

**KNOWN KNOWNS AND KNOWN UNKNOWN:
QUANTIFYING THE INDIRECT AND CUMULATIVE
EFFECTS OF DOMESTIC LNG EXPORTS UNDER
NEPA**

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I. INTRODUCTION

Over the next three decades, world energy consumption is estimated to increase by more than 28%, and the proliferation of U.S. natural gas production seems poised to help satiate international demand.¹ The U.S. shale boom has positioned it to become one of the world's largest net energy exporters of liquefied natural gas (LNG) by the mid 2020's.² Despite the fact that the continental U.S.

1. U.S. ENERGY INFO. ADMIN., INTERNATIONAL ENERGY OUTLOOK 2018 4 (2018), https://www.eia.gov/pressroom/presentations/capuano_07242018.pdf [hereinafter IEO 2018] (indicating world energy consumption is expected to rise to 739 quadrillion Btu by 2040).

2. INTERNATIONAL ENERGY AGENCY, WORLD ENERGY OUTLOOK 2017: EXECUTIVE SUMMARY 4 (2017), https://www.iea.org/publications/freepublications/publication/WEO_2017_Executive_Summary_English_version.pdf [hereinafter WEO 2017]; *see also* U.S. ENERGY INFO. ADMIN., TODAY IN ENERGY (Dec. 10, 2018), <https://www.eia.gov/todayinenergy/detail.php?id=37732> [hereinafter TODAY IN ENERGY] (indicating the U.S. will be the third largest country behind Australia and Qatar in LNG export capacity by the end of 2019).

had only three operating LNG export facilities in 2018, the U.S. Energy Information Administration (EIA) expects export capacity to rise in the coming years as construction of new domestic LNG export facilities are completed by 2022 and demand for LNG in Asian markets grows.³

While the U.S. repealed its ban on the export of crude oil in 2015, the federal government still requires a permit to export natural gas.⁴ Consequently, multiple legal challenges were brought against the federal government as U.S. exporters sought to site and construct LNG export facilities to satisfy the growing international demand for natural gas.⁵ Challengers, concerned that the federal government did not adequately consider how increased U.S. domestic natural gas production would negatively impact the environment or the economy, opposed permitting the export of LNG out of those facilities.⁶ Environmental groups sought judicial review of the U.S. Department of Energy's (DOE) decision to permit the export of LNG from previously-authorized LNG export facilities because the federal government purportedly failed to adhere to the statutory framework set out in the National Environmental Policy Act (NEPA) and section 3 of the Natural Gas Act (NGA).⁷

This note discusses how the D.C. Circuit Court of Appeals' decision in *Sierra Club v. DOE (Freeport DOE)* clarified the extent to which the DOE must review the indirect and cumulative environmental effects of export-induced natural gas production, as required by NEPA, when authorizing LNG export facilities under the NGA.⁸ It also examines how the D.C. Circuit affirmed the DOE's decision that authorizing the export of LNG is in the public interest.⁹

Finally, this note observes how the outcome of *Freeport DOE* has allowed the U.S. to play a larger role in the global LNG market. Since the opinion was rendered in the summer of 2017, the D.C. Circuit summarily resolved similar challenges to the DOE's authority to permit LNG exports on the basis of its holding in

3. U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2019 84 (2019), <https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf> [hereinafter AEO 2019].

4. 42 U.S.C. § 6212a (2015); The Natural Gas Act of 1938 (NGA), 15 U.S.C. § 717b (2005); *see also Report of the Oil & Liquids Committee*, 37 ENERGY L.J. 27-28 (2016), https://www.eba-net.org/assets/1/6/19-R_4-Oil_Liquids_Report_-_FINAL.pdf (discussing administrative action taken by the federal government in the elimination of the crude oil export ban in 2015).

5. *See generally* *Sierra Club v. U.S. Dept. of Energy*, 867 F.3d 189 (D.C. Cir. 2017) [hereinafter *Freeport DOE*]; *see also* *Sierra Club v. FERC*, 827 F.3d 59 (D.C. Cir. 2016) [hereinafter *Sabine Pass FERC*]; *see also* *EarthReports, Inc. v. FERC*, 828 F.3d 949 (D.C. Cir. 2016); *see also* *Sierra Club v. FERC*, 827 F.3d 36 (D.C. Cir. 2016) [hereinafter *Freeport FERC*].

