exchange rules and regulations. The EA also concludes that LNG vessels would discharge less cooling water during LNG loading operations (export) than currently occurs during LNG unloading (import) operations due to reduced power demands on the LNG carrier's power plant.

36. The GCELC also expressed concerns regarding wastewater from the liquefaction facility's demineralized water system resulting in impairments to water quality. The EA addresses this issue and concludes that the wastewater from the demineralized water system would be considered potable water and be subject to state permitting requirements.⁴³ Sabine Pass will be required to sample the water to maintain compliance with state permit limitations.

37. The Louisiana State Governor's Office expressed support for the project, commenting that it would provide new employment and capital expenditures for the local area. The EA identifies that during peak construction the project will create an additional 1,620 local jobs, and that it will create an additional 110 to 150 new permanent jobs for operation, thus providing both short- and long-term beneficial impacts on employment in the project area.⁴⁴ In addition, the EA describes the short- and long-term beneficial impacts on the regional economy that the project will produce, generated by worker wages, the purchasing of construction materials locally, and state and parish property taxes on the terminal facility.⁴⁵

38. John Williams and the GCELC also stated that operating emissions would result in air quality impacts and additional ozone formation. Air emissions and impacts resulting

⁴² EA at 2-12 through 2-15.

⁴³ EA at 2-11 through 2-12.

⁴⁴ EA at 2-33 through 2-36.

⁴⁵ *Id.*

from construction and operation of the project are discussed in the EA.⁴⁶ Based on the results of several modeling analyses presented in the EA, emissions from the project result in impacts within the allowable modeling values of the air permit. In addition, the ozone modeling analysis in the EA demonstrates that the project would result in small increases in ozone levels.

39. John Williams and the GCELC also stated that increased LNG ship traffic would create an added burden on the Coast Guard. The EA identifies that the project does not include any changes to marine systems and that there would be no increase in ships beyond the maximum of 400 per year already authorized.⁴⁷ As part of the approval process for the existing import terminal, the Coast Guard's review of Sabine Pass' Waterway Suitability Assessment identified the federal, state, local (public) and private sector resources necessary to ensure safety and security of LNG marine traffic on the waterway. Based on its assessment, the Coast Guard issued a Letter of Recommendation indicating that the waterway was suitable for LNG transit. For the Liquefaction Project, the Coast Guard confirmed that construction and operation of the project will not require modification of either the existing Waterway Suitability Assessment or the current Letter of Recommendation.

40. The GCELC also commented on the amount of greenhouse gases that would be emitted by the project and requested an analysis of alternative technologies. The EA evaluates greenhouse gas emissions in light of the relevant federal regulations, including the GHG Reporting Rule, the Prevention of Significant Deterioration (PSD) Tailoring Rule, and the Title V Tailoring Rule.⁴⁸ Sabine Pass is required to comply with these regulations and the Clean Air Act permits issued by the Louisiana Department of Environmental Quality (Louisiana DEQ). The EA also discusses climate change impacts as a result of greenhouse gas emissions and identifies mitigation measures evaluated to reduce emissions of greenhouse gases.⁴⁹ Sabine Pass selected turbines with a higher thermal efficiency, and its design includes a waste heat recovery system on each liquefaction train for regenerating the gas driers and amine system. Sabine Pass must also comply with Best Available Control Technology requirements for greenhouse gases as part of the air permitting process which will reduce emissions.

⁴⁶ EA at 2-41 through 2-64.

⁴⁷ EA at 1-9.

⁴⁸ EA at 2-45 through 2-51.

⁴⁹ EA at 2-97 through 2-100.

41. As a point of clarification, page 1-1 of the EA incorrectly states the volume of natural gas that Cheniere Marketing, LLC was authorized to export by the DOE/FE as 1,500 Bcf per day. The actual volume Cheniere Marketing is authorized to export is a combined total of the equivalent of 1,500 Bcf of natural gas over the two-year term of the authorization. We note that Cheniere Marketing is a subsidiary of the parent company of Sabine Pass, not the applicant in this proceeding. This clarification has no bearing on the analysis or conclusions in the EA.

42. After issuance of the EA, we received comments from two citizens, NMFS, the National Park Service, FWS, Louisiana DWF, GCELC, and Sierra Club. These comments are summarized and discussed below.

EA vs. Environmental Impact Statement

43. The EA concludes that the project does not constitute a major federal action significantly affecting the quality of the human environment.⁵⁰ In their comments on the EA, the Sierra Club and GCELC assert that the project is a major federal action significantly affecting the quality of the environment for which an environmental impact statement (EIS) is warranted.

44. The GCELC specifically asserts that the Council on Environmental Quality (CEQ) has generally advised agencies to limit EAs to not more than 10-15 pages⁵¹ and that because the Commission's EA is 142 pages (excluding attachments) the Commission should have undertaken an EIS. The GCELC points out that the Commission's regulations describe an EA as a concise public document with sufficient evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact (FONSI).⁵²

45. The CEQ's advisory memorandum is general guidance to agencies that urges brevity in the preparation of an EA. The CEQ's guidance does not require an agency to

⁵⁰ EA at 4-1. Under 40 C.F.R. § 1508.18 of the CEQ's regulations, "a 'major federal action' includes actions with effects that may be major and which are potentially subject to Federal control and responsibility. Major reinforces but does not have a meaning independent of significantly. (Sec. 1508.27)." "Significantly" requires consideration of both the context and intensity of the project. *See* 40 C.F.R. § 1508.27 (2011).

⁵¹ <http://ceq.hss.doe.gov/nepa/regs/40/30-40.HTM>. *See* Answer to Question 36a.

⁵² 18 C.F.R. § 380.2(d) (2011).

prepare an EIS if an EA is more than 15 pages. In fact, recent guidance from CEQ recognizes an EA's length should vary with the scope and scale of the potential impacts and provide sufficient discussion of mitigation to support a FONSI.⁵³ Evaluating the broad range of environmental issues in Sabine Pass' resource reports and the mitigation to reduce the project's effects below the level of significance warranted a relatively lengthy EA, but not further analysis in an EIS. The EA adequately addresses the important issues as concisely and briefly as possible.

46. The Sierra Club and GCELC also assert that the Commission's regulations require preparation of an EIS for the proposed action. The GCELC cites the Commission's regulations at 18 C.F.R. § 380.6, with emphasis on subpart (a)(1), to support their assertion that the Commission must prepare an EIS for the siting, construction, and operation of LNG import/export facilities under section 3 of the NGA. However, 18 C.F.R. § 380.6 (a)(1) begins "except as provided in paragraph (b) of this section" 18 C.F.R. § 380.6 (b) states "[i]f the Commission believes that a proposed action identified in paragraph (a) of this section may not be a major Federal action significantly affecting the quality of the human environment, an [EA], rather than an [EIS], will be prepared first." In this case, the staff determined that an EA was appropriate because all the proposed facilities would be within the footprint of the existing LNG terminal, which was previously the subject of an EIS, and the relevant issues that needed to be considered were relatively small in number and well-defined. The EA concludes, and we agree, that the Liquefaction Project would not have a significant impact on the quality of the human environment. Thus, an EIS is not required.⁵⁴

Purpose and Need Statements

47. The GCELC states that the EA fails to fully characterize or mitigate the effects which it contends would be associated with a project of the broad scope suggested by Sabine Pass' stated purpose and need. However, while the EA did restate the project purpose and need as articulated by Sabine Pass,⁵⁵ in this proceeding the Commission is responding to a proposal to construct and operate facilities to add liquefaction capability

⁵³ CEQ *Improving NEPA Efficiency*. March 6, 2012.

⁵⁴ The CEQ regulations state that, where an EA concludes in a finding of no significant impact, an agency may proceed without preparing an EIS. *See* 40 C.F.R. §§ 1501.4(e), 1508.13 (2011).

⁵⁵ As is our standard practice, at the request of the DOE and COE, as cooperating agencies, our EA also sets forth these agencies' proposed actions.

for domestic natural gas supplies at an existing LNG terminal.⁵⁶ In compliance with CEQ regulations and as described below, our NEPA analysis reviewed the direct, indirect, and cumulative impacts associated with the construction and operation of the proposed export facilities.

48. The GCELC also appears to dispute the COE's characterization of the project as water-dependent. The COE, as a cooperating agency, stands by the statement in the EA.

Storm Surge

49. The GCELC comments that the project is designed for a 100-year storm surge of 14 feet (i.e., the storm surge from a Category 3 hurricane) despite the fact that the EA cites data from the Digital Storm Atlas of Texas that predicts a worst-case Category 5 hurricane would produce a storm surge of up to 22 feet. Further, GCELC states that the EA relied on out-of-date information derived from the COE's *Floodplain Information, Sabine River and Adams Bayou, Orange, Texas, Area (1968)* and the *Digital Storm Atlas of Texas*. The GCELC claims that these outdated reports do not consider more destructive hurricanes that have affected the Louisiana Gulf Coast in the recent past and concludes that the design height of 18.5 feet mean sea level (MSL) for the Sabine Pass LNG terminal is not adequate to mitigate potential storm surge damage.

50. The EA includes discussion of recent storms including Hurricane Ike in 2008 (storm surge of 15 to 20 feet at Galveston Island and 13 feet at the Sabine Pass LNG Terminal⁵⁷ and Hurricane Rita in 2005 (storm surge of 10 to 15 feet in the project area). To predict a hypothetical, maximum worst-case scenario future storm surge, the EA used the Digital Storm Atlas of Texas to calculate an estimated worst-case storm surge of 22 feet in the project area. However, the historical maximum storm surge in the area is 15 feet. Engineering practice dictates that a realistic storm surge height should be calculated upon actual events. In this case, a factor of safety of over 20 percent was added to the actual historical maximum of 15 feet which resulted in the design height of 18.5 foot MSL for all critical elements, which provides a conservative height for adequate protection from future hurricanes.

51. The GCELC also raises concerns that the loss of coastal wetlands from erosion would increase the storm surge. In the references that the GCELC cites, storm surge

⁵⁶ See EA at 1-1.

⁵⁷ NOAA Historical SLOSH Simulation last updated on September 30, 2010
http://www.nhc.noaa.gov/surge/HistoricalRuns/index.php?loop&large&basin=slosh&par m=2008_ike#contents

increased from a lack of wetlands by a rate of about 16.6 centimeters per kilometer of wetland. Based upon the GCELC's figures, if no wetlands are present in the project area, this would cause an additional storm surge of approximately 3.5 feet. However, in the case of the Sabine Pass LNG terminal, wetlands remain between it and the coastal shoreline. In addition, the ground surface topography in the area is irregular and hummocky, which also reduces storm surge. The potential increase of storm surge height at the Sabine Pass LNG terminal due to the reduction in wetlands will be minimal and within the 18.5-foot MSL design height.

52. The EA refers to a 100 year storm surge based on the COE's 1968 Flood Plain Information, which calculated a storm surge of 14 feet. The GCELC indicates that this reference is outdated. However, Sabine Pass' Resource Report 2 cites a Federal Emergency Management Agency, National Flood Insurance Program Flood Insurance Rate Map (1992) for unincorporated areas within Cameron Parish, Louisiana. It also designated the project area to have base flood elevations ranging from 14 to 15 feet MSL for the 100-year flood. The information published in these reports and produced by other federal agencies support the EA's conclusion that the facility design elevations are adequate.

53. The GCELC also expressed concerns with land loss due to coastal erosion at the Sabine Pass LNG site. The United States Geologic Survey (2009) reference cited by the GCELC showed changes in land areas on the Chenier Plain. However, it did not show significant land loss at the project site. This is consistent with the EA, which states that the project area does not appear to be subject to the same degree of overall land loss when compared to areas to the east of the site.⁵⁸ After reviewing past storm surge activity and reviewing engineering guidelines regarding the design height of the project, we believe that the storm surge values used for the project are adequate and potential storm surge events would not significantly affect engineering and structural integrity.

Wastewater

54. The GCELC asserts that the EA failed to adequately characterize or mitigate adverse impacts on water quality resulting from oily wastewater and stormwater runoff from the project. The GCELC claims that the liquefaction train refrigerant compressors require lubricants that generate oily wastewater and the stormwater onsite would become contaminated with oil and grease. The GCELC compared the analysis of wastewater presented in the EA to the extensive EIS analysis prepared for the Australia Pacific LNG

⁵⁸ EA at 2-2.

(APLNG) project near Gladstone in Queensland, Australia and asserts that similar information is needed for Sabine Pass' project.

55. As discussed above, the EA addresses wastewater and stormwater runoff. Sabine Pass provided additional information on February 14, 2012, regarding oily wastewater disposal. The refrigeration compressor will be installed on a concrete compressor deck, which is designed to capture any oily wastewater. Sabine Pass estimated a loss of approximately one gallon per year per engine of oil into the containment system, which will be collected and disposed of at an approved off-site disposal location using an approved waste disposal contractor. For any other wastewater at the project site that is not disposed off-site, those waste streams will be subject to Louisiana Pollutant Discharge Elimination System (LPDES) Permit requirements. In addition, Sabine Pass will adhere to the requirements in the Facility Stormwater Pollution Prevention Plan to manage all stormwater drainage from the site.

56. We find the GCELC's comparison of the wastewater analysis conducted for this project with the one conducted in the APLNG project EIS inapposite. The APLNG project is a greenfield site with no existing wastewater or stormwater systems in place and no existing permits. The Sabine Pass LNG terminal has existing infrastructure, which Sabine Pass will use, and an existing LPDES permit, which it will modify. Wastewater or stormwater from the project will not result in significant impacts on surface water or groundwater.

Wetlands

57. In its comments on the EA, the Louisiana DWF stated that it had no objection to the project, provided that Louisiana DWF recommendations and Sabine Pass' mitigation obligations continue to be followed. As identified in the EA, Sabine Pass will continue to incorporate the Commission's Upland Erosion Control, Revegetation, and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures into its own construction and operating specifications. In addition, the EA states that Sabine Pass is required to obtain Section 10 – Rivers and Harbors Act and Section 404 – Clean Water Act Permits from the COE, along with several state and local permits for air emissions, coastal zone consistency, and stormwater discharge. Environmental condition 8 requires that prior to receiving authorization to commence construction, Sabine Pass will file documentation that it has received all applicable authorizations required under federal law.

58. In its comments on the EA, the FWS indicates that it concurs with staff's determination that the project is not likely to adversely affect federal trust resources and no further consultation regarding threatened and endangered species is necessary.

59. Regarding wetland impacts, the FWS recommends that Sabine Pass purchase credits at mitigation banks that contain emergent marsh within the Chenier Plain (such as

the Grand Canard Mitigation Bank and the soon-to-be-approved Aurora Ranch Mitigation Bank) rather than at the Petit Bois wetland mitigation bank. The FWS stated that the Petit Bois wetland mitigation bank is not within the Sabine River watershed and currently offers only bottomland hardwood credits. Similarly, the GCELC expresses concern that the compensatory wetland mitigation would occur outside of the local watershed and questions the justifications for off-site mitigation. The GCELC argues that the EA fails to discuss any method of mitigation other than wetland mitigation banks and does not consider or require restoration and/or creation of wetlands within the local watershed.

60. The EA states that the project would permanently affect 208.52 acres of wetland, that the COE requires compensatory mitigation,⁵⁹ and that no wetland mitigation banks with available credits exist in the Sabine Lake watershed. Through consultation with the COE, Sabine Pass evaluated three Mitigation Banks: Petit Bois, and the two referenced by the FWS, the Grand Canard and Aurora Ranch. Based on the use of a model approved by the relevant agencies, Sabine Pass determined that the Petit Bois Mitigation Bank could functionally offset the 208.52 acres of impact, while factoring in the difference in wetland type. Sabine Pass further demonstrated that a 251.00-acre replacement from Petit Bois would exceed the aquatic functional value of the emergent wetland impact by 4.5 percent. This includes 42.5 additional acres of perpetual habitat reestablishment. In addition, the Petit Bois primary service area falls within four miles of the project site, which is the closest available banking location. Petit Bois is also currently approved for impacts within the coastal zone. The COE found the use of the Petit Bois Mitigation Bank acceptable. Based on the above information, we concur that the Petit Bois Mitigation Bank is preferred for providing long term success and sustainability, increased functional value, and mitigation nearest to the project site.

61. The GCELC also states that the EA failed to adequately account for wetland mitigation for previously-disturbed and mitigated wetlands associated with the earlier phases of the Sabine Pass LNG terminal by not addressing the quality and quantity of the wetlands initially disturbed. The EIS issued in November 2004 for the Sabine Pass LNG import terminal provided a thorough analysis of the quality and quantity of the wetland disturbances for the Sabine Pass LNG terminal. Those impacts are summarized in the EA for this project. The EA adequately supports and discusses the revised mitigation ratio credits to account for the disturbances to wetlands disturbed by the project, as well as including additional ratios for wetlands previously used as mitigation sites. In addition, the final mitigation ratios and sites have been authorized by COE in permits issued on March 15, 2012.

⁵⁹ EA at 2-16.

Air Emissions and Modeling

62. The GCELC states that emissions of hydrogen sulfide (H₂S), volatile organic compounds (VOC) – an ozone precursor, and carbon dioxide (CO₂) from the acid gas vent stacks, as presented in the EA, have been underestimated by a factor of 1,000 due to a calculation error revealed in the Louisiana DEQ's final PSD Permit comment responses. The GCELC also contends that, the project would actually emit H₂S in excess of the 10 ton per year (tpy) PSD threshold for total reduced sulfur. As a result, the GCELC and Sierra Club state that the EA fails to adequately characterize, model, or mitigate for uncontrolled releases of H₂S.

63. In response to GCELC's and Sierra Club's comments, Commission staff reviewed Sabine Pass' Louisiana DEQ permit application and agrees that the emission calculation appears to include an error related to the acid gas vents. At staff's request, Sabine Pass provided supplemental information indicating that the systems it would implement to treat the acid gas were not included in the air permit as emission control devices. Sabine Pass also provided revised emission calculations and vendor specifications detailing an H₂S removal system and thermal oxidizer capable of achieving the revised emission calculations summarized in this order.⁶⁰

64. To address the impacts resulting from the revised emission estimates, Sabine Pass states that it will amend its Title V air permit to reflect the addition of a hydrogen sulfide removal system and thermal oxidizer and will not initiate construction of these systems until it receives all appropriate regulatory approvals. However, awaiting regulatory approval for construction and operation of these emission control devices would not preclude operation of the remainder of the project prior to receiving a permit for the emission control devices. Operation of the project without these emission control devices could result in emissions of H₂S and VOCs higher than those calculated. Therefore, to ensure the project's air quality impacts do not exceed those analyzed in the EA, we will require Sabine Pass to either obtain the necessary permit from Louisiana DEQ for these emission controls prior to construction of the pre-treatment facilities, or to conduct additional modeling demonstrating that the applicable pollutant thresholds will not be exceeded (environmental condition 13).

65. Sabine Pass has not made the final selection of the emission control systems for the acid gas removal. The size and configuration of this equipment could require modifications to the design and layout of Sabine Pass' liquefaction equipment within the site. Thus, we have added environmental condition 14 requiring Sabine Pass to

⁶⁰ See Appendix B to this order.

demonstrate that the proposed emission control systems for the acid gas removal do not affect the siting analysis⁶¹ included in the application and supplements. This information must be filed prior to the construction of pre-treatment facilities.

66. The Sierra Club states that the EA determined that the multi-year construction of the project will cause significant particulate matter (PM) emissions in the form of fugitive dust. The Sierra Club asserts that although the EA recommends that Sabine Pass file a Fugitive Dust Control Plan identifying additional mitigation measures to control fugitive dust, the EA does not include any assessment of the efficacy of these measures. The GCELC comments that the Fugitive Dust Plan recommended in the EA should be made available for public review and comment.

67. The EA states that Sabine Pass' proposed mitigation measures are insufficient to ensure adequate mitigation of fugitive dust and therefore recommends that Sabine Pass prepare a Fugitive Dust Control Plan that provides additional mitigation measures, and more specifically, accountability and individuals with authority to ensure the sufficiency of mitigation.⁶² However, the EA does not conclude that without the recommended Fugitive Dust Control Plan, construction emissions of PM would result in a significant impact. The EA does find that the Fugitive Dust Control Plan required in environmental condition 12 will not be used to determine a quantifiable metric for reduction, but as a performance based criterion for additional mitigation of fugitive dust. This information will be filed with the Commission and will be available for public review and comment.

68. The GCELC provided comments, stating that the EA underestimates air emissions from PM because the emission estimates were based on Sabine Pass' air permit application which only considered the wet and dry gas flares operating under pilot mode. The Louisiana DEQ addressed this comment in the final PSD Permit issued to Sabine Pass on December 6, 2011, stating that these flares would only be used in the event of an emergency or malfunction.⁶³ Thus, the emissions presented in the EA correctly present the operating emissions of the flares.

69. The GCELC and Sierra Club state that emissions from increased ship traffic, along with emission estimates associated with ships idling, berthing, or hoteling, are required to

⁶¹ 49 C.F.R. Part 193 (2011).

⁶² EA at 2-54.

⁶³ Emissions associated with an emergency or malfunction must be reported to Louisiana DEQ as unauthorized discharges. However, malfunctions are not predictable or routine aspects of a source's operations and should not be permitted as such.

properly characterize and mitigate adverse environmental impacts. The GCELC also states that the emissions, as presented in the 2004 Final EIS for the Sabine Pass LNG terminal, only accounted for 300 ships, and that the EA should have multiplied the emissions presented in the 2004 Final EIS by 33 percent to represent the additional 100 ships (or 400 total ships visits per year that the EA identified).

70. The EA clearly states that no increase in ship traffic is anticipated for the project.⁶⁴ However, to further clarify, we evaluated the Sabine Pass LNG Terminal Phase II Project (Phase II Project) in an EA issued in May of 2006 involving the expansion of the Sabine Pass LNG terminal from up to 300 ships per year to a total of 400 ships per year. The Phase II Project EA addressed emissions from all marine emissions in Louisiana and Texas for 400 ships per year. The EA also identified those emissions associated with LNG carrier cruising and transit versus hoteling and unloading. Although emissions from marine vessels are not required to be included in an air permit application in Louisiana,⁶⁵ the Phase II Project EA presented LNG carrier hoteling and unloading emissions as stationary source emissions in the EA. The modeling performed for the Phase II Project was based on the PSD permit and approved modeling protocol. Because the emissions associated with 400 ships per year were evaluated in the Phase II Project EA, and there will be no increase in ships over the 400 ships per year as a result of the proposals herein, it is not necessary to re-evaluate emissions that were fully addressed under NEPA for a previously approved project.

71. The GCELC contends that the VOC emissions from the acid gas vent stacks could condense to form aerosols that were not evaluated in the EA. As part of the final PSD Permit, the Louisiana DEQ confirmed that the U.S. Environmental Protection Agency's (EPA) currently approved dispersion models cannot determine the impacts of PM_{2.5} precursors, such as VOCs, on ambient concentrations of PM_{2.5}.⁶⁶ The final rulemaking issued by EPA, states "that it would be more effective to rely on interim policy and guidance as appropriate to help determine the best methods available to make the required assessment of source impacts on ambient PM_{2.5} resulting from any emissions." We agree with Louisiana DEQ's evaluation of precursor pollutants for PM_{2.5}, and find that the EA correctly reflects air quality impacts based on modeling of PM_{2.5} emissions.

⁶⁴ EA at 1-9.

⁶⁵ Louisiana Administrative Code 33:III.501.B.4.

⁶⁶ PSD for PM_{2.5} – Increments, Significant Impact Levels and Significant Monitor Concentration (75 Fed. Reg. 64864, October 20, 2010).

72. With regard to several pollutants, the GCELC states that the primary method of mitigation should be through proper application of Best Available Control Technology (BACT), as required under the PSD Program. The GCELC contends that Louisiana DEQ's failure to require a Top-Down BACT Analysis on the acid gas vents and turbines in the air permit results in an improper evaluation of PM_{2.5}, CO, and NO_x emissions in the EA.

73. While the analysis in the EA is very similar to that performed for the PSD permit to evaluate air quality impacts in the EA, the Louisiana DEQ, with delegated authority from the EPA under the Clean Air Act, is responsible for administering the PSD permit program in Louisiana. A BACT analysis is not required as part of a NEPA analysis. The emissions and modeling presented in the EA are based on the operating equipment emission rates with the selected control technology committed to by Sabine Pass. The results of the modeling analysis identify that impacts would be within the allowable values.

74. The GCELC claims that the project would result in a 10 percent increase in modeled PM_{2.5} concentrations in Port Arthur, Texas, citing a 1.17 microgram per cubic meter (µg/m³) increase compared to a Minerals Management Air Quality Study for the Gulf Coast existing design value of 11.3 µg/m³. The GCELC asserts that this would also produce a total PM_{2.5} concentration of 12.7 µg/m³ which exceeds a cited California Air Resource Board report that supports the California Ambient Air Quality Standard of 12 µg/m³. The GCELC further asserts that because these concentrations would exceed the 12 µg/m³ California Ambient Air Quality Standard, these concentrations would result in adverse human health impacts including increased death rate and increased lung ailments.

75. There are two significant errors in the GCELC's assertions regarding PM_{2.5} impacts. The first is that the GCELC has incorrectly combined modeling results associated with the shorter term PM_{2.5} 24-hour averaging time with the long-term PM_{2.5} annual background concentrations to make its conclusions. The second is that the GCELC has assumed that the maximum concentrations presented in the EA occur in Port Arthur, Texas. These modeled maximum concentrations, however, actually form at the facility property boundary. In Appendix C, this order addresses the technical analysis correcting the GCELC's errors and supports the analysis presented in the EA, which correctly analyzes PM_{2.5} impacts and concludes that modeled concentrations are less than the PSD significant impact levels.

76. The GCELC asserts that the Significant Impact Analysis modeling for CO and NO_x, performed by Sabine Pass for its PSD Permit, did not use the maximum potential emissions from the Sabine Pass LNG terminal because the existing vaporization sources represented under the Vaporization and Liquefaction Emissions Cap for the facility were not included, which would result in additional impacts. The GCELC also comments that

the following mischaracterizations of the modeling analyses should be rectified through preparation of an EIS: (1) the NO_x 1-hour and annual National Ambient Air Quality Standards (NAAQS) and PSD increment modeling analyses did not use the maximum potential emissions; (2) the NO_x 1-hour NAAQS modeling does not include all vaporization and liquefaction equipment operating simultaneously, representing maximum conditions; and (3) the NO_x annual NAAQS and PSD increment modeling were based on average emission rates instead of the maximum potential to emit (PTE) emission rates.

77. The Vaporization and Liquefaction Emissions Cap developed for the air permit, and maximum impacts from the Sabine Pass LNG terminal estimated in the EA, are based on the maximum emissions per pollutant for multiple sources on site, assuming various modes of operation. While NEPA does not require a Significant Impact Analysis modeling analysis,⁶⁷ the EA presents applicable modeling analyses to identify impacts of the project and avoid duplicative efforts among agencies. The Significant Impact Analysis modeling represents the maximum emissions of all liquefaction equipment. As stated in the Louisiana DEQ's Air Quality Modeling Procedures,⁶⁸ "the net emission increase as determined for the PSD applicability analysis should be modeled for the SIA." Vaporization equipment itself, or as represented under the emissions cap, is an existing permitted source that is not required to be modeled as part of a Significant Impact Analysis. Thus, the Significant Impact Analysis modeling submitted to the Louisiana DEQ in the air permit application and presented in the EA does not include existing vaporization equipment.

78. With respect to the NO_x 1-hour NAAQS and PSD increment modeling analyses, the EA states that market forces would likely determine the use of either liquefaction or regasification equipment.⁶⁹ Thus, short-term emission rates for the liquefaction project are treated as a separate operating scenario from vaporization, and are not anticipated to occur simultaneously. In addition, the Louisiana DEQ has enforced an air permit condition requiring a revised modeling analysis if Sabine Pass operates liquefaction and vaporization equipment simultaneously, in excess of specified emissions and operating

⁶⁷ A Significant Impact Analysis modeling analysis is required as part of the PSD air permitting program regulated by the Louisiana DEQ for this project.

⁶⁸Louisiana Department of Environmental Quality. August 2006. "Air Quality Modeling Procedures."
<http://www.deq.louisiana.gov/portal/DIVISIONS/AirPermits/AirModelingResources.aspx>.

⁶⁹ EA at 2-57.

hours, demonstrating compliance with the 1-hour NO₂ NAAQS. Thus, the 1-hour NO_x modeling analysis in the EA correctly analyzes an intermittent operating scenario.⁷⁰

79. Although the GCELC disagrees with the emission rates used in the modeling analyses, section 2.2 (NAAQS Analysis) of Louisiana DEQ's Air Quality Modeling Procedures states that "the appropriate emission rate depends upon the averaging period. For short-term averaging periods (1-hour, 3-hour, 8-hour, or 24-hour), the analysis uses the maximum, hourly PTE. For the annual averaging periods, the analysis uses the average, annual PTE." Similar language also appears for the PSD increment analysis modeling procedures. Thus, emission rates for the NO_x annual NAAQS and PSD increment modeling presented in the EA are correctly based from average emission rates.

80. The GCELC quotes EPA's comments on Sabine Pass' air permit application to the Louisiana DEQ regarding the Ozone Modeling Analysis, stating that ozone impacts as a result of the project may be significant, which contradicts the finding in the EA. The GCELC also believes that the impacts presented in the EA should be presented in the form of human health effects. The GCELC cites several studies to portray data on the increase in hospital admissions due to respiratory distress among young children and the estimated additional premature mortalities among residents of Jefferson County, Texas and believes these impacts require an EIS.

81. The GCELC misstated the EPA's comment regarding the Ozone Modeling Analysis performed. Upon review of EPA's comment to Louisiana DEQ, EPA did have several concerns regarding maximum operating emission rates for the equipment, and lack of modeling between noon and 6:00 p.m. EPA attempts to account for this underestimation in its comments, and indicates that it is unclear whether the project would result in significant impacts. EPA also notes that it has not developed significance levels for ozone, but has defined impacts from a state's emissions on another state's ozone levels.

82. The Louisiana DEQ responded to EPA's comments in the final PSD Permit clarifying that the Ozone Modeling Analysis included the maximum pound per hour NO_x rates and reflected operation of the refrigeration compressor turbines between noon and 6:00 p.m. Thus, there is no underestimation of sources from the project for this analysis.

⁷⁰ The EPA issued guidance on March 1, 2011 regarding modeling for the NO_x 1-hour NAAQS stating that "compliance demonstrations for the 1-hour NO₂ NAAQS address emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations based on existing modeling guidelines."

In addition, we note that EPA's comment regarding its definition of impacts on another state's ozone levels appears to reference its Cross-State Air Pollution Rule, which is not applicable to this project.

83. Regarding human health effects, the EA quantifies the project's impact on air quality and presents an analysis of the emissions relative to the relevant permits and programs under the Clean Air Act, including the NAAQS, which was specifically established by the EPA to protect human health. In the absence of EPA defined significance criteria for modeled ozone impacts for the project, the EA evaluates whether impacts would result in any new violations of the 8-hour ozone NAAQS and/or whether impacts would result in the increase in severity and/or frequency of violations of the NAAQS. The modeling results show no new violations of the NAAQS and no increases in the severity or frequency of violations of the NAAQS. Thus, the EA concludes that air quality impacts from the project would not be significant.

Cumulative Impacts

84. The GCELC comments that the EA fails to address cumulative impacts through the evaluation of the effects of the waterline modifications on the proposed project. We disagree. The EA clearly identifies the proposed waterline as an integral facility as part of the project.⁷¹ Rather than identify the water line as another facility that could cumulatively impact resources, the water line is considered part of the proposed action and impacts are evaluated throughout the entire EA.

85. The CGELC claims that the EA also failed to characterize or mitigate adverse cumulative environmental impacts associated with air emissions that would result from the Creole Trail's system modifications to accommodate bi-directional pipeline flow, including the addition of compressor stations.

86. We recognize that modifications to the Creole Trail's pipeline will be required to accommodate bi-directional flow. The EA states that there are several potential scenarios under which compression may be added to the Creole Trail's pipeline, but the precise nature and location of the required changes cannot be determined until Sabine Pass finalizes commercial arrangements with customers of the project. The EA also states that Creole Trail would file with the Commission for any authorizations required to modify its pipeline system to accommodate the bi-directional flow of gas when they are known.⁷²

⁷¹ EA at 1-10.

⁷² EA at 1-9.

87. Because air quality analyses are highly dependent on types and specific location of equipment, it would be highly speculative and not reasonable to include any Creole Trail facilities in our analysis. A NEPA analysis of the modifications to Creole Trail's system, including an air impacts analysis for all above-ground facilities, as well as compressor stations, would occur if Creole Trail filed an application for these facilities with the Commission.

88. The GCELC also raises concern that the cumulative impacts analysis does not include other reasonably foreseeable liquefaction projects in the Gulf Coast area, such as the Cameron LNG, Trunkline LNG, and Freeport LNG, facilities along with the new proposed Brownsville, Texas liquefaction facility. The GCELC argues that the EA does not consider the cumulative impacts of these other proposed liquefaction projects on regional air quality or the anticipated implications of global warming and an EIS should be prepared to fully analyze these impacts.

89. At the time of issuance of the EA, only one of the facilities identified by the GCELC in the Gulf Coast region had entered the pre-filing process with the Commission (i.e., Freeport LNG). Since issuance of the EA, one other facility has started the pre-filing process for liquefaction and export in the Gulf Coast region (i.e., the proposed Cheniere Corpus Christi LNG facility in Corpus Christi, Texas). Although the GCELC asserts that it is reasonably foreseeable that all of these liquefaction facilities would proceed and contribute to air emissions and greenhouse gases, the certainty that all of these projects will proceed is speculative.

90. The Freeport LNG facility was considered but eliminated from cumulative impacts review because the facility was determined to be located outside of the air quality control region that the Sabine Pass LNG terminal is located within (the Southern Louisiana-Southeast Texas Interstate Air Quality Control Region) and was not within the same geographic area for considering cumulative air quality impacts in the EA. In addition, unlike the Sabine project, which would utilize four liquefaction trains with natural gas-driven equipment, the proposed Freeport Liquefaction facility currently proposes three liquefaction trains with mostly electric-driven equipment. Thus, the Freeport Liquefaction facility is unlikely to contribute additional significant quantities of greenhouse emissions. In addition, like the Freeport LNG facility, the Corpus Christi and Brownsville, Texas facilities would be located outside of the same air quality control region as the Sabine Pass LNG terminal, and their air sheds do not overlap with the Sabine Pass LNG terminal's air shed. Thus, there would not be cumulative air impacts.

91. Although the Cameron LNG and Trunkline LNG facilities are located within the same air quality control region as the Sabine Pass LNG terminal, the project sponsors have not yet filed an application or started the pre-filing process at the Commission, and construction timelines and in-service dates are unknown. It is speculative to assume resulting construction emissions would overlap. In addition, each facility can vary by

size and proposed power source for the liquefaction equipment, which can greatly vary the resulting operating emissions of criteria and greenhouse gas pollutants. Thus, without additional information regarding equipment sizes and fuel sources, we are unable to identify these other facilities' operating impact on air quality or climate change.

92. The Sierra Club contends that the EA's inability to quantify incremental physical impacts due to climate change as a result of greenhouse gas emissions does not render the impacts insignificant. The EA quantifies the project's contribution to greenhouse gas emissions,⁷³ noting, however, that we cannot determine the project's incremental physical impacts on climate change on the environment or determine whether the project would result in significant impacts.⁷⁴ The EPA threshold set for identifying major sources of greenhouse gas is not an indicator of significance for NEPA purposes.⁷⁵ The EA explains that carbon capture and storage is not feasible in geological formations in the geographic area of the Liquefaction Project. The EA also discusses that the alternative of constructing a pipeline to transport captured CO₂ from the Liquefaction Project to an existing CO₂ pipeline system would result in additional environmental and air quality impacts. The EA goes on to identify the mitigation measures that Sabine Pass Liquefaction has adopted for the reduction of greenhouse gas emissions and that are included as part of the PSD Air Permit.⁷⁶

93. The Clean Air Act imposes specific requirements on federal agencies whose actions may affect state efforts to attain the national ambient air quality standards. Under the Clean Air Act, if a federal agency's actions will likely result in direct or indirect emissions exceeding a certain EPA-mandated threshold the agency must prepare a conformity analysis looking at the effects and must mitigate the project's emissions. The Commission was not required to conduct a conformity analysis in this proceeding because the general air quality in the vicinity of the facility is below federal air quality

⁷³ EA at 2-53 through 2-59.

⁷⁴ EA at 2-100.

⁷⁵ Council on Environmental Quality, February 18, 2010. *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*.

⁷⁶ See EA at 2-99. Among other things, Sabine Pass Liquefaction has selected better thermal efficiency natural gas turbines, good combustion/operating practices (operating with water injection) as its BACT for CO₂ and CH₄ emissions from the turbines, BACT emission limits for the flares and emergency generators, flare gas recovery that will reduce CO₂ emissions from flaring, and a waste heat recovery system on each liquefaction train.

standards and anticipated incremental emissions will stay within federal air quality standards. In *South Coast Air Quality Management District v. FERC*,⁷⁷ the Court of Appeals concluded that, because indirect air emissions from burning North Baja gas were not reasonably foreseeable and were not subject to the Commission's control, the Commission was not required to conduct a full conformity analysis regarding those emissions. Similarly, in this proceeding, the amount of end use emissions resulting from this project is not reasonably foreseeable.

94. The GCELC and Sierra Club assert that the project will encourage additional shale gas production and resulting air and water pollution. They insist that such developments are indirect effects of the project and must be considered in a cumulative impacts analysis. They contend that the purpose and need statement set forth in the EA identifies that the project will support increased shale-gas production from shale fields and that those impacts are reasonably foreseeable.

95. The CEQ regulations require agencies to consider the environmental effects of their proposed actions, including: (1) direct effects, which are caused by the action and occur at the same time and place; and (2) indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.⁷⁸ Agencies are also required to consider the cumulative impacts of proposed actions, which are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions....”⁷⁹ An impact is “reasonably foreseeable” if it is “sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision.”⁸⁰ The GCELC cites the eight general CEQ principles governing cumulative effects analyses.⁸¹ However, we note that the fourth principle emphasizes that “it is not practical

⁷⁷ 621 F.3d 1085 (9th Cir. 2010).

⁷⁸ 40 C.F.R. § 1508.8 (2011).

⁷⁹ 40 C.F.R. § 1508.7 (2011).

⁸⁰ *City of Shoreacres v. Waterworth*, 420 F.3d 440, 453 (5th Cir. 2005).

⁸¹ These include, e.g., (1) cumulative effects are caused by the aggregate of past, present, and reasonably foreseeable future actions; (2) cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (federal, nonfederal, or private) has taken the actions; and (3) cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and human community being affected. *See Considering Cumulative Effects Under the National Environmental Policy Act* (CEQ 1997).

to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.”⁸²

96. As is explained below, impacts which may result from additional shale gas development are not “reasonably foreseeable” as defined by the CEQ regulations. Nor is such additional development, or any correlative potential impacts, an “effect” of the project, as contemplated by the CEQ regulations, for purposes of a cumulative impact analysis.

97. While Sabine Pass states its purpose and need will support increased shale-gas production, no specific shale-gas play is identified. Sabine Pass will receive natural gas at its interconnection with the Creole Trail pipeline, which interconnects with other pipelines in the interstate grid. These interconnecting pipeline systems (Natural Gas Pipeline Company of America, Transcontinental Gas Pipeline Company, Texas Eastern Transmission Company, and Trunkline Gas Company) span states from Texas to Illinois to Pennsylvania and New Jersey and cross multiple shale-gas, as well as conventional-gas, plays. In addition, each of these interconnecting pipeline systems has a developed network of additional interconnects with other gas transmission pipeline companies that may cross additional gas plays. Sabine Pass identified in Appendix 1E of its Resource Report 1 that, subject to customer requests, Creole Trail would make modifications to enable bi-directional flow and accommodate deliveries to the project facilities at some or all of its existing interconnects.

98. Further, while Sabine Pass mentions that the project will allow the further development of shale-gas sources in the United States, Sabine Pass does not, and really cannot, estimate how much of the export volumes will come from current shale gas production and how much, if any, will be new production “attributable” to the project. The project does not depend on additional shale gas production which may occur for reasons unrelated to the project and over which the Commission has no control, such as state permitting for additional gas wells. An overall increase in nationwide production of shale-gas may occur for a variety of reasons, but the location and subsequent production activity is unknown, and too speculative to assume based on the interconnected interstate natural gas pipeline system. Accordingly, the factors necessary for a meaningful analysis of when, where, and how shale-gas development will occur are unknown at this time.

99. In this case, wells which could produce gas that might ultimately flow to this project might be developed in any of the shale plays that exist in nearly the entire eastern half of the United States. Accordingly, it is simply impractical for the Commission to

⁸² *Id.*

consider impacts associated with additional shale gas development as cumulative indirect impacts resulting from the project which must, under CEQ regulations, be meaningfully analyzed by this Commission. We find that the EA appropriately considers cumulative impacts on the areas surrounding the project and appropriately focuses on potential impacts associated with the proposal to add liquefaction capability at the existing LNG site. The EA's analysis of the potential impacts of the project on geology and soils, water resources, fisheries, vegetation, and wildlife, land use, recreation, and visual resources, socioeconomics and cultural resources, as well as on air quality, noise, and climate change, indicates that the project will result in little to no incremental contribution to impacts on resources in the project area.⁸³ Therefore, the project's incremental contribution to impacts well beyond the project area would likewise be negligible.

Environmental Justice

100. The GCELC comments that the EA fails to fully address or mitigate the direct, indirect, and cumulative air emission impacts from the project on the surrounding environmental justice communities in Jefferson County, Texas, including Port Arthur and Beaumont. The GCELC further states that the Commission incorrectly limited the EA's analysis to the existing project site and did not consider the impacts on Port Arthur residents. The GCELC contends that the Commission should have coordinated with EPA Region 6 to use information and community contacts. The GCELC claims the project may impact the environmental justice communities of Port Arthur and Beaumont, Texas through: air impacts; increased noise pollution from the shipping traffic and operation of the facility; contaminated wastewater, spills from operating of the facility, and increased shipping traffic impairing the water quality; increased threats to public safety as a result of hurricane damage; and the potential impact of the proposed water pipeline on local water supplies.

101. Air modeling performed for the project included receptors located in the Port Arthur area for all pollutants modeled and in Beaumont for NO₂ and ozone. Modeled results were determined to be within the allowable values for all pollutants and receptor locations. Thus, air impacts on environmental justice communities were evaluated and determined not to be significant. In addition, our staff consulted with EPA Region 6 during review of the Ozone Modeling Protocol and ensured communities in Jefferson County, Texas were included in the modeled results.

⁸³ EA at 2-95 through 2-100.

102. As discussed above, the project does not result in any increases in shipping traffic from what has been previously evaluated in NEPA documents. Thus, no additional ship-related impacts as a result of noise pollution or water contamination were evaluated.

103. Noise impacts due to operation of the facility are estimated in the EA.⁸⁴ Impacts are evaluated at the closest noise sensitive areas (a marina and the Sabine Pass Battleground State Historic Site Park). Noise levels due to operation of the existing and project equipment combined are estimated to be below the Commission's maximum criterion of a day-night sound level (Ldn) of 55 decibels on the A-weighted scale (dBA). Noise impacts at further distances (such as Beaumont and Port Arthur, Texas) will be further reduced due to noise attenuation. However, to ensure the actual noise resulting from operation of the staged project facilities is not significant, environmental condition 15 requires Sabine Pass to file a noise survey documenting compliance with the 55 dBA Ldn noise criterion at any nearby NSA after the facilities are placed into service.

104. As discussed above, the EA addressed contaminated wastewater and determined that wastewater will not result in impairments to surface waters. In addition, Sabine Pass will follow the measures outlined in its Spill Prevention, Control, and Countermeasures Plan, which is currently in place for the Sabine Pass LNG terminal. This plan will be reviewed and modified to include the liquefaction facilities.⁸⁵ Thus, the EA addressed impacts to water resources and there will not be significant impacts.

105. Hurricanes and storm surge are addressed in the EA⁸⁶ and discussed above in response to comments. The proposed facilities will be designed to withstand the effects of hurricane force winds up to 155 miles per hour. As such, we believe that hurricane and potential storm surge events will not significantly affect the engineering and structural integrity of the project. In addition, public safety is addressed in the EA, including design spills, a thermal radiation analysis, a vapor dispersion analysis, and overpressure considerations.⁸⁷ In all cases, impacts were determined not to leave the property boundary. Thus, impacts on the public, including environmental justice communities, will not be significant.

⁸⁴ EA at 2-67.

⁸⁵ EA at 2-11.

⁸⁶ EA at 2-2, 2-4, and 2-74.

⁸⁷ EA at 2-82 through 2-93.

106. In addition to the GCELC's concerns regarding the water pipeline's impact on water supplies, the Sierra Club also comments that the EA only describes the supply of water for the proposed waterline up to 2,200 gallons per minute (gpm), but fails to identify where the project would obtain the remaining water needs based on the current design of the project (an additional 1,300 gpm). The EA states that the source of water for the new waterline would be from the Port Arthur, Texas municipal water system, which is the only existing water system in the area capable of supplying the water quantity required for the project.⁸⁸ The EA also states that Port Arthur obtains its water supply from the Neches River. Lastly, the EA states that the water supply line is being evaluated as part of a COE Permit application and, should it be necessary to modify the waterline specifications to supply additional water to the site, Sabine Pass would consult with all appropriate resource agencies to obtain or update its existing permits or authorizations. Thus, the EA concludes that the project will not impact water supplies.

Safety

107. In order to provide clarification on the level of detail required to be filed, environmental recommendations 27, 42, and 43 in the EA have been modified and are included in this order as environmental conditions 30, 45, and 46, respectively.

108. Roy Marsh submitted comments concerning the hazards of mercury and H₂S. The EA addresses these hazards and states that mercury accumulated in carbon beds would form mercuric sulfide, which is stable and insoluble.⁸⁹ The EA states that plant maintenance and safety procedures will cover the proper disposal of the mercuric sulfide.⁹⁰ With regards to H₂S, the EA discusses how the low quantity and concentration in the natural gas will not pose a hazard to the public. During regeneration of the amine solution, higher concentrations of H₂S may be vented to the atmosphere. As discussed above, Sabine Pass intends to install emission control devices to eliminate H₂S emissions or reduce them to levels allowed under air permitting requirements. If the final selection of equipment is configured to vent H₂S, such venting would be done in accordance with emission permits and in a controlled manner and location to prevent public impacts. In order to protect on-site personnel, Sabine Pass will provide H₂S detectors at the top of the amine regenerators and near the acid gas vent stack, where the highest concentrations of

⁸⁸ EA at 2-15.

⁸⁹ EA at 2-68 through 2-69.

⁹⁰ EA at 2-69. *See also* Application Resource Report 13, Appendix C, Environmental Design Criteria Section 9.3 Hazardous Waste.

H₂S will occur. Environmental condition 29 requires Sabine Pass to provide an acid gas vent stack dispersion analysis to determine the proper placement of these hazard detection devices to ensure plant personnel safety.

109. The GCELC comments that the following safety issues are either incomplete or not available for public review and comment: (1) risks associated with vapor dispersion from the transportation or unloading of the proposed propane and ethylene trucks, and strategies to mitigate these risks; (2) the risk management plan; (3) the emergency response plan; (4) the vapor barrier inspection plan; and (5) the access control plan.

110. The EA did not discuss the transportation of propane and ethylene by truck to the site. The federal requirements for the transportation of hazardous materials are contained within the USDOT's regulations in Title 49 of the Code of Federal Regulations. The Commission has no jurisdiction over those activities. Within the USDOT, the Pipeline and Hazardous Materials Safety Administration (PHMSA) and the Federal Motor Carrier Safety Administration (FMCSA) are charged with administering the safety aspects of hazardous materials transportation. The PHMSA establishes requirements for packaging, labeling, emergency response, and security for the transportation of hazardous material in the United States. The FMCSA establishes driver licensing and qualification requirements and standards for routing either by the motor carrier or by a state. Any transportation of propane or ethylene to the site would have to comply with the USDOT regulations.

111. With regards to the unloading of the proposed propane and ethylene trucks at the project site, we conclude that the EA provided a complete analysis. The unloading of propane and ethylene trucks at the project site is addressed by spill impoundments, plant operating procedures, and the emergency response plan.⁹¹ As discussed in the EA, a sloped concrete-paved area located within the truck unloading facilities will direct any spills to containment troughs leading to the liquefaction impoundment sump.⁹² The EA also discusses design spills used to determine vapor dispersion distances required by federal regulation.⁹³ Our staff, in consultation with USDOT, used publicly available failure rates to establish a quantitative threshold for single accidental leakage sources required by 49 C.F.R. Part 193 (i.e., design spill). Table 2.8-3 in the EA provides the different types of failures and associated failure rates considered, which includes leaks and ruptures of truck transfer hoses. Although these failures meet the established failure

⁹¹ EA at 2-83 and 2-94.

⁹² EA at 2-82 through 2-83.

⁹³ EA at 2-84 through 2-87.

rate criterion discussed in the EA, the process conditions and location of the spill must also be considered when selecting a design spill. As such, a failure in the truck unloading facilities area will result in a smaller spill in a more remote location, with respect to the plant property line, than a full rupture of a pressurized propane line and ethylene line in the liquefaction process area. Vapor dispersion scenarios from the larger design spills located closer to the property line were modeled and discussed in the EA.⁹⁴

112. We do not agree that the discussion of risk management plans was incomplete in the EA. As discussed in the EA,⁹⁵ the EPA issued and published in the *Federal Register*, 63 Fed. Reg. 639 (1998), a preamble to its final rule for the chemical accident prevention provisions of 40 C.F.R. Part 68, which includes requirements for a facility to submit a *Risk Management Plan* (RMP), if a listed hazardous material is stored, handled, or processed in a quantity greater than specified in the regulations. The preamble stated that a transportation exemption applies to LNG facilities subject to regulation under 49 C.F.R. Part 193, including those used to liquefy natural gas. Our staff consulted with the USDOT in its role as a cooperating agency in the NEPA review. In this consultation, the USDOT determined that the facilities would be subject to 49 C.F.R. Part 193. Section 2.8.5 of the EA provides analyses of the proposed design's compliance with 49 C.F.R. Part 193, which includes many of the same evaluations required under 40 C.F.R. Part 68, including the evaluation of accidental releases of these chemicals and resultant vapor dispersion, thermal radiation, and overpressure modeling.

113. In regards to the emergency response plan, we believe there is opportunity for future public review and comment. In accordance with the EAct 2005, environmental condition 23 requires Sabine Pass to update its existing emergency response plan (ERP) to include the proposed liquefaction facilities. Sabine Pass is required to consult with local fire and police departments, emergency responders, and other applicable agencies. As noted by environmental condition 23, the ERP must be filed and information pertaining to items such as off-site emergency response and procedures for public notification and evacuation would be subject to public disclosure. The Commission will review and approve the ERP prior to initial site preparation to ensure that appropriate state and local agencies have been involved in updating the plan. We will not issue authorization to commence initial site preparation until the conditions requiring approval prior to initial site preparation are satisfied. In situations where resource gaps are identified, the Cost Sharing Plan required by environmental condition 24 must identify the mechanisms for funding any capital costs associated with any necessary

⁹⁴ EA at 2-88 through 2-92.

⁹⁵ EA at 2-47 through 2-48 and 2-81.

security/emergency management equipment and personnel base. In the absence of appropriate security/emergency response resources or funding, the ERP and the Cost Sharing Plan will not be approved and the project will not be allowed to proceed.

114. As described in the EA, the vapor barrier will consist of slats inserted into a chain-link fence that runs along the property line and was used by Sabine Pass to demonstrate compliance with siting requirements of 49 C.F.R. Part 193.⁹⁶ The Sabine Pass LNG terminal has already established procedures to maintain its existing security fencing around its property line. However, portions of the proposed security fencing for the project will provide an additional function as a vapor barrier. Based on our staff's consultation with the USDOT, and to ensure the siting requirements of 49 C.F.R. §193.2059 are met throughout the life of the facility, environmental condition 41 requires that Sabine Pass file these procedures to maintain and inspect the vapor barriers. These procedures can easily be incorporated into Sabine Pass' existing inspection and repair programs. However, such plant operation and maintenance procedures can contain specific engineering, vulnerability, or detailed design information which is not typically considered public information. We will not issue authorization to commence construction of the final design until the condition has been satisfied.

115. As described in the EA, the area surrounding the Kinder Morgan meter station is leased by Sabine Pass and, any access to the meter station would require coordination with Sabine Pass.⁹⁷ It is important to note that there is no public access to the meter station, as it is on privately held property. This will not be changed by the access control plan, which is only intended to establish proper coordination between Kinder Morgan and Sabine Pass and ensure Kinder Morgan and Sabine Pass plant personnel safety. Environmental condition 22 requires that initial site preparation cannot begin until Sabine Pass finalizes its procedures for access control to the Kinder Morgan meter station.

Alternatives

116. The GCELC contends that the EA fails to evaluate the energy efficiency of the project or consider alternative configurations that could be more energy efficient. The GCELC also asserts that the EA fails to mitigate for global warming impacts through the installation of waste heat recovery on the turbines and other alternative configurations. Finally, the GCELC maintains that fully evaluating energy efficient alternatives and promoting mitigation measures to improve energy efficiency is fundamental to the Commission's mission.

⁹⁶ EA at 2-89 through 2-92.

⁹⁷ EA at 2-93.

117. We disagree with the GCELC's assertions. The EA identifies several mitigation measures to reduce greenhouse gas emissions, including the selection of LM 2500+G4 turbines over GE Frame 5D turbines, which have a better thermal efficiency and reduced CO₂ emissions.⁹⁸ Sabine Pass will also install a waste heat recovery system on each liquefaction train for regenerating the gas driers and amine system. In addition, the EA discusses alternative layout configurations for the project and includes efficiency criteria where applicable.⁹⁹ Alternative layouts 2 and 4 would result in reduced cooler efficiency due to the existing LNG tanks obstructing the prevailing wind. Alternative layout 5 provided the best air recirculation from the process coolers. However, this alternative presented other environmental impacts and operational difficulties that outweighed its efficiency benefit

118. Based on the analysis in the EA, we conclude that if constructed and operated in accordance with Sabine Pass' application and supplements, and in compliance with the environmental conditions in Appendix D of this order, our approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment.

119. Any state or local permits issued with respect to the jurisdictional facilities authorized herein must be consistent with the conditions of this certificate. The Commission encourages cooperation between Sabine Pass and local authorities. However, this does not mean that state and local agencies, through application of state or local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by this Commission.¹⁰⁰

120. The Commission on its own motion received and made a part of the record in this proceeding all evidence, including the application, as supplemented, and exhibits thereto, submitted in support of the authorizations sought herein, and upon consideration of the record,

⁹⁸ EA at 2-99.

⁹⁹ EA at 3-8 through 3-9

¹⁰⁰ See, e.g., *Schneidewind v. ANR Pipeline Co.*, 485 U.S. 293 (1988); *National Fuel Gas Supply v. Public Service Commission*, 894 F.2d 571 (2d Cir. 1990); and *Iroquois Gas Transmission System, L.P., et al.*, 52 FERC ¶ 61,091 (1990) and 59 FERC ¶ 61,094 (1992).

The Commission orders:

(A) Sabine Pass LNG's and Sabine Pass Liquefaction's application for authorization under NGA section 3 to site, construct, and operate LNG liquefaction and modified terminal facilities to export domestically produced natural gas, as detailed in its application, is granted as discussed in the body of this order.

(B) Sabine Pass LNG and Sabine Pass Liquefaction shall comply with the environmental conditions contained in Appendix D to this order.

(C) The construction of the proposed facilities and any yet to be completed facilities authorized as part of Sabine Pass' Phase II proceedings shall be completed and made available for service within five years of the date of issuance of this order.

(D) Sabine Pass LNG and Sabine Pass Liquefaction shall notify the Commission's environmental staff by telephone, e-mail, or facsimile of any environmental noncompliance identified by other Federal, state, or local agencies on the same day that such agency notifies Sabine Pass LNG and Sabine Pass Liquefaction. Sabine Pass LNG and Sabine Pass Liquefaction shall file written confirmation of such notification with the Secretary of the Commission (Secretary) within 24 hours.

(E) The Gulf Coast Environmental Labor Coalition's and the American Public Gas Association's motions to intervene are granted pursuant to Rule 214 of the Commission's Rules of Practice and Procedure.

(F) Shell US Gas and Power, LLC's and BG LNG Services, LLC's, and Sierra Club's motions to intervene out-of-time are granted pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure.

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.

Appendix A

Timely Interventions

American Public Gas Association
Chesapeake Energy Corporation
Chevron U.S.A. Inc.
ConocoPhillips Company
Gulf Coast Environmental Labor Coalition
Kinder Morgan Louisiana Pipeline LLC
Macquarie Energy LLC
Total Gas & Power North America, Inc.

Appendix B

Acid Gas Vents

The acid gas treatment system includes a hydrogen sulfide removal system between the solvent regenerator reflux drum and the acid gas vent knockout drum. This system is designed to achieve a 98.9 percent removal of H₂S. Sabine Pass also replaced the acid gas vent stack with a thermal oxidizer capable of achieving a 99.99 percent destruction efficiency, along with an additional level of H₂S removal (99.99 percent destruction efficiency). The net change in emissions from those presented in the air permit¹⁰¹ as a result of the revised emission calculations, hydrogen sulfide removal system, and thermal oxidizer include the following pollutants and emissions: nitrogen oxides (+37.5 tpy); carbon monoxide (+150 tpy); total VOCs (+2.12 tpy); Benzene (+0.04 tpy); particulate matter less than 10 microns in aerodynamic diameter [PM₁₀] (+3.03 tpy); particulate matter less than 2.5 microns in aerodynamic diameter [PM_{2.5}] (+3.03 tpy); sulfur dioxide (+11.8 tpy); H₂S (-0.48 tpy); CO₂ (+791,000 tpy); and carbon dioxide equivalent (+791,000 tpy).

The revised total liquefaction only project emissions are approximately as follows: nitrogen oxides (+2,707 tpy); carbon monoxide (+4,904 tpy); total VOCs (+90 tpy); PM₁₀ (+219 tpy); PM_{2.5} (+219 tpy); sulfur dioxide (+12 tpy); H₂S (0.001 tpy); CO₂ (4,610,000 tpy), carbon dioxide equivalent (+4,700,536 tpy); and Benzene (80 pounds per year).

¹⁰¹ During the air permitting process, the Louisiana DEQ determined that the acid gas vents would be a source of emissions for VOCs (including Benzene) and H₂S. These estimates were not part of the original project pollutants identified in the EA for the acid gas vents, but are corrected here and compared with the air permit's emission estimates.

Appendix C

PM_{2.5} Dispersion Modeling

Correcting the GCELC's errors, the maximum modeled shorter-term 24-hour PM_{2.5} concentration of 1.17 µg/m³ (plotted at the property boundary of the Sabine Pass LNG terminal, not in Port Arthur, Texas), combined with the background concentration¹⁰² of 28.7 µg/m³, results in a maximum PM_{2.5} concentration on a 24-hour averaging time of 29.87 µg/m³. The California Ambient Air Quality Standard (CAAQS) does not have a standard for the PM_{2.5} 24-hour averaging time. The EPA set the NAAQS for the PM_{2.5} 24-hour averaging time at 35 µg/m³. The project concentration added to the background is projected below the NAAQS and would represent a four percent increase in PM_{2.5} concentration at the property boundary of the facility. In addition, as presented in the EA, the modeled concentration is less than the PSD significant impact level.

The greatest concentration of modeled PM_{2.5} on a 24-hour averaging time at the Louisiana-Texas border is approximately 0.61 µg/m³. This concentration would be over water in the Sabine Pass River, at a distance from the population of Port Arthur. This concentration added to the same background value above results in a total concentration of 29.31 µg/m³, which is below the NAAQS, and a 2 percent PM_{2.5} increase on a 24-hour averaging time.

Similarly, the maximum modeled PM_{2.5} concentration on the long-term annual averaging time is 0.19 µg/m³, which occurs at the Sabine Pass LNG terminal northern property boundary. The greatest concentration of modeled annual PM_{2.5} at the Louisiana-Texas border is approximately 0.07 µg/m³, which again occurs over water in the Sabine Pass River, away from the population of Port Arthur. The background monitor value on an annual averaging time as taken from the same monitor located in Port Arthur and years is 11.14 µg/m³. The modeling produces a total concentration of 11.33 µg/m³ and 11.21 µg/m³ at the Sabine Pass LNG terminal property boundary and Louisiana-Texas border, respectively. This represents a 1.7 percent and 0.6 percent increase in PM_{2.5} annual concentrations at the Sabine Pass LNG terminal property boundary and Louisiana-

¹⁰² Background concentration is estimated from an average over 2006-2008 from a monitor located in Port Arthur, Texas for PM_{2.5} based on a 24-hour averaging time.

Texas border, respectively. Under the maximum concentration at the Sabine Pass LNG terminal property boundary and Louisiana-Texas border, the total concentrations continue to remain below the NAAQS ($15 \mu\text{g}/\text{m}^3$) and the CAAQS ($12 \mu\text{g}/\text{m}^3$).¹⁰³

¹⁰³ We are providing the CAAQS as a reference point in response to the GCELC. However, neither the EPA nor the Louisiana DEQ has adopted the annual $\text{PM}_{2.5}$ CAAQS of $12 \mu\text{g}/\text{m}^3$. Thus, this standard is not applicable to the project.

Appendix D

This order is subject to the following environmental conditions which apply both to Sabine Pass Liquefaction and Sabine Pass LNG:

1. Sabine Pass shall follow the construction procedures and mitigation measures described in its application (and supplements, including responses to staff data requests) and as identified in the environmental assessment (EA), unless modified by this Order. Sabine Pass must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of the Office of Energy Projects (OEP) before using that modification.
2. The Director of OEP has delegated authority to take all steps necessary to ensure the protection of life, health, property and the environment during construction and operation of the project. This authority shall include:
 - a. stop-work authority and authority to cease operation; and
 - b. the design and implementation of any additional measures deemed necessary to assure continued compliance with the intent of the conditions of this Order.
3. **Prior to any construction**, Sabine Pass shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors (EIs), and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs before becoming involved with construction and restoration activities.
4. The authorized facility locations shall be as shown in the EA. **As soon as they are available, and before the start of construction**, Sabine Pass shall file with the Secretary any revised detailed survey maps at a scale not smaller than 1:6,000 for all facilities approved by this Order. All requests for modifications of environmental conditions of this Order or site-specific clearances must be written and must reference locations designated on these maps.

5. Sabine Pass shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP before construction in or near that area.

This requirement does not apply to extra workspace allowed by Sabine Pass' Upland Erosion Control, Revegetation, and Maintenance Plan.

Examples of alterations requiring approval include facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
 - b. implementation of endangered, threatened, or special concern species mitigation measures; and
 - c. recommendations by state regulatory authorities.
6. **Within 60 days of the acceptance of the certificate and before construction begins**, Sabine Pass shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Sabine Pass must file revisions to the plan as schedules change. The plan shall identify:
 - a. how Sabine Pass will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by this Order;
 - b. how Sabine Pass will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
 - d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
 - e. the location and dates of the environmental compliance training and instructions Sabine Pass will give to all personnel involved with

- construction and restoration (initial and refresher training as the project progresses and personnel change, with the opportunity for OEP staff to participate in the training sessions);
- f. the company personnel (if known) and specific portion of Sabine Pass' organization having responsibility for compliance;
 - g. the procedures (including use of contract penalties) Sabine Pass will follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the environmental compliance training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.
7. Beginning with the filing of its Implementation Plan, Sabine Pass shall file updated status reports with the Secretary on a monthly basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. an update on Sabine Pass' efforts to obtain the necessary federal authorizations;
 - b. the construction status of the project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
 - c. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - d. a description of the corrective actions implemented in response to all instances of noncompliance, and their cost;
 - e. the effectiveness of all corrective actions implemented;
 - f. copies of any correspondence received by Sabine Pass from other federal, state, or local permitting agencies concerning instances of noncompliance, and Sabine Pass' response.
8. **Prior to receiving written authorization from the Director of OEP to commence construction of any project facilities**, Sabine Pass shall file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

9. Sabine Pass must receive written authorization from the Director of OEP **prior to introducing natural gas or process fluids** into the Project facilities. At a minimum, instrumentation and controls, hazard detection, hazard control, and security components/systems shall be installed and functional.
10. Sabine Pass must receive written authorization from the Director of OEP **before placing into service** the LNG Liquefaction facilities and other components of the Project. Such authorization will only be granted following a determination that the facilities have been constructed in accordance with Commission approval and applicable standards, can be expected to operate safely as designed, and the rehabilitation and restoration of the areas affected by the project are proceeding satisfactorily.
11. **Within 30 days of placing the authorized facilities in service**, Sabine Pass shall file an affirmative statement with the Secretary, certified by a senior company official:
 - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the certificate conditions Sabine Pass has complied with or will comply with. This statement shall also identify any areas affected by the project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
12. **Prior to construction**, Sabine Pass shall file a Fugitive Dust Control Plan with the Secretary, for review and written approval of the Director of OEP. The plan shall specify the following:
 - a. the precautions that would be taken to minimize fugitive dust emissions from construction activities, including additional mitigation measures to control fugitive dust emissions of total suspended particulates and particulate matter less than 10 microns in aerodynamic diameter (PM₁₀);
 - b. the individuals with the authority to determine if/when water needs to be reapplied for dust control;
 - c. the individuals with the authority to determine if/when a palliative needs to be applied;
 - d. the individuals with the authority to stop work if the contractor does not comply with dust control measures;
 - e. measures to limit track-out onto the roads;
 - f. a speed limit that would be required on unsurfaced roads; and
 - g. covering open-bodied haul trucks, as appropriate.

13. **Prior to construction of the pre-treatment facilities**, Sabine Pass shall file with the Secretary copies of its revised air permit application and final air permit to include a hydrogen sulfide removal system and thermal oxidizer, or Sabine Pass shall file with the Secretary, for review and written approval of the Director of OEP, a revised air dispersion modeling analysis demonstrating the previously attained thresholds will not be exceeded for nitrogen dioxide, carbon monoxide, PM₁₀, particulate matter less than 2.5 microns in aerodynamic diameter, and ozone and any newly applicable thresholds will not be exceeded for hydrogen sulfide or sulfur dioxide.
14. **Prior to construction of the pre-treatment facilities**, Sabine Pass shall file with the Secretary, for review and written approval of the Director of OEP, information that demonstrates the proposed emission control systems for acid gas removal do not affect the Title 49, C.F.R., Part 193 siting analysis included in the application and supplements.
15. Sabine Pass shall file a noise survey with the Secretary no later than 60 days after each stage of the Sabine Pass Liquefaction Project facilities are placed into service. If the noise attributable to operation of the Sabine Pass LNG Terminal and liquefaction facilities exceeds an Ldn of 55 decibels at any nearby noise sensitive area, Sabine Pass shall file a report on what changes are needed and shall install additional noise controls to meet that level within one year of the in-service date. Sabine Pass shall confirm compliance with the above requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.

The following measures shall apply to the Sabine Pass LNG terminal. Information pertaining to these recommendations 16 through 52 shall be filed with the Secretary for review and written approval by the Director of OEP either: prior to initial site preparation; prior to construction of final design; prior to commissioning; or prior to introduction of natural gas or process fluids, as indicated by each specific condition. Specific engineering, vulnerability, or detailed design information meeting the criteria specified in Order No. 683 (Docket No. RM06-24-000), including security information, shall be submitted as critical energy infrastructure information (CEII) pursuant to 18 C.F.R. § 388.112. See Critical Energy Infrastructure Information, Order No. 683, 71 Fed. Reg. 58,273 (October 3, 2006), FERC Stats. & Regs. ¶ 31,228 (2006). Information pertaining to items such as off-site emergency response, procedures for public notification and evacuation, and construction and operating reporting requirements would be subject to public disclosure. All information shall be filed a minimum of 30 days before approval to proceed is requested.

16. Complete plan drawings and a list of the hazard detection equipment shall be filed **prior to initial site preparation**. The information shall include a list with the instrument tag number, type and location, alarm locations, and shutdown functions of the proposed hazard detection equipment. Plan drawings shall clearly show the location of all detection equipment.
17. Prior to initial site preparation, Sabine Pass shall file a technical review of its proposed facility design that:
 - a. Identifies all combustion/ventilation air intake equipment and the distances to any possible flammable release (i.e., LNG, flammable refrigerants, flammable liquids and flammable gases).
 - b. Demonstrates that these areas are adequately covered by hazard detection devices and indicates how these devices would isolate or shut down any combustion equipment whose continued operation could add to or sustain an emergency.
18. Complete plan drawings and a list of the fixed and wheeled dry-chemical, fire extinguishing, and other hazard control equipment shall be filed prior to **initial site preparation**. The list shall include the equipment tag number, type, size, equipment covered, and automatic and manual remote signals initiating discharge of the units. Plan drawings shall clearly show the planned location of all fixed and wheeled extinguishers.
19. Facility plans showing the proposed location of, and area covered by, each monitor, hydrant, deluge system, hose, and sprinkler, as well as piping and instrumentation diagrams of the firewater system, shall be filed prior to **initial site preparation**.
20. An overall project schedule, which includes the proposed stages of the commissioning plan, shall be filed **prior to initial site preparation**.
21. A vapor dispersion analysis from a liquid ethylene design spill shall be filed **prior to initial site preparation**.
22. Procedures for controlling access during construction and operation to the Kinder Morgan meter station shall be filed prior to initial site preparation.
23. An updated Emergency Response Plan which includes the liquefaction facilities as well as instructions to handle on-site refrigerant-related emergencies shall be filed **prior to initial site preparation**.

24. The Emergency Response Plan shall include a Cost-Sharing Plan identifying the mechanisms for funding all Project-specific security/emergency management costs that would be imposed on state and local agencies. In addition to the funding of direct transit-related security/emergency management costs, this comprehensive plan shall include funding mechanisms for the capital costs associated with any necessary security/emergency management equipment and personnel base. The Cost-Sharing Plan shall be filed **prior to initial site preparation**.
25. The **final design** shall address the information/revisions as described in Sabine Pass' responses to the Engineering Information Requests identified in Table 2.8-1 of the EA.
26. The **final design** of the fixed and wheeled dry-chemical fire extinguishing equipment, and high-expansion-foam hazard control equipment shall identify manufacturer and model.
27. The **final design** shall include an updated fire protection evaluation of the existing and proposed facilities carried out in accordance with the requirements of National Fire Protection Association (NFPA) 59A 2001, chapter 9.1.2. The evaluation shall assess the potential need for additional firewater capacity to address multiple fire scenarios occurring in different locations of the plant and occurring simultaneously.
28. The **final design** shall demonstrate the ability to provide firewater coverage for Case 1 and Case 2 of the Firewater Network Analysis, filed on April 19, 2011, for the proposed liquefaction facilities.
29. The **final design** shall include an acid gas vent stack dispersion analysis to determine the proper placement of hazard detection devices that ensures venting is done in a safe manner.
30. The **final design** shall provide up-to-date Process Flow Diagrams with heat and material balances and Piping and Instrumentation Diagrams (P&IDs). The P&IDs shall include the following information:
 - a. equipment tag number, name, size, duty, capacity, and design conditions;
 - b. equipment insulation type and thickness;
 - c. refrigerant storage tank pipe penetration size or nozzle schedule;
 - d. piping with line number, piping class specification, size, and insulation type and thickness;
 - e. piping specification breaks and insulation limits;
 - f. all control and manual valves numbered;
 - g. relief valves with set points;

- h. drawing revision number and date; and
 - i. change log that lists and explains the changes made from the approved design.
31. The **final design** shall include details of the shutdown logic, including cause-and-effect matrices for alarms and shutdowns.
 32. The **final design** of the LNG storage tank piping and supports shall be reviewed and approved by the tank manufacturer to verify the existing design is adequate to support the higher rated in-tank pump flow rates.
 33. The **final design** shall specify that the Waste Heat Recovery Unit coil design temperature, at the design pressure, is consistent with the maximum design temperature of the turbine exhaust.
 34. The **final design** shall include a relief valve study to ensure the existing LNG storage tank vacuum relief valves provide adequate protection with the higher capacity in-tank pumps operating at full capacity.
 35. The **final design** shall specify that for LNG, natural gas, and refrigerant service, stainless steel and carbon steel branch piping and piping nipples are consistent with the existing facility's specifications.
 36. The **final design** shall include a hazard and operability review of the completed design. A copy of the review and a list of recommendations, and actions taken on the recommendations shall be filed.
 37. The **final design** shall provide P&IDs, specifications, and procedures that clearly show and specify the tie-in details required to safely connect the Stage 2 facilities.
 38. The **final design** of the hazard detectors shall account for the calibration gas when determining the Lower Flammability Limit set points for methane, propane, and ethylene.
 39. The **final design** shall include a plan for clean-out, dry-out, purging, and tightness testing. This plan shall address the requirements of the American Gas Association's Purging Principles and Practice required by 49 C.F.R. Part 193 and shall provide justification for not using an inert or non-flammable gas for clean-out, dry-out, purging, and tightness testing.
 40. The **final design** shall include operating procedures that specify the loading rate would not exceed 12,000 cubic meters per hour.

41. The **final design** shall include procedures to maintain and inspect the vapor barriers provided to meet the siting provisions of 49 C.F.R. § 193.2059.
42. The **final design** shall either provide plant geometry models or drawings that verify the confinement and congestion represented in the front-end-engineering design of the liquefaction facilities or provide revised overpressure calculations indicating that a 1 pound per square inch overpressure would not impact the public.
43. All valves, including drain, vent, instrument root, main, and car sealed valves, shall be tagged in the field **prior to commissioning**.
44. A tabulated list of the proposed hand-held fire extinguishers shall be filed **prior to commissioning**. The lists shall include the equipment tag number, type, size, number, and location. The type, size, and tag number of all hand-held fire extinguishers shall be shown on facility plot plan(s).
45. Operation and maintenance procedures and manuals, including safety procedure, hot work procedures and permits, abnormal operating conditions reporting procedures, and management of change procedures and forms shall be filed **prior to commissioning**.
46. Sabine Pass shall complete the firewater pump acceptance test and firewater monitor and hydrant coverage test **prior to commissioning**. The actual coverage area from each monitor and hydrant shall be shown on the facility plot plan(s).
47. Sabine Pass shall complete all pertinent tests (Factory Acceptance Tests, Site Acceptance Tests, and Site Integration Tests) associated with the Distributed Control System that demonstrates full functionality and operability of the system **prior to commissioning**.
48. Sabine Pass shall maintain a detailed training log to demonstrate that operating staff has completed the required training **prior to commissioning**.
49. Sabine Pass shall file a copy of the Mechanical Completion Certificate and any documentation (i.e., punch list items) that certifies that the facility is installed and mechanically tested according to the final design and specifications **prior to commissioning**.
50. Sabine Pass shall file a plan for functional and operational tests of the final design **prior to commissioning**.

51. Sabine Pass shall complete instrumentation functional tests, hazard detection equipment functional tests, and emergency shutdown tests **prior to introduction of natural gas or process fluids.**
52. Progress on the construction of the LNG terminal shall be reported in monthly reports filed with the Secretary. Details shall include a summary of activities, problems encountered, contractor non-conformance/deficiency logs, remedial actions taken, and current project schedule. Problems of significant magnitude shall be reported to the Commission **within 24 hours.**

Conditions 53 through 55 shall apply throughout the life of the facility:

53. The facility shall be subject to regular Commission staff technical reviews and site inspections on at least an annual basis or more frequently as circumstances indicate. Prior to each Commission staff technical review and site inspection, Sabine Pass shall respond to a specific data request, including information relating to possible design and operating conditions that may have been imposed by other agencies or organizations. Up-to-date detailed piping and instrumentation diagrams reflecting facility modifications and provision of other pertinent information not included in the semi-annual reports described below, including facility events that have taken place since the previously submitted semi-annual report, shall be submitted.
54. Semi-annual operational reports shall be filed with the Secretary to identify changes in facility design and operating conditions, abnormal operating experiences, activities (including ship arrivals, quantity and composition of imported and exported LNG, liquefied and vaporized quantities, boil-off/flash gas, etc.), plant modifications, including future plans and progress thereof. Abnormalities shall include, but not be limited to: unloading/loading/shipping problems, potential hazardous conditions from off-site vessels, storage tank stratification or rollover, geysering, storage tank pressure excursions, cold spots on the storage tanks, storage tank vibrations and/or vibrations in associated cryogenic piping, storage tank settlement, significant equipment or instrumentation malfunctions or failures, non-scheduled maintenance or repair (and reasons therefore), relative movement of storage tank inner vessels, vapor or liquid releases, fires involving natural gas and/or from other sources, negative pressure (vacuum) within a storage tank and higher than predicted boil-off rates. Adverse weather conditions and the effect on the facility also shall be reported. Reports shall be submitted **within 45 days after each period ending June 30 and December 31.** In addition to the above items, a section entitled "Significant Plant Modifications Proposed for the Next 12 Months (dates)" also shall be included in

the semi-annual operational reports. Such information would provide Commission staff with early notice of anticipated future construction/maintenance projects at the LNG facility.

55. Significant non-scheduled events, including safety-related incidents (e.g., LNG, refrigerant, or natural gas releases, fires, explosions, mechanical failures, unusual over pressurization, and major injuries) and security-related incidents (e.g., attempts to enter site, suspicious activities) shall be reported to Commission staff. In the event an abnormality is of significant magnitude to threaten public or employee safety, cause significant property damage, or interrupt service, notification shall be made **immediately**, without unduly interfering with any necessary or appropriate emergency repair, alarm, or other emergency procedure. In all instances, notification shall be made to Commission staff **within 24 hours**. This notification practice shall be incorporated into the LNG facility's emergency plan. Examples of reportable LNG or refrigerant related incidents include:
- a. fire;
 - b. explosion;
 - c. estimated property damage of \$50,000 or more;
 - d. death or personal injury necessitating in-patient hospitalization;
 - e. release of LNG or refrigerants for five minutes or more;
 - f. unintended movement or abnormal loading by environmental causes, such as an earthquake, landslide, or flood, that impairs the serviceability, structural integrity, or reliability of an LNG facility that contains, controls, or processes gas, refrigerants, or LNG;
 - g. any crack or other material defect that impairs the structural integrity or reliability of an LNG facility that contains, controls, or processes gas, refrigerants, or LNG;
 - h. any malfunction or operating error that causes the pressure of a pipeline or LNG facility that contains or processes gas, refrigerants, or LNG to rise above its maximum allowable operating pressure (or working pressure for LNG facilities) plus the build-up allowed for operation of pressure limiting or control devices;
 - i. a leak in an LNG facility that contains or processes gas, refrigerants, or LNG that constitutes an emergency;
 - j. inner tank leakage, ineffective insulation, or frost heave that impairs the structural integrity of an LNG storage tank;
 - k. any safety-related condition that could lead to an imminent hazard and cause (either directly or indirectly by remedial action of the operator), for purposes other than abandonment, a 20 percent reduction in operating pressure or shutdown of operation of a pipeline or an LNG facility that contains or processes gas or LNG;

- l. safety-related incidents to LNG or refrigerant vessels occurring at or en route to and from the LNG facility; or
- m. an event that is significant in the judgment of the operator and/or management even though it did not meet the above criteria or the guidelines set forth in an LNG facility's incident management plan.

In the event of an incident, the Director of OEP has delegated authority to take whatever steps are necessary to ensure operational reliability and to protect human life, health, property or the environment, including authority to direct the LNG facility to cease operations. Following the initial company notification, Commission staff would determine the need for a separate follow-up report or follow-up in the upcoming semi-annual operational report. All company follow-up reports shall include investigation results and recommendations to minimize a reoccurrence of the incident.