

151 FERC ¶ 61,098
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Norman C. Bay, Chairman;
Philip D. Moeller, Cheryl A. LaFleur,
Tony Clark, and Colette D. Honorable.

Corpus Christi Liquefaction, LLC
Cheniere Corpus Christi Pipeline, L.P.

Docket Nos. CP12-507-001
CP12-508-001

ORDER DENYING REHEARING

(Issued May 6, 2015)

1. On January 29, 2015, Sierra Club filed a timely request for rehearing of the Commission's December 30, 2014 order,¹ which authorized Corpus Christi Liquefaction, LLC (Corpus Christi Liquefaction) under section 3 of the Natural Gas Act (NGA)² to site, construct, and operate liquefied natural gas (LNG) export and import facilities on the northern shore of Corpus Christi Bay in San Patricio and Nueces Counties, Texas (the Liquefaction Project), and Cheniere Corpus Christi Pipeline, L.P. (Cheniere Pipeline) under section 7(c) of the NGA³ to construct and operate a 23-mile-long, 48-inch-diameter pipeline and two compressor stations in San Patricio County, Texas (the Pipeline Project). As discussed below, this order denies Sierra Club's request for rehearing.

I. Background

2. The December 30 Order authorized Corpus Christi Liquefaction to site, construct, and operate the Liquefaction Project on the north end of the La Quinta Channel, in San Patricio and Nueces Counties, Texas. The Liquefaction Project will enable Corpus Christi Liquefaction to liquefy for export approximately 15 million metric tons per

¹ *Corpus Christi Liquefaction, LLC*, 149 FERC ¶ 61,283 (2014) (December 30 Order).

² 15 U.S.C. § 717b (2012).

³ *Id.* § 717f.

annum (mtpa)⁴ of LNG (or 2.1 billion cubic feet (Bcf) per day of natural gas) and vaporize approximately 400 million cubic feet per day of imported natural gas. The Liquefaction Project consists of three liquefaction trains, each with a liquefaction capacity of approximately 5 mtpa. Each train will have six 43,013-horsepower (hp) gas-fired refrigeration compressor turbines (two methane turbines, two ethane turbines, and two ethylene refrigeration turbines). The Liquefaction Project also includes three 160,000 cubic meter full containment LNG storage tanks, two trains of ambient air vaporizers, a marine terminal with two berths, two parallel LNG transfer lines that will deliver LNG between LNG carriers and the LNG storage tanks, and appurtenant facilities. The project will occupy approximately 991 acres during construction and 349 acres on a permanent basis during operations, with an additional 120-acre exclusion zone created to protect the public in the event of accidents at the site. Most of the land has been previously disturbed and includes areas that once stored bauxite ore.

3. In conjunction with the proposed Liquefaction Project, the December 30 Order also authorized Cheniere Pipeline to construct and operate a 23-mile-long, 48-inch-diameter, bi-directional pipeline from the Liquefaction Project facilities to a point near the City of Sinton, Texas. The Pipeline Project will transport domestic natural gas to the Liquefaction Project facilities for liquefaction and export and will also have the capability to transport regasified imported LNG from the terminal to interconnections with several existing pipeline systems.⁵ The Pipeline Project includes two new compressor stations (the 12,774-hp Taft Compressor Station and the 40,774-hp Sinton Compressor Station) and six new metering and regulation stations. The Pipeline Project will have a peak capacity of 2.25 Bcf per day and will affect 420.7 acres during construction and 178.3 acres during operation.

4. On June 13, 2014, Commission staff issued a draft Environmental Impact Statement (EIS) analyzing the environmental impacts of the Liquefaction Project and Pipeline Project (collectively Corpus Christi LNG Project or project). On August 4, 2014, Sierra Club filed comments on the draft EIS, arguing that the document failed to take a hard look, as required by the National Environmental Policy Act of 1969 (NEPA),⁶ at the project's impacts on air pollution, design alternatives to reduce air pollution,

⁴ Cheniere states this quantity of LNG is equivalent to approximately 782,000,000 million British thermal units per year.

⁵ These existing pipeline systems are Texas Eastern Transmission, LP; Kinder Morgan Tejas Pipeline LLC; Natural Gas Pipeline Company of America, LLC; Transcontinental Gas Pipe Line Company, LLC; and Tennessee Gas Pipeline Company, L.L.C.

⁶ 42 U.S.C. §§ 4321 *et seq.* (2012).

system alternatives that would utilize other LNG project sites, and the indirect effects of the project.

5. On October 8, 2014, Commission staff issued a final EIS which addressed all comments, including Sierra Club's. The final EIS concluded that the construction and operation of the Corpus Christi LNG Project would result in temporary and short-term impacts on some resources and long-term impacts on air quality.⁷ The final EIS recommended 104 mitigation measures that would avoid or minimize impacts in the project area, thereby reducing the project's impacts to insignificant levels. Sierra Club did not file comments in response to the final EIS.

6. The December 30 Order concurred with the EIS's findings and made the mitigation measures recommended in the EIS conditions of the order. The order determined that the Corpus Christi LNG Project, if constructed and operated as described in the final EIS, was an environmentally acceptable action, that the Liquefaction Project was not inconsistent with the public interest, and that the Pipeline Project was required by the public convenience and necessity.⁸

II. Request for Rehearing

7. Sierra Club contends that the December 30 Order violated NEPA by (1) not analyzing the environmental impacts of induced natural gas production; (2) refusing to consider the project's effects on domestic electric sector air emissions, including emissions resulting from electric generators shifting from gas to coal as a result of export-driven gas price increases; (3) improperly rejecting the "Systems Alternative" of using the Gulf LNG project as an alternative to the Liquefaction Project, failing to examine the alternative of incorporating waste heat recovery into the design at the Sinton Compressor Station, and improperly dismissing the alternative of using electric motors to provide some or all compression for refrigeration units; and (4) failing to take a hard look at the impacts of the project's emissions of greenhouse gases.

⁷ See Final EIS at 5-1.

⁸ See December 30 Order, 149 FERC ¶ 61,283 at PP 10, 11, and 42. Section 3 of the NGA provides that the Commission shall issue an authorization for import/export facilities unless it finds the proposal is not consistent with the public interest; section 7 establishes a public convenience and necessity standard for review and approval of proposed natural gas pipeline facilities.

III. Discussion

A. Induced Natural Gas Production

1. Indirect Impacts⁹

8. Section 102 of NEPA requires federal agencies to prepare “a detailed statement . . . on the environmental impact” of any proposed major federal action “significantly affecting the quality of the human environment.”¹⁰ In making this determination, agencies must take a “hard look” at the environmental consequences of their actions.¹¹ To determine whether NEPA requires consideration of a particular effect, agencies must look at the relationship between that effect and the change in the physical environment caused by the major federal action at issue.¹² The Council on Environmental Quality’s (CEQ) NEPA regulations require agencies to consider three kinds of impacts: direct, indirect, and cumulative.¹³ Pertinent to this rehearing are indirect and cumulative impacts.

9. Indirect impacts, which include growth-inducing effects, are “caused by the proposed action” and occur later in time or farther removed in distance than direct impacts, but are still “reasonably foreseeable.”¹⁴ NEPA requires a reasonably close causal relationship between the environmental effect and the alleged cause.¹⁵ To

⁹ This order uses the terms “impacts” and “effects” synonymously, as permitted by Council on Environmental Quality’s NEPA regulations. *See* 40 C.F.R. § 1508.8(b) (2014).

¹⁰ 42 U.S.C. § 4332(1)(c)(i) (2012).

¹¹ *See Kleppe v. Sierra Club*, 427 U.S. 390, n.21 (1976).

¹² *Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 773 (1993).

¹³ 40 C.F.R. § 1508.25 (2014).

¹⁴ December 30 Order, 149 FERC ¶ 61,283 at P 119 (citing 40 C.F.R. § 1508.8(b) (2014)).

¹⁵ *See Metropolitan Edison*, 460 U.S. at 774. *See also Central New York Oil and Gas Co., LLC*, 137 FERC ¶ 61,121, at PP 81-101 (2011), *order on reh’g*, 138 FERC ¶ 61,104, at PP 33-49 (2012), *petition for review dismissed, sub nom. Coalition for Responsible Growth v. FERC*, 485 F. Appx. 472, 474-75 (2012) (upholding FERC analysis of the development of Marcellus Shale natural gas reserves where FERC

(continued ...)

determine whether an agency must consider a particular effect, courts “look to the underlying policies or legislative intent in order to draw a manageable line between those causal changes that may make an actor responsible for an effect and those that do not.”¹⁶

10. In addition to a causal relationship, the indirect effect must be reasonably foreseeable. An effect 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.”¹⁷ NEPA requires “reasonable forecasting,” but an agency is not required “to engage in speculative analysis” or “to do the impractical, if not enough information is available to permit meaningful consideration.”¹⁸ The starting point of any NEPA analysis is a “rule of reason,” under which NEPA documents “need not address remote and highly speculative consequences.”¹⁹ A future impact is not reasonably foreseeable when it could “conceivably” occur but “it is at least as likely” that it will not occur.²⁰

11. Sierra Club maintains that increased domestic natural gas production is “plainly” a foreseeable indirect effect of the construction and operation of the Corpus Christi LNG Project.²¹ Consequently, Sierra Club contends that NEPA requires the Commission to take a “hard look” at induced production as an indirect effect of the proposed project. Sierra Club references several studies for the proposition that exports will spur domestic production.²² Sierra Club maintains that additional production and the resultant

reasonably concluded that the impacts of that development were not sufficiently causally-related to the projects to warrant a more in-depth analysis).

¹⁶ *Dep’t of Transportation v. Public Citizen*, 541 U.S. 752, n.7 (2004).

¹⁷ *City of Shoreacres v. Waterworth*, 420 F.3d 440, 453 (5th Cir. 2005); *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992).

¹⁸ *N. Plains Res. Council v. Surface Transp. Board*, 668 F.3d 1067, 1078 (9th Cir. 2011).

¹⁹ *Hammond v. Norton*, 370 F. Supp. 2d 226, 245-46 (D.D.C. 2005).

²⁰ *Headwaters, Inc. v. Bureau of Land Mgmt., Medford Dist.*, 914 F.2d 1174, 1182 (9th Cir. 1990).

²¹ Request for Rehearing at 5.

²² *See, e.g.*, U.S. DEP’T OF ENERGY, FINAL ADDENDUM TO ENVIRONMENTAL REVIEW DOCUMENTS CONCERNING EXPORTS OF NATURAL GAS FROM THE UNITED STATES (Aug. 15, 2014), available at <http://energy.gov/sites/prod/files/2014/08/f18/Addendum.pdf> (DOE Addendum); U.S. ENERGY INFORMATION ADMIN., EFFECT OF

environmental effects are sufficiently foreseeable to support useful discussion in the final EIS. Sierra Club identifies four uncertainties that were identified in the EIS and the December 30 Order (i.e., (1) whether the project will induce gas production; (2) how much additional gas will be produced; (3) how much of the additional gas will come from shale; and (4) whether the additional production will occur) and contends that these issues merited discussion because forecasts and studies are available to assist in determining the foreseeability of the project's environmental effects.

12. We disagree with Sierra Club's interpretation of the scope of Commission review mandated by NEPA. We continue to believe that analysis of the impacts of additional natural gas production as an indirect effect of the Corpus Christi LNG Project is beyond the scope of the review dictated by NEPA. NEPA only requires consideration of an indirect effect if there is a "reasonably close causal relationship between the environmental effect and the alleged cause."²³ There is not the requisite reasonably close causal relationship between the impacts of future natural gas production and the Corpus Christi LNG Project. The Commission has no jurisdiction over the production and development of domestic natural gas. Rather, production is regulated by state and local governments. Under NEPA, where an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant "cause" of the effect.²⁴

13. Sierra Club fails to identify any additional natural gas production directly attributable to the proposed project. As stated in the final EIS, we cannot estimate how much of the export volumes will come from current gas production and how much will

INCREASED NATURAL GAS EXPORTS ON DOMESTIC ENERGY MARKETS, AS REQUESTED BY THE OFFICE OF FOSSIL ENERGY (Jan. 2012) *available at* http://www.eia.gov/analysis/requests/fe/pdf/fe_lng.pdf (EIA Study); NERA ECONOMIC CONSULTING, MACROECONOMIC IMPACTS OF LNG EXPORTS FROM THE UNITED STATES (2012); DELOITTE MARKETPOINT, MADE IN AMERICA: THE ECONOMIC IMPACT OF LNG EXPORTS FROM THE UNITED STATES (2011); DELOITTE, NATURAL GAS MODELS; ICF INTERNATIONAL, U.S. LNG EXPORTS: IMPACTS ON ENERGY MARKETS AND THE ECONOMY (May 2013); Charles Ebinger *et al.*, LIQUID MARKETS: ASSESSING THE CASE FOR U.S. EXPORTS OF LIQUEFIED NATURAL GAS, BROOKINGS INSTITUTION (May 2012), *available at* <http://www.brookings.edu/research/reports/2012/05/02-lng-exports-ebinger>.

²³ *Dep't of Transportation*, 541 U.S. at 770 (citing *Metropolitan Edison Co.*, 460 U.S. at 774).

²⁴ *Dep't of Transportation*, 541 U.S. at 770; *City of Shoreacres*, 420 F.3d at 452.

be from new production or development.²⁵ As also noted, because the pipelines which interconnect with this project span an area from Texas to Illinois to Pennsylvania, crossing both shale and conventional gas plays, the location and extent of potential subsequent production activity are unknown and are too speculative to be assumed for purposes of analysis in this proceeding.²⁶ Sierra Club contends that “[c]onnecting domestic gas producers with global demand, which cannot occur without Commission approval of LNG export projects, will induce an increase in domestic gas production.”²⁷ However, the fact remains that the Commission’s action in authorizing specific facilities is not the cause of any additional production for purposes of NEPA.²⁸ Moreover, as we have previously explained, a number of factors, such as natural gas prices, production costs, and transportation alternatives, drive new drilling.²⁹ Sierra Club has not provided any reason for us to revise our decision on this issue.

14. Moreover, even if a causal relationship between our action and induced production were presumed, the scope of the impacts from any such induced production is not reasonably foreseeable. Sierra Club’s reliance on the referenced LNG export studies, which it contends would help the Commission forecast the amount or the location of production that would be induced by the proposed project, is misplaced. These studies provide only general economic analyses concluding that increased LNG exports may

²⁵ See Final EIS at 4-212. Contrary to Sierra Club’s assertion, neither the December 30 Order nor the final EIS concluded “as a factual matter” that “exports will not cause an increase in gas production (and attendant environmental impacts).” Request for Rehearing at 8. The December 30 Order concluded that the impact of induced gas production is not an indirect effect of the Corpus Christi LNG Project. See December 30 Order, 149 FERC ¶ 61,283 at P 120. The final EIS concluded that the impact of any additional production cannot be described with sufficient specificity to make its consideration useful to reasoned decision makers. See Final EIS at 4-212. We have never firmly asserted that LNG exports will not induce domestic gas production. See, e.g., *Freeport LNG Development, L.P.*, 149 FERC ¶ 61,119, at P 16 (2014).

²⁶ See Final EIS at 4-213.

²⁷ Request for Rehearing at 5.

²⁸ As described in the December 30 Order, the U.S. Department of Energy (DOE), not the Commission, approves or disapproves the export of the commodity natural gas.

²⁹ See, e.g., *Rockies Express Pipeline LLC*, 150 FERC ¶ 61,161, at P 39 (2015). See also Final EIS at 4-213 (noting that little or no natural gas would be exported if the price of domestic natural gas increases much above current expectations).

increase domestic natural gas production, but they do not provide specifics that would assist in informing our decision-making process.

15. By way of example, the Sierra Club asserts U.S. Energy Information Agency's (EIA) National Energy Modeling System (NEMS) could be used to predict the location of induced production. However, NEMS is a modelling system that can be used to project the response of the U.S. energy markets to a wide variety of alternative assumptions and policies or policy initiatives, or to examine the impact of new energy programs and policies. It is not intended for predicting or analyzing the environmental impacts of specific infrastructure projects.³⁰ As for the referenced ICF International Study, it projects that increased LNG exports may lead to increased production in certain areas of the country,³¹ but it does not project that the source of gas processed by any particular export facility, such as the Corpus Christi LNG Project, will mirror the estimated percentages.

16. Sierra Club contends the DOE Addendum recognizes that the effects of greenhouse gas (GHG)³² emissions are not limited to a specific geographic location and concludes that the Commission is required to consider the indirect effect of increased GHG emissions caused by additional gas production induced by the proposed project. Notwithstanding our findings that the proposed project does not have the requisite causal relationship to future natural gas production to compel our consideration of the impacts resulting from such production and that any potential impacts are not reasonably foreseeable as contemplated by the CEQ regulations, we note that the DOE Addendum does not assist the Commission in reaching a decision in this proceeding. While the DOE Addendum provides certain general estimates about the environmental impacts associated with natural gas production, those impacts have no particular relationship to the proposal before us. In its own report, DOE explained

While DOE has made broad projections about the types of resources from which additional production may come, DOE cannot meaningfully estimate where, when, or by what method any additional natural gas

³⁰ See EIA's Overview of the National Energy Modelling System, <http://www.eia.gov/oiaf/aeo/overview/index.html> (last visited on March 11, 2015).

³¹ ICF INTERNATIONAL, U.S. LNG EXPORTS: STATE-LEVEL IMPACTS ON ENERGY MARKETS AND THE ECONOMY (Nov. 13, 2013), at 14-15, *available at* <http://www.api.org/~media/Files/Policy/LNG-Exports/API-State-Level-LNG-Export-Report-by-ICF.pdf>.

³² Greenhouse gases include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. See Final EIS at 4-97.

would be produced. Therefore, DOE cannot meaningfully analyze the specific environmental impacts of such production, which are nearly all local or regional in nature. . . . As DOE explained in *Sabine Pass Liquefaction, LLC*, DOE/FE Order No. 2961-A (Aug. 7, 2012), lacking an understanding of where and when additional gas production will arise, the environmental impacts resulting from production activity induced by LNG exports to non-FTA countries are not “reasonably foreseeable” within the meaning of the [CEQ’s] NEPA regulations.³³

17. Thus, we find the studies that Sierra Club cites unavailing. They set forth general economic projections with respect to LNG exports in the United States but do not assist us in reasonably estimating how much of Corpus Christi LNG Project’s export volumes will come from current versus future natural gas production, or where and when the future production may specifically be located, much less any associated environmental impacts of such production.

18. Sierra Club also cites two cases in support of its general contention that the impacts of induced gas production are caused by LNG exports in the context of indirect effects. First, Sierra Club cites *High Country Conservation Advocates v. U.S. Forest Service*.³⁴ That case involved three agency decisions that together authorized on-the-ground coal exploration activities in a road-less area of public lands. As pertinent to this proceeding, the U.S. Forest Service (Forest Service) issued a rule which, among other things, allowed road construction related to coal mining in previously road-less areas. One of the explicit purposes of the rule was “to facilitate coal mining and exploration in the North Fork Valley.”³⁵ The rule did not directly authorize such activities, as individual projects would have to undergo site-specific environmental analysis and approval. The court nevertheless faulted the Forest Service for failing to analyze GHG emissions associated with the production and combustion of the coal.³⁶

19. We find the situation in *High Country* distinguishable from the one here. The Forest Service’s action in *High Country* was explicitly intended to facilitate additional coal production. As discussed above, our approval of the Corpus Christi LNG Project is not causally related to any additional natural gas production. Moreover, whereas the

³³ DOE Addendum at 2.

³⁴ *High Country Conservation Advocates v. U.S. Forest Service*, No. 13-CV-01723-RBJ, 2014 WL 2922751 (D. Colo. June 27, 2014).

³⁵ *Id.* *3.

³⁶ *See id.* *15.

region of potential additional coal development in *High Country* was relatively limited and defined, any induced gas which might be processed by the Corpus Christi LNG Project could come from shale or conventional gas plays located anywhere in the eastern half of the United States. In addition, the coal development activities in *High Country* would be subject to the jurisdiction of the agencies involved in that proceeding. In contrast, the production of natural gas is subject to state and local, as opposed to federal, regulation.

20. Sierra Club also cites *Mid States Coalition for Progress v. Surface Transportation Board*,³⁷ which involved the Surface Transportation Board's (Board) review of a railroad company's proposal to construct 280 miles of new railroad and upgrade 600 miles of existing railroad to reach the coal mines in Wyoming's Powder River Basin. Petitioners maintained that the Board failed to consider the effects on air quality that an increase in supply of low-sulfur coal to power plants via the railroad lines would produce. The court held that the Board was required under NEPA to examine the effects that may occur as a result of the reasonably foreseeable increase in coal consumption.³⁸ Further, the court found significant that the Board stated, during the scoping process, that it would evaluate the effects of induced coal consumption but "failed to deliver on this promise" in the project's draft and final EISs.³⁹ The court concluded that the Board had "completely ignored the effects of increased coal consumption,"⁴⁰ instead of complying with CEQ procedures for situations when there is incomplete or unavailable information.

21. In response to arguments that the effects of increased coal consumption could not be analyzed because the Board could not identify where coal-fired power plants would be built or how much coal would be burned, the court stated that when the nature of the effect was reasonably foreseeable but the extent of the effect was not, an agency cannot simply ignore the effect, but rather, must comply with CEQ procedures of situations when there is incomplete or unavailable information.⁴¹

22. In *Mid States* it was acknowledged that the rail proposal would increase the long-term demand for coal. Here, it is uncertain whether the proposed project would increase long-term demand for natural gas. The proposed volume of LNG to be exported from the

³⁷ 345 F.3d 520 (8th Cir. 2003).

³⁸ *See id.* at 550.

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.* at 549-50.

Corpus Christi LNG Project (2.1 Bcf per day) is only 2.95 percent of the daily natural gas production in the United States, based on 2014 production levels (71 Bcf per day).⁴² It represents an even smaller percentage of production in the global natural gas market in which it will be competing.⁴³ Moreover, countries seeking to import natural gas will likely continue to negotiate and find natural gas supplies. Therefore, end-use consumption of natural gas will likely occur regardless of whether the project is approved. In addition, given the global nature of the natural gas market, the Commission has no way of predicting where or how the gas exported from the Corpus Christi facilities will ultimately be consumed (e.g., for electric generation, heating, or feedstock for industrial processes), much less what alternative fuel sources it may replace. In *Mid States*, the court found that parties had identified computer models “that are widely used in the electric power industry to simulate the dispatch of generating resources to meet customer loads.”⁴⁴ No such widely accepted models are available here that would enable the Commission to meaningfully identify or evaluate the impacts related to the consumption of the natural gas to be exported via the Corpus Christi facilities. Unlike the Board in *Mid States*, the Commission has not “completely ignored” the impacts of increased emissions; rather we have explained how 1) such emissions are not sufficiently causally related to the project to warrant additional analysis under NEPA and 2) even if there were to be a sufficient causal relationship, there is insufficient information available to allow us to meaningfully analyze those impact.

23. Thus, we find the December 30 Order did not err in concluding that any impact associated with future natural gas production is not an indirect effect of the Corpus Christi LNG Project as contemplated by the CEQ regulations.

2. Cumulative Effects

24. A “cumulative impact” is defined by CEQ 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.”⁴⁵ A cumulative impacts analysis

⁴² EIA’s Natural Gas Monthly (Feb. 2015), *available at* <http://www.eia.gov/naturalgas/monthly>.

⁴³ *Cf. Sierra Club v. Clinton*, 746 F. Supp. 2d 1025, 1046 (D. Minn. 2010) (finding that the volume of crude oil proposed to be transported is not reasonably foreseeable to increase overall crude oil consumption in the United States because the volume proposed to be transported only amounts to 3 percent of the daily amount of crude oil processed in the United States).

⁴⁴ *Mid States*, 345 F.3d at 550.

⁴⁵ 40 C.F.R. § 1508.7 (2014).

may require an analysis of actions unrelated to the proposed project if they occur in the project area or the region of influence of the project being analyzed.⁴⁶ CEQ states that “it is not practical to analyze the cumulative effects of an action on the universe.”⁴⁷ An agency is only required to include “such information as appears to be reasonably necessary under the circumstances for evaluation of the project rather than to be so all-encompassing in scope that the task of preparing it would become either fruitless or well nigh impossible.”⁴⁸

25. The definition of “reasonably foreseeable” applies equally to indirect effects as cumulative effects, that is, an effect 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.”⁴⁹ Cumulative effects need not be discussed if they are remote and highly speculative.⁵⁰

26. CEQ’s guidance on cumulative impacts assessments advises that agencies have substantial discretion in determining the appropriate level of the cumulative impacts assessments.⁵¹ CEQ further states that an agency should relate the scope of its analysis to the magnitude of the environmental impacts of the proposed action.⁵²

⁴⁶ CEQ, CONSIDERING CUMULATIVE EFFECTS UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT at 12-16 (1997), *available at* http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-ConsidCumulEffects.pdf.

⁴⁷ *Id.* at 8.

⁴⁸ *New York Natural Resource Defense Council, Inc. v. Kleppe*, 429 U.S. 1307, 1311 (1976) (citing *Natural Resource Defense Council v. Calloway*, 524 F.2d 79, 88 (2d Cir. 1975)).

⁴⁹ *City of Shoreacres*, 420 F.3d at 453; *Sierra Club*, 976 F.2d at 767.

⁵⁰ *See City of Shoreacres*, 420 F.3d at 453; *Hammond*, 370 F. Supp. 2d at 245-46.

⁵¹ The Supreme Court has similarly held that “determination of the extent and effect of [cumulative impacts], and particularly identification of the geographic area within which they may occur, is a task assigned to the special competency of the appropriate agencies.” *Kleppe*, 427 U.S. at 413.

⁵² CEQ, GUIDANCE ON CONSIDERATION OF PAST ACTIONS IN CUMULATIVE EFFECTS ANALYSIS at 2-3 (2005), *available at* http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-PastActsCumulEffects.pdf.

27. Sierra Club contends that the Commission erred by not including the effects resulting from the additional natural gas production which it alleges will result cumulatively from “the already authorized Sabine Pass, Freeport, and Cameron export projects and all other export projects to have received conditional authorization from DOE”⁵³ in its cumulative effects analysis for the Corpus Christi LNG Project. What Sierra Club is requesting, in essence, is that the Commission conduct a programmatic NEPA review of natural gas development and production. We decline to do so. As the Commission noted in *Cameron LNG, LLC*, there is no Commission program or policy to promote additional production or export of, or increased reliance on, natural gas.⁵⁴ The Commission’s practice is to consider each LNG export project application on its own merits. The proposal for the Corpus Christi LNG Project is not in response to “broad Federal actions such as the adoption of new agency programs or regulations” that might require preparation of a programmatic EIS.⁵⁵

28. The final EIS’s cumulative effects analysis included other proposed LNG export projects in the vicinity of the proposed project, including the Freeport LNG Project, located more than 150 miles from the Corpus Christi LNG Project and two other proposed LNG projects.⁵⁶ However, impacts associated with the Sabine Pass Liquefaction and Cameron LNG Projects, both located more than 300 miles from the Corpus Christi LNG Project, were excluded because the impacts of those projects would occur well outside the area to be impacted by construction and operation of the Corpus Christi LNG Project.

29. As discussed above, the pipelines that interconnect with this project span an area from Texas to Illinois to Pennsylvania, crossing both shale and conventional gas plays. Therefore, even if we were to broadly expand the area in which we considered projects that could have effects on resources cumulative to the Corpus Christi LNG Project, we can only speculate regarding the exact location, scale, scope, and timing of future

⁵³ Request for Rehearing at 11.

⁵⁴ *Cameron LNG, LLC*, 147 FERC ¶ 61,230, at PP 70-72 (2014).

⁵⁵ 40 C.F.R. § 1502.4(b) (2014).

⁵⁶ Other projects included were an oil refinery expansion project, a proposed direct reduced iron project, a proposed ethylene project, a proposed natural gas liquids fractionation facility, two existing wind farms, a proposed propane export facility, a developing seamless steel pipe manufacturing facility, an existing offshore wind power test site, the proposed port redevelopment plan, and a developing U.S. Army Corps of Engineers channel extension project. *See* Final EIS at 4-218.

production-related facilities. Such speculative analysis would not provide meaningful information to assist in reasoned decision making.⁵⁷

30. In *Northern Plains Resource Council v. Surface Transportation Board*, cited by Sierra Club, the court found the Surface Transportation Board was required to consider the cumulative impacts of coal bed methane well development in Wyoming's Powder River Basin as part of its NEPA analysis of a proposed 17.4-mile-long rail line. The rail line was intended to bring coal from the basin to an interconnecting railroad line in Montana, which would then transport the coal to other destinations in the Midwest. In *Northern Plains*, the Board had information about the timing, scope, and location of future coal bed methane well development in the basin because BLM had already included reasonably foreseeable development in its programmatic EIS, which covered a period of 20 years. Here, we have no similar information about the timing, location, and scope of future shale (or conventional) well development in the project area. Moreover, as we have previously found, *Northern Plains* established that while agencies must engage in reasonable forecasting in considering cumulative impacts, NEPA does not require an agency to "engage in speculative analysis" or "to do the impractical, if not enough information is available to permit meaningful consideration."⁵⁸ Here, unlike in *Northern Plains*, there is not enough information to permit reasonable forecasting.

31. We conclude that the final EIS and the December 30 Order adequately considered the cumulative effects of, among other things, the existing and proposed LNG facilities located in the Corpus Christi LNG Project area.

B. Environmental Impacts of Changes in Electricity Generation

32. Sierra Club contends that the Commission erred by not considering the indirect and cumulative effects on GHG emissions from changes in electricity generation which it alleges will result from approval of the Corpus Christi LNG Project. Specifically, asserting that LNG exports, in the aggregate, will introduce new demand for domestic natural gas, Sierra Club, relying on the EIA Study, reasons that there are only two ways to satisfy this demand: increase natural gas supply through increased production or reduce other forms of gas consumption. Sierra Club continues that if the domestic electric power sector reduces its consumption of natural gas, it would shift to coal to generate electricity, with a concomitant increase in carbon dioxide emissions. Thus, Sierra Club contends that it is reasonably foreseeable that the Corpus Christi LNG Project

⁵⁷ See Final EIS at 4-212, 4-213.

⁵⁸ *Sabine Pass Liquefaction, LLC*, 140 FERC ¶ 61,076, at P 17 (2012) (citing *Northern Plains*, 668 F.3d at 1078).

would indirectly result in an increase of carbon dioxide emissions in the electric power sector.

33. We disagree. Sierra Club has offered no evidence to indicate that a potential power sector shift from natural gas to coal would be caused by or is a reasonably foreseeable effect of the proposed project. Sierra Club relies on the EIA Study, but the EIA Study cautions that projections of energy markets over the long term are “highly uncertain and subject to many events that cannot be foreseen, such as supply disruptions, policy changes, and technological breakthroughs.”⁵⁹ Additionally, the EIA Study was updated in October 2014.⁶⁰ In the updated study, which projected up to 2040, the EIA acknowledges that its study was “intended to show an outer envelope of domestic production and consumption responses that might follow from the approval of export licenses beyond 12 Bcf per day” by 2020, which it states is an “extremely aggressive, indeed almost impossible” ramp-up scenario.⁶¹ The Updated EIA Study directs readers to its Annual Energy Outlook 2014 because it provides the EIA’s “best view on LNG exports and U.S. natural gas markets more generally.”⁶² The Annual Energy Outlook 2014 provides that the future of coal-fired generating capacity is dependent on many variables, such as the implementation of the Environmental Protection Agency’s (EPA) Mercury and Air Toxics Standards for Power Plants, actions to cut GHG emissions, and fuel prices.⁶³ We find it more plausible that these factors would play the greater role in any decision by the domestic power sector to shift from natural gas to coal as a base fuel. In light of these facts, under Sierra Club’s reasoning, the Commission would be required to engage in speculation upon speculation. The attenuated effects that Sierra Club describes are not reasonably foreseeable. Courts do not contemplate such highly speculative analysis under NEPA.⁶⁴

⁵⁹ EIA Study at 3. *See also* EIA Annual Energy Outlook 2014 at MT-24, available at [http://www.eia.gov/forecasts/aeo/pdf/0383\(2014\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2014).pdf) (stating that the future of LNG exports depends on a number of factors that are difficult to anticipate, including the speed and extent of price convergence in global natural gas markets).

⁶⁰ U.S. ENERGY INFORMATION ADMIN., EFFECT OF INCREASED LEVELS OF LIQUEFIED NATURAL GAS EXPORTS ON U.S. ENERGY MARKETS (Oct. 2014) at 5, available at <http://www.eia.gov/analysis/requests/fe/pdf/lng.pdf> (Updated EIA Study).

⁶¹ *Id.*

⁶² *Id.* at 13.

⁶³ *See* EIA’s Annual Energy Outlook 2014 at MT-32, MT-33.

⁶⁴ *See Hammond*, 370 F. Supp. 2d at 245-46.

C. Failure to Consider Alternatives

34. Section 102(C)(iii) of NEPA requires an EIS to discuss alternatives to the proposed action.⁶⁵ CEQ regulations require agencies to evaluate all reasonable alternatives, including alternatives not within the lead agency's jurisdiction and no-action alternatives.⁶⁶ For eliminated alternatives, agencies must briefly discuss the reasons for the elimination.⁶⁷ A brief statement of the purpose and need for the proposed action is also required.⁶⁸ In considering alternatives, agencies must adopt a rule of reason.⁶⁹ CEQ further provides that agencies need to only consider feasible alternatives and not remote and conjectural alternatives.⁷⁰

35. Sierra Club contends that the Commission violated NEPA by failing to fully consider alternatives, namely siting the project at the Gulf LNG Energy, LLC (Gulf LNG) site,⁷¹ using waste heat recovery at the Sinton Compressor Station, and using electric motors to provide compression for the liquefaction units at the LNG terminal. We discuss each argument below.

⁶⁵ 42 U.S.C. § 4332(C)(iii) (2012). Section 102(E) of NEPA also requires agencies "to study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." *Id.* § 4332(E).

⁶⁶ *See* 40 C.F.R. § 1502.14 (2014).

⁶⁷ *See id.* § 1502.14(a).

⁶⁸ *See id.* § 1502.13.

⁶⁹ *See Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 834, 837 (D.C. Cir. 1972).

⁷⁰ CEQ, GUIDANCE REGARDING NEPA REGULATIONS at 9 (1983), *available at*: http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-GuidanceRegulations.pdf; *see also* CEQ, FORTY MOST ASKED QUESTIONS CONCERNING CEQ'S NATIONAL ENVIRONMENTAL POLICY ACT REGULATIONS at 4 (1981), *available at* <http://energy.gov/nepa/downloads/forty-most-asked-questions-concerning-ceqs-national-environmental-policy-act> ("Reasonable alternatives include those that are *practical* or *feasible* from the technical and economic standpoint and using common sense") (emphasis in the original).

⁷¹ *See Gulf LNG Energy, LLC*, 118 FERC ¶ 61,128 (2007).

1. Gulf LNG Alternative Terminal Site

36. Sierra Club asserts that the final EIS did not provide an adequate basis for rejecting the Gulf LNG alternative, pointing out that the final EIS only provided that the Gulf LNG alternative was “not eliminated solely on the basis of the timing of in-service dates.”⁷² Sierra Club notes that the Commission did not disclose what the other reasons were for rejecting the Gulf LNG alternative. Additionally, Sierra Club contends that we cannot reject an alternative because it does not meet Corpus Christi Liquefaction’s and Cheniere Pipeline’s preferred in-service schedule. Sierra Club contends that agencies cannot define a project purpose so narrowly so as to eliminate all alternatives. Moreover, Sierra Club contends that the Gulf LNG site would have fewer environmental impacts because it is a brownfield location, instead of a greenfield location.

37. We disagree with Sierra Club’s assertion that we narrowly defined the purpose and need for the project so as to preclude adequate analysis and consideration of other alternatives. While an agency may not narrowly define the purpose and need of the action, the alternative discussion need not be exhaustive; it only needs to provide sufficient information to permit a reasoned choice of alternatives.⁷³

38. Here, the final EIS broadly stated that the project purpose is “to provide facilities necessary to import, export, store, vaporize, and liquefy natural gas and deliver the resulting product either into existing interstate and intrastate natural gas pipelines in the Corpus Christi area, or export LNG elsewhere.”⁷⁴ The final EIS set forth the criteria that were employed for evaluating potential alternatives to the proposed project. These criteria included whether the alternatives were technically and economically feasible, offered significant environmental advantage over the proposed project or segments of it, and met project objectives.⁷⁵ The final EIS identified and evaluated alternatives to the project including no action, energy alternatives, system alternatives, and alternative sites and pipeline routes.⁷⁶ Based on these criteria, the final EIS evaluated 12 system alternatives, which included existing LNG import terminals with planned, proposed, or authorized liquefaction projects, and proposed or planned stand-alone LNG export

⁷² Request for Rehearing at 13 (citing Final EIS at I-102).

⁷³ *See North Carolina v. FPC*, 533 F.2d 702, 707 (D.C. Cir. 1976).

⁷⁴ Final EIS at 1-6.

⁷⁵ *See id.* at 3-1.

⁷⁶ *See id.*

terminals in the Gulf Region.⁷⁷ The final EIS also evaluated 16 alternative LNG terminal sites.⁷⁸ While the final EIS stated that the Gulf LNG system alternative could not be placed in service to meet customer demands by 2017 and thus could not meet the proposed project's objective,⁷⁹ the final EIS also explained that other reasons warranted rejection of the alternative, such as the need for substantial construction beyond that currently proposed, production volume limitations, and the environmental advantages were not significantly greater than the proposed project.⁸⁰ For these reasons, we find that the final EIS adequately discussed the Gulf LNG alternative.⁸¹

2. Waste Heat Recovery at the Sinton Compressor Station

39. Sierra Club contends that the EIS was inadequate because it failed to consider utilizing waste heat recovery at the Sinton Compressor Station as an alternative to a compressor station that does not recover waste heat. Sierra Club refers to previous orders to demonstrate that the Commission has recognized the possibility of utilizing waste heat at compressor stations. Sierra Club concludes that post-certificate evaluation of this possibility does not save a deficient EIS.

40. Cheniere Pipeline has proposed no supplemental power generation facilities at its Sinton Compressor Station which could, as an alternative, be replaced by facilities (*e.g.*, heat recovery steam generators or steam turbines) that could utilize waste heat. Therefore, waste heat recovery could not displace proposed infrastructure or emissions at the compressor station. However, because of the size (20,387 hp each) of the two compressor units Cheniere Pipeline has proposed to install at the Sinton Compressor Station, the December 30 Order encouraged Cheniere Pipeline to monitor the compressor station during project operations and post information on its electronic bulletin board if the station meets the waste heat recovery parameters in the Interstate Natural Gas Association of America White Paper entitled *Waste Energy Recovery Opportunities for*

⁷⁷ *See id.* at 3-4—3-14.

⁷⁸ *See id.* at 3-14—3-19.

⁷⁹ *See id.* at 3-9.

⁸⁰ *See id.* at 5-9.

⁸¹ *See Myersville Citizens for a Rural Community, Inc. v. FERC*, No. 13-1219, 2015 WL 1873139, at *17 (D.C. Cir. Apr. 24, 2015) (observing that the Commission's specification of the range of reasonable alternatives is entitled to deference).

Interstate Natural Gas Pipelines issued in February 2008 (INGAA White Paper).⁸² The INGAA White Paper provides many considerations to determine the feasibility of waste heat recovery, but the two main criteria are compressor station capacity (15,000 hp or more) and the station's load factor (5,250 hours per year or a 60-percent load factor over the previous 12 months).⁸³ At this point, without the availability of an operating history at the Sinton Compressor Station, it is uncertain what the station's load factor will be. Thus, the practicality of developing waste heat recovery at the Sinton Compressor Station is uncertain. NEPA does not require consideration of an alternative that is not feasible. Moreover, our authorization here in no way inhibits the future development of waste heat recovery facilities at the project site should they ultimately prove feasible.

3. Electric Turbine Compressors at the LNG Terminal

41. Sierra Club avers that the December 30 Order and the EIS should have considered the use of electric motors to replace some or all of the compressor turbines in the liquefaction units at the Liquefaction Project. It rejects the EIS's conclusion of an adverse impact caused by an all-electric-motor alternative that would eliminate waste heat recovery at the Liquefaction Project. Sierra Club states that only six of the eighteen compressor turbines are capable of waste heat recovery and notes that the EIS does not examine the possibility of using electric motors at the twelve compressor turbines that are not suitable for waste heat recovery.

42. Sierra Club also contends that the EIS's conclusion that there is insufficient space at the proposed site to require electric motors is unsupported. Sierra Club refers to the Freeport LNG Project, where electric motors would be used to provide 1.8 Bcf per day of natural gas on 228 acres. Further, Sierra Club argues that because the capacity and footprint of the Freeport LNG Project is comparable to Corpus Christi LNG Project's (2.1 Bcf per day of capacity and 225 acre LNG terminal footprint), the EIS should have fully considered an electric-motor alternative.

43. Sierra Club contends that the environmental impacts of an electric motor alternative would be less adverse than the proposed gas turbines. Sierra Club contends that the Commission had tools, such as EPA's eGRID system, to compare the indirect impacts of an electric motor alternative with the impacts of the proposed gas turbines but inexplicably chose not to make such a comparison.

⁸² See December 30 Order, 149 FERC ¶ 61,283 Order at n.17. See, e.g., *Algonquin Gas Transmission, LLC*, 150 FERC ¶ 61,163 (2015); *Columbia Gas Transmission, LLC*, 149 FERC ¶ 61,255 (2014).

⁸³ See INGAA White Paper (Feb. 2008) at 12-14, available at <http://www.ingaa.org/file.aspx?id=6210>.

44. We disagree. The final EIS acknowledged the use of electric-motor turbine technology at other facilities, but stated that the reliability necessary to sustain base load LNG production has not been demonstrated such that the technology can be recommended over the proposed design.⁸⁴ The final EIS also stated that the proposed project is not in a nonattainment area like the Freeport LNG facility and was not required to meet more restrictive air permitting requirements.⁸⁵ A mixed-run liquefaction train (part electric driven and part gas-driven) would still require variable frequency drive systems and water cooling, which would further complicate an already complex design.

45. Moreover, while the footprint size of the proposed project is similar to the Freeport LNG project, the characteristics of the projects are not.⁸⁶ Site-specific and project-specific factors (e.g., wind direction and speed, process methodology, equipment layout for best efficiency, safety analyses) result in different footprint needs for each project.⁸⁷ The final EIS discussed the fact that an electric-motor alternative for this project would require the construction of an additional building to house a variable frequency drive to control the electric motors. The alternative would require more land to accommodate the additional infrastructure, which would result in additional land use and environmental impacts.⁸⁸

46. The final EIS also discussed numerous other reasons why this alternative would not be preferable to the proposed gas-driven units. One of the most compelling reasons is that an electric-motor alternative would require the construction of an approximately seven-mile electric transmission line to supply the electric motors with power, as well as an expansion of a nearby electrical substation and other electrical system upgrades. The final EIS determined that the alternative would result in the creation of new or expanded

⁸⁴ See Final EIS at 3-21—3-22.

⁸⁵ See *id.* at 3-22.

⁸⁶ Notably, as Sierra Club identifies, the Freeport LNG Project involves two distinct facility location sites, separating the pre-treatment and liquefaction facilities. However, all of these facilities are located on the same parcel for the Corpus Christi facility.

⁸⁷ Safety analyses (i.e. vapor dispersion, overpressure, thermal radiation, and cascading events) performed for each project account for the proximity of all equipment and site conditions to ensure equipment is safely spaced and sufficient sizing of the property, emphasizing the importance of the performed site-specific analyses over Sierra Club's generic size and space assumptions.

⁸⁸ See Final EIS at 3-22.

rights-of-way and impose additional impacts on people, wildlife, and vegetation.⁸⁹ Given that multiple other factors mitigate against the alternative of using electric compressors, a more in-depth comparison of air quality emissions would not help to inform the Commission's decision.

47. The final EIS included air quality modeling demonstrating compliance with all applicable air quality modeling standards.⁹⁰ Thus, the potential offset air emission reductions (which are not necessary to meet any applicable air quality standard) do not outweigh the many environmental and design challenges for this alternative.

48. In sum, these factors present sufficient rationale to conclude that any amount of electric-motor driven compression is not environmentally preferable.

D. Impacts of the Project's GHG Emissions

49. Sierra Club avers that the Commission violated NEPA by failing to discuss the impacts of the GHG emissions that would be emitted by the project. Sierra Club also maintains that the EIS's conclusion that the project's incremental physical impacts due to climate change on the environment is insufficient. Sierra Club contends that NEPA requires agencies to evaluate adverse impacts based on theoretical approaches or research methods generally accepted in the scientific community and identifies what it contends to be two such methods: estimates of the "social cost" of greenhouse gas emissions and assessment of the consistency of project emissions with federal emission reduction targets.⁹¹

⁸⁹ *See id.*

⁹⁰ *See id.* section 4.11.1.

⁹¹ Citing EPA's April 22, 2013 Comment Letter on the Draft Supplemental Environmental Impact Statement for the TransCanada Keystone Pipeline, LP, at 2, *available at* [http://yosemite.epa.gov/oeca/webeis.nsf/%28PDFView%29/20130056/\\$file/20130056.PDF?OpenElement](http://yosemite.epa.gov/oeca/webeis.nsf/%28PDFView%29/20130056/$file/20130056.PDF?OpenElement); CEQ, REVISED DRAFT GUIDANCE FOR FEDERAL DEPARTMENTS AND AGENCIES ON CONSIDERATION OF GREENHOUSE GAS EMISSIONS AND THE EFFECTS OF CLIMATE CHANGE IN NEPA REVIEWS (2014), *available at* <http://energy.gov/sites/prod/files/2014/12/f19/CEQ%20Guidance%20on%20Greenhouse%20Gas%20Emissions%20-%20Revised%20Draft%20for%20Public%20Comment2014-30035.pdf>.

50. We disagree. The final EIS explained that no standard methodology exists to determine how the proposed project's incremental contribution to GHGs would result in physical effects on the environment, either locally or globally.⁹² However, the final EIS identified many climate change related environmental effects in the project region resulting from overall GHG emissions.⁹³ Thus, the final EIS concluded that it cannot be determined whether the proposed project's contribution to cumulative impacts on climate change would be significant.⁹⁴ Also, the final EIS estimated that the proposed project would increase carbon dioxide emissions in Texas by approximately 0.50 percent based on 2010 data and estimated the specific annual GHG emissions.⁹⁵ NEPA requires no further analysis.

51. With regard to EPA's social carbon cost calculator, the tool provides monetized values, on a global level, of addressing climate change impacts and is intended for estimating the climate benefits of rulemakings and policy alternatives. While we recognize the availability of this tool, we believe that for the following reasons, it would not be appropriate or informative to use for this project: (1) the EPA states that "no consensus exists on the appropriate [discount] rate to use for analyses spanning multiple generations"⁹⁶ and consequently, significant variation in output can result; (2) the tool does not measure the actual incremental impacts of a project on the environment; and (3) there are no established criteria identifying the monetized values that are to be considered significant for NEPA purposes. While the tool may be useful for rulemakings or comparing alternatives using cost/benefit analyses where the same discount rate is consistently applied, it is not appropriate for estimating a specific project's impacts or informing our analysis under NEPA.

52. With regard to CEQ's *Revised Draft Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews* (Revised Draft GHG Guidance), we note that it was not issued until 12 days before we issued the December 30 Order and more than 2 months after we issued the final EIS on October 8, 2014. In any event, we find that, consistent with the Revised Draft GHG Guidance, the EIS included quantitative descriptions of GHG

⁹² See Final EIS at 4-232.

⁹³ See *id.* at 4-229.

⁹⁴ See *id.*

⁹⁵ See *id.* at 4-230 and section 4.11.1.

⁹⁶ See EPA, FACT SHEET: SOCIAL COST OF CARBON (Nov. 2013), available at <http://www.epa.gov/climatechange/Downloads/EPAactivities/scc-fact-sheet.pdf>.

emission estimates,⁹⁷ discussion of potential and/or reasonable alternatives or mitigation measures to improve efficiency and/or emissions,⁹⁸ a comparison with state GHG emissions,⁹⁹ discussion of climate change impacts in the project region,¹⁰⁰ and consideration of resiliency alternatives/measures for the effects of climate change on the projects.¹⁰¹

The Commission orders:

Sierra Club's request for rehearing of the December 30 Order is denied as discussed in the body of this order.

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

⁹⁷ See Final EIS at sections 4.11.1.4 and 4.11.1.5.

⁹⁸ See *id.* at 3-21 and 4-230.

⁹⁹ See *id.* at 4-230.

¹⁰⁰ See *id.* at 4-229.

¹⁰¹ See *id.* at 4-231.