6. *See generally* Craig Segall, *Look Before the LNG Leap: Why Policymakers and the Public Need Fair Disclosure Before Exports of Fracked Gas Start*, SIERRA CLUB (Nov. 2012), http://content.sierraclub.org/creative-archive/sites/content.sierraclub.org/creative-archive/files/pdfs/100_237_LookBeforeLeap_LNG_whtpaper_03_web.pdf; *see also* Paul N. Cicio, *Why Manufacturers Oppose Unfettered LNG Exports*, PIPELINE & GAS J. (Aug. 2014), <https://pgjonline.com/2014/08/25/why-manufacturers-oppose-unfettered-lng-exports/>.

7. *See generally* *Freeport DOE*, 867 F.3d 189; *see also* *Sierra Club v. U.S. Dept. of Energy*, 703 Fed. Appx. 1 (D.C. Cir. 2017) (dismissed).

8. *Freeport DOE*, 867 F.3d at 189.

9. *Id.* at 203.

Freeport DOE.¹⁰ Likewise, in the aftermath of the ruling, the DOE moved to streamline the permitting process, making it much easier for an applicant to obtain authorization to export LNG.¹¹

II. BACKGROUND

A. *Growth in the Domestic LNG Export Market*

In its *Annual Energy Outlook 2019*, the EIA predicted that LNG will begin to dominate the natural gas trade as advances in transportation will allow LNG to reach farther destinations than traditional natural gas pipelines.¹² Perhaps one of the biggest drivers of U.S. LNG exports in the coming years will be the increase in U.S. export capability through the proliferation of new LNG export facilities.¹³ As of January 2019, the Federal Energy Regulatory Commission (FERC), responsible for approving construction of new onshore LNG export facilities in the U.S., approved nine new LNG export terminals within the lower forty-eight states.¹⁴ By the end of 2019, the U.S. is expected to have the capacity to export over 8.9 billion cubic feet per day (Bcf/d) compared to zero at the beginning of 2016.¹⁵ By 2050, LNG exports are projected to surpass 9 trillion cubic feet per year—with daily LNG exports projected to top 14 Bcf/d.¹⁶

B. *Opposition to United States' LNG Exportation*

i. Environmental Opposition

As the U.S. becomes a net energy exporter, primarily of fossil fuels, scientists across the world continue to raise concerns over the human effects on climate change.¹⁷ The Intergovernmental Panel on Climate Change (IPCC) cites “anthropogenic greenhouse gas emissions” (GHGs) triggered by “economic and population growth” as a causal nexus for increased concentrations of carbon dioxide, methane, and nitrous oxides in the atmosphere.¹⁸ Recent industry efforts to grow the U.S. infrastructure to accommodate increased LNG exports have conflicted

10. See generally *Sierra Club v. DOE*, 703 Fed. App'x. 1 (D.C. Cir. 2017) (dismissed).

11. 10 C.F.R. 590 §§ 590.102(p), 590.208 (2018) (authorizing small volume natural gas exports to non-FTC countries).

12. AEO 2019, *supra* note 3, at 14.

13. *Id.* at 84.

14. U.S. ENV'T'L PROT. AGENCY, EPA'S LIQUEFIED NATURAL GAS REGULATORY ROAD MAP iv (2006); FERC, NORTH AMERICAN LNG IMPORT/EXPORT TERMINALS APPROVED (Jan. 29, 2019), <https://www.ferc.gov/industries/gas/indus-act/lng/lng-approved.pdf>.

15. TODAY IN ENERGY, *supra* note 2.

16. AEO 2019, *supra* note 3, at 83.

17. *Id.* at 12; INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014 SYNTHESIS REPORT SUMMARY FOR POLICYMAKERS 2 (2014), https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf [hereinafter IPCC REPORT].

18. IPCC REPORT, *supra* note 17, at 4.

with environmentalists' concerns about the associated effects that increased LNG exports and increased natural gas production could have on the environment.¹⁹

ii. Economic Opposition

Economic objection to federal approval of LNG exports stems from the long term possibility that the U.S. might drain a significant portion of its technically-recoverable natural gas over a relatively short period of time to meet export demands.²⁰ In August of 2017, the Industrial Energy Consumers of America (IECA) - a nonpartisan group composed of "large manufacturing consumers of natural gas, natural gas feedstock, and natural gas-fired electricity generation" - sent a letter to the Secretary of the DOE calling for a full moratorium on LNG export permits to non-free trade countries.²¹ Using projections, in part, from the EIA, the IECA outlined two scenarios of U.S. natural gas consumption which indicated that the majority of technically recoverable domestic reserves might be consumed by 2050 if increases LNG exports continue unfettered.²² Private sector objection to LNG exports also stems from the potential effects such exports have on commodity prices domestically.²³ The IECA points to Australia as a cautionary tale of unconstrained domestic expansion of LNG exports which eventually lead to a tripling of Australia's natural gas price over a period from 1989 to 2014.²⁴ Domestic manufacturers fear that the increase in LNG exports will benefit those in the natural gas industry at the expense of a vast majority of the rest country due to rising domestic natural gas prices.²⁵

C. Legal Challenges to Agency Action Related to LNG Exports

Although economic opposition to LNG exports has been raised, most of the formal legal opposition has come from environmental groups challenging various agency actions related to FERC approval of LNG export terminal construction and expansion or DOE approval of LNG export applications.²⁶ Environmentalists' challenges have centered around agency review under NEPA when considering

19. Segall, *supra* note 6, at 3; *see also* Ari Natter, *Trump Push for Natural Gas Exports Opposed by Manufacturers*, BLOOMBERG (Aug. 16, 2017), <https://www.bloomberg.com/news/articles/2017-08-15/trump-s-push-for-natural-gas-exports-opposed-by-manufacturers>.

20. Letter from Paul N. Cicio, President of Indus. Energy Consumers of Am., to Rick Perry, Sec'y of the U.S. Dep't. of Energy (Aug. 16, 2017), *available at* https://www.ieca-us.com/wp-content/uploads/04.13.17_Letter-to-Secretary-Perry_DOE.pdf [hereinafter Cicio Letter to DOE].

21. *Id.*

22. *Id.* at 2 (indicating that based on EIA LNG export projections, under Natural Gas Scenario I, fifty-eight percent of all technically recoverable domestic natural gas resources would be consumed by 2050 and under Natural Gas Scenario II, seventy-one percent of all technically recoverable domestic natural gas resources would be consumed by 2050).

23. Cicio, *supra* note 6.

24. Cicio Letter to DOE, *supra* note 20, at 2; Cicio *supra* note 6.

25. Cicio, *supra* note 6 (positing that increases in energy prices could "reduce wages and disposable income" while "curb[ing] investment in the U.S economy" due to a reduction of investment in the manufacturing sector).

26. *See generally* *Freeport FERC*, 827 F.3d 36; *Sabine Pass FERC*, 827 F.3d 59; *EarthReports, Inc.*, 828 F.3d 949; *Sierra Club v. FERC*, No. 15-1133 (D.C. Cir. 2016); *Freeport DOE*, 867 F.3d 189.

certain environmental effects associated with LNG export facilities and subsequent export authorization.²⁷

The NGA provides that FERC has “the exclusive authority to approve or deny [] application[s] for the *siting, construction, expansion or operation* of an LNG terminal.”²⁸ Under NEPA, federal agencies have a duty to assess the environmental impacts associated with every major federal action.²⁹ Accordingly, when Freeport LNG Development, L.P. (Freeport LNG) sought to redesign its Quintana Island terminal facilities to accommodate LNG exports, FERC was tasked with analyzing the environmental impacts.³⁰

In cooperation with several federal agencies, including the DOE, FERC released its final Environmental Impact Statement (EIS) in June 2014, in which it assessed the potential environmental consequences of approving Freeport LNG’s proposal to expand its LNG export capabilities at its Quintana Island terminal.³¹ In the EIS, FERC analyzed “[i]mpacts, which may be: [d]irect; indirect, [or] cumulative” to Freeport’s proposed action.³² FERC indicated that expansion at Freeport LNG’s terminal would have largely temporary and short-term environmental impacts provided Freeport LNG complied with certain mitigation measures.³³

After it prepared the EIS, FERC authorized Freeport LNG’s projects.³⁴ As a condition to its approval, FERC required Freeport LNG to comply with specified environmental conditions, so that the projects would not be inconsistent with public interest.³⁵ Sierra Club intervened in FERC’s decision-making process and sought a rehearing arguing, in part, that FERC did not adequately consider the indirect and cumulative environmental effects of export induced natural gas production that would result from approval of Freeport LNG’s projects.³⁶ In assessing the cumulative environmental effects, Sierra Club requested FERC take into account all of the approved or pending LNG projects in the U.S.³⁷

27. *EarthReports, Inc.*, 828 F.3d at 951-52; *Freeport FERC*, 827 F.3d at 36; Final Opening Brief for Petitioner 1-2, *Sierra Club v. U.S. Dept. of Energy*, 867 F.3d 189 (No. 15-1489); see generally National Environmental Protection Act of 1969 (NEPA), 42 U.S.C. § 4332 (1975).

28. 15 U.S.C. § 717b(e)(1) (2005) (emphasis added).

29. 42 U.S.C. § 4332 (C)(i) (2010).

30. *Freeport FERC*, 827 F.3d at 40; see also Notice of Schedule for Environmental Review of the Liquefaction Project (FERC Issued May 22, 2013).

31. Final Environmental Statement for the Freeport LNG Liquefaction Project and Phase II Modification Project, Docket Nos. CP12-509-000, et al., FERC/EIS-0250F (FERC issued June 2014) [hereinafter FEIS]; see also Draft Environmental Impact Statement for the Freeport LNG Liquefaction Project and Phase II Modification under CP12-509-000, et al. (FERC Issued March 14, 2014); Notice of Availability of the Draft Environmental Impact Statement for the Proposed Phase II Modification and Liquefaction Projects, Docket Nos. CP12-509-000, CP12-29-000 (FERC Issued March 14, 2014) (inviting public comment on the draft EIS); Notice of Schedule for Environmental Review of the Liquefaction Project, Docket Nos. CP12-509-000, CP12-29-000 (FERC Issued May 22, 2013).

32. 40 C.F.R. § 1508.25(c); see also FEIS, *supra* note 31, at 4-1 – 4-266.

33. FEIS, *supra* note 50, at 5-1 – 5-17.

34. *Freeport LNG Development, L.P.*, 148 F.E.R.C. ¶ 61,076 (2014).

35. *Id.* at P 89.

36. *Freeport LNG Development, L.P.*, 149 F.E.R.C. ¶ 61,119 at PP 13, 32 (2014), *reh’g denied*.

37. *Id.* at P 32.

FERC denied the petition for rehearing, rejecting Sierra Club's argument that increased domestic natural gas production was reasonably foreseeable or otherwise a causally-related indirect effect of Freeport LNG's terminal expansion.³⁸ FERC also determined that assessing the cumulative effects of all the country's approved or pending LNG export projects was beyond the scope of the environmental review required by NEPA.³⁹

Sierra Club challenged FERC's decision-making process at the D.C. Circuit after it authorized Freeport LNG's application to redesign its LNG terminal.⁴⁰ On judicial review, the Sierra Club argued that FERC violated NEPA because it failed to adequately analyze the environmental consequences of exporting LNG.⁴¹ Specifically, Sierra Club contended FERC failed to consider the environmental effects of increased carbon-dioxide output which would be induced by FERC's approval of the LNG facility.⁴² Sierra Club also argued that FERC failed to consider other LNG export facilities, either permitted or pending authorization, when analyzing the cumulative environmental effects of Freeport LNG's application.⁴³

The D.C. Circuit held that FERC properly considered the indirect environmental effects to the extent that NEPA required when FERC approved Freeport LNG's terminal export expansion.⁴⁴ In so holding, the court adopted the Supreme Court's reasoning from *Dep't. of Transp. v. Pub. Citizen (Pub. Citizen)*, that NEPA review "requires a reasonably close causal relationship' [sic] between the environmental effect and the alleged cause" analogous to the tort law concept of proximate cause.⁴⁵ This obligated FERC to consider certain effects that were later in time but reasonably foreseeable.⁴⁶

Ultimately, the D.C. Circuit found that the indirect environmental effects associated with increased production of natural gas related to an increase in LNG exports were irrelevant to whether FERC violated NEPA because natural gas production would not increase without the DOE, the federal entity charged with authorizing LNG exports, intervening.⁴⁷ Because the indirect effects of export-induced production hinged on the DOE's decision to authorize LNG exports, FERC had no obligation to assess the issue in its NEPA analysis.⁴⁸ Harkening back to the proximate cause principle set forth in *Pub. Citizen*, the D.C. Circuit found that the DOE "br[oke] the NEPA causal chain."⁴⁹ The court declined to consider Sierra Club's other substantive environmental arguments related to the indirect effects of

38. *Id.* at P 68.

39. *Id.* at PP 33-36.

40. *Freeport FERC*, 827 F.3d 36.

41. *Id.* at 42.

42. Final Brief of Petitioners at 18-19, *Freeport FERC*, 827 F.3d 36.

43. Final Brief of Petitioners at 19, *Freeport FERC*, 827 F.3d 36.

44. *Freeport FERC*, 827 F.3d at 36.

45. *Id.* at 47 (quoting *Dep't. of Transp. v. Pub. Citizen*, 541 U.S. 752, 767 (2004)).

46. *Id.* at 46 (quoting *Pub. Citizen*, 541 U.S. at 761).

47. *Freeport FERC*, 827 F.3d at 47-48.

48. *Id.* at 48.

49. *Id.*

LNG export-induced production, effectively deferring the issue to a proper NEPA challenge of the DOE's export permitting decision.⁵⁰

Considering the challenge that FERC failed to assess the *cumulative* effects of Freeport LNG's projects, the D.C. Circuit sided with FERC, finding that it "adequately considered cumulative environmental impacts" associated with Freeport LNG's terminal export expansion.⁵¹ Specifically, the court reasoned a nationwide projection of the cumulative effects "dr[ew] the NEPA circle too wide for the [FERC]."⁵² It found that "[a] NEPA cumulative-impact analysis need only consider the 'effect of the current project along with any other past, present or likely future actions *in the same geographic area* as the project under review."⁵³

III. ANALYSIS

The NGA prohibits parties from exporting natural gas from the U.S. without first securing authorization.⁵⁴ A party seeking export authorization is required to file an application with the DOE's Office of Fossil Energy (FE).⁵⁵ Where the U.S. has entered into a free trade agreement (FTA) with another country "requiring national treatment for trade in natural gas, [export applications] shall be deemed to be consistent with the public interest and . . . granted without modification or delay."⁵⁶ Where the U.S. does not have a FTA in place, the DOE shall issue an authorization order unless "it finds that the proposed exportation . . . will not be consistent with public interest."⁵⁷

In December of 2011, Freeport LNG, through its subsidiaries Freeport LNG Expansion, L.P. and FLNG Liquefaction, LLC, filed an application with the FE seeking approval to export 1.4 Bcf/d of LNG from its Quintana Island terminal to any non-FTA country.⁵⁸ In review of the application, the DOE was required to weigh Freeport LNG's request in consideration of the public interest, pursuant to the NGA.⁵⁹ Additionally, because approval of the application constituted a major

50. *Id.* at 48-49.

51. *Id.* at 39.

52. *Freeport FERC*, 827 F.3d at 50.

53. *Id.* (quoting *TOMAC v. Norton*, 433 F.3d 852, 864 (D.C. Cir. 2006)); *see also* *EarthReports, Inc. v. FERC*, 828 F.3d 949 (D.C. Cir. 2016). In *EarthReports, Inc. v. FERC*, the petitioners challenged FERC's approval of Dominion Cove Point LNG, LP's proposed modification to its LNG export facility, on grounds that FERC failed to adequately consider the indirect effects that such an approval might have on the environment. Finding that the facts were "similar, if not identical" to the facts in *Freeport FERC*, the D.C. Circuit rejected the petitioner's arguments. The D.C. Circuit confirmed its view that FERC is not the proper agency to consider indirect environmental effects associated with increased upstream natural gas production under NEPA. Once again, the D.C. Circuit determined such an analysis properly lied with the DOE and should take place before authorizing LNG export applications.

54. 15 U.S.C. § 717b (a).

55. 10 CFR § 590.201 (1990).

56. 15 U.S.C. § 717b (c).

57. 15 U.S.C. § 717b (a).

58. Notice of Application, *Freeport LNG Expansion, L.P. and FLNG Liquefaction, LLC; Application for Long-Term Authorization to Export Domestically Produce Liquefied Natural Gas to Non Free Trade Agreement Countries for a 25-Year Period*, 77 Fed. Reg. 7,568 (2012).

59. 15 U.S.C. § 717b(c).

federal action, the DOE was required to make an environmental impact statement under NEPA.⁶⁰

The DOE relied on two studies to assess whether Freeport LNG's request was in the public interest.⁶¹ The first was a 2012 study compiled by the Energy Information Administration (EIA Study), which attempted to quantify the effect of increased LNG exports on the U.S. energy market.⁶² The EIA Study projected "that increased LNG exports would lead to increase[s in] natural gas prices" within the United States, but also found that domestic production would increase over the same time period.⁶³ The second study, created by NERA Economic Consulting, attempted to quantify the effects that increased U.S. LNG exports might have on an international scale under similar parameters utilized in the EIA Study.⁶⁴ NERA, like the EIA, concluded that increased LNG exports would lead to a rise in the price of U.S. natural gas, but that the "[m]acroeconomic impacts of LNG exports are positive [to the U.S.] in all cases."⁶⁵

The DOE prepared an EIS before granting Freeport LNG's application.⁶⁶ In compiling its EIS, the DOE adopted certain portions from FERC's EIS related to Freeport LNG's terminal expansion project.⁶⁷ The DOE also complemented its environmental review with two supplemental reports.⁶⁸

The first supplemental report was an addendum (Addendum) to FERC's EIS, wherein the DOE focused on the indirect environmental impacts associated with export-induced production of domestic natural gas.⁶⁹ In the Addendum, the DOE

60. 42 U.S.C. § 4332(C). The NGA states that FERC will act as the lead agency for the purposes of complying with NEPA; however, each federal and state agency considering an aspect of an authorization to export natural gas under the NGA is required to cooperate with FERC in its preparation. 15 U.S.C. § 717(n)(b)(1). The DOE cooperated with FERC and several other federal agencies in the preparation of the FEIS. *See also Freeport LNG Development, L.P., FLNG Liquefaction, LLC, FLNG Liquefaction 2, LLC, FLNG Liquefaction 3, LLC; Notice of Availability of the Final Environmental Impact Statement for the Proposed Phase II Modification and Liquefaction Projects*, 79 Fed. Reg. 35,345 (2014).

61. *Freeport DOE*, 867 F.3d at 194.

62. U.S. ENERGY INFO. ADMIN., EFFECTS OF INCREASED NATURAL GAS EXPORTS ON DOMESTIC ENERGY MARKETS (Jan. 2012), https://www.energy.gov/sites/prod/files/2013/04/f0/fe_eia_lng.pdf.

63. *Id.* at 6.

64. *See generally* W. David Montgomery & Sugandha D. Tuladhar, *Macroeconomic Impacts of LNG Exports from the United States*, NERA (Apr. 23, 2013), http://www.nera.com/content/dam/nera/publications/archive2/PUB_Macroeconomic_Impacts_LNG_Exports_0413.pdf.

65. *Id.* at 3.

66. *Id.*; 40 C.F.R. § 1501.4 (1977).

67. *Environmental Impact Statements; Notice of Availability*, 79 Fed. Reg. 61,303, 61,304 (2014) (indicating the DOE adopted the FEIS it prepared in cooperation with FERC when it approved Freeport LNG's liquefaction projects); *see also* Final Opinion and Order, *Freeport LNG Expansion L.P., DOE/FE Order No. 3357-B*, FE Docket No. 11-161-LNG (Nov. 14, 2014) [hereinafter Final Order]; *Freeport DOE*, 867 F.3d at 195.

68. *Freeport DOE*, 867 F.3d at 195; *see also* U.S. DEPT. OF ENERGY, ADDENDUM TO ENVIRONMENTAL REVIEW DOCUMENTS CONCERNING EXPORTS OF NATURAL GAS FROM THE UNITED STATES (Aug. 2014), <https://www.energy.gov/sites/prod/files/2014/08/f18/Addendum.pdf> [hereinafter DOE ADDENDUM]; *see also* Timothy J. Skone et al., *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States*, NAT'L ENERGY TECH. LAB., (2014), <https://www.energy.gov/sites/prod/files/2014/05/f16/Life%20Cycle%20GHG%20Perspective%20Report.pdf>.

69. *See generally* DOE ADDENDUM, *supra* note 68.

indicated that the rapid development of U.S. unconventional reservoirs would persist irrespective of LNG exports.⁷⁰ The DOE noted that the Addendum's findings were constrained by difficulties in identifying *where* the additional development of natural gas would occur due to increased exports, and thus, determined it could not meaningfully analyze the environmental impacts of production because such impacts occur almost exclusively at local or regional levels.⁷¹ Moreover, the DOE did not attempt to project the specific location or the extent of the impacts of export-induced production which might be triggered by a particular volume of exports.⁷²

The second supplemental report that DOE incorporated into its EIS was the Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States compiled by DOE's National Energy Technology Laboratory (Life Cycle Report).⁷³ In the Life Cycle Report, the DOE attempted to address the indirect effects that increased LNG exports might have on GHG emissions globally.⁷⁴ This global assessment examined the "life cycle" of GHGs from the well-head, where natural gas is extracted (upstream) and eventually converted to LNG, to Europe or Asia, where LNG would be used in power generation (downstream).⁷⁵ DOE concluded that U.S. LNG exports would not increase GHG emissions in Europe or Asia, but noted the difficulty in modeling the specific locations which might be affected by a proliferation of LNG exports because it could not definitively identify the exact location where any LNG transport would occur.⁷⁶

In November of 2014, the DOE issued its final order and opinion authorizing Freeport LNG to enter into long term, multi-year contracts to export LNG to non-FTA countries (Final Order).⁷⁷ DOE concluded that it properly complied with NEPA requirements and that the environmental concerns raised in its findings were not "inconsistent with public interest."⁷⁸ In December of 2015, the DOE denied Sierra Club's petition for rehearing.⁷⁹ The Sierra Club sought judicial review of DOE's denial.⁸⁰

In *Freeport DOE*, the D.C. Circuit was tasked with explaining the extent to which DOE needed to consider the indirect and cumulative environmental effects

70. *Id.* at 2.

71. Notice of Availability, *Draft Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States*, 79 Fed. Reg. 32,258, at 32,259 (2014).

72. *Freeport DOE*, 867 F.3d at 195.

73. *Id.*; see also Skone et al., *supra* note 68, at 1.

74. *Freeport DOE*, 867 F.3d at 195-96.

75. *Id.*; Skone et al., *supra* note 68, at 1.

76. Skone et al., *supra* note 68, at 18.

77. Final Order, *supra* note 67, at 107.

78. *Id.* at 85-87.

79. *Opinion and Order Denying Request for Rehearing of Orders Granting Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas by Vessel From the Freeport LNG Terminal on Quintana Island, Texas, to Non-free Trade Agreement Nations*, FE Docket No. 11-161-LNG at 36 (2015).

80. See generally Final Opening Brief of Petitioner Sierra Club, *Freeport FERC*, 827 F.3d 36.

associated with increased natural gas production so that it complied with NEPA, which it had declined to clarify in *Freeport FERC*.⁸¹

A. Legal Challenge, Holding, & Reasoning

The Sierra Club challenged the adequacy of the DOE's review process in authorizing Freeport LNG's application to export LNG to non-FTA countries from its Quintana Island terminal in the D.C. Circuit Court of Appeals.⁸² The Sierra Club raised challenges to the DOE's decision-making process under both NEPA and the NGA.⁸³

Under NEPA, Sierra Club charged that the DOE failed to sufficiently consider "the indirect effects of LNG exports, such as the effects related to the likely increase in natural gas production and usage that [would] result from the export authorization [of Freeport LNG's export application]."⁸⁴ The Sierra Club also alleged that the DOE failed to adequately consider the cumulative effects associated with Freeport LNG's application in light of third party export proposals that were approved, pending, or otherwise anticipated.⁸⁵

With respect to the NGA, Sierra Club asserted that the DOE needed to account for environmental impacts when deciding "whether [LNG] exports are consistent with the public interest."⁸⁶ The Sierra Club also argued that the DOE needed to "provide a rational basis for concluding that the benefits of exports outweigh the environmental harms" of granting Freeport LNG's application.⁸⁷ The Sierra Club claimed that the DOE did not conduct an adequate environmental assessment and acted arbitrarily when it approved Freeport LNG's application.⁸⁸

i. The Indirect Effects of Export-induced Production at Local and Regional Levels

The D.C. Circuit Court of Appeals rejected each of Sierra Club's arguments and denied its petition for review, holding that the DOE met its procedural requirements under NEPA and acted consistently with the NGA.⁸⁹ The D.C. Circuit accepted the DOE's explanation that it could not reasonably quantify the indirect

81. *Freeport FERC*, 827 F.3d at 48-49; see also *EarthReports, Inc.*, 828 F.3d at 955-56 (holding the DOE was the proper party to assess indirect and cumulative environmental effects associated with LNG exports).

82. *Freeport DOE*, 867 F.3d at 192.

83. *Id.*

84. *Id.*

85. *Id.* at 192 (referring to existing or already permitted LNG exports authorized by the DOE separate from Freeport LNG's application). Pursuant to federal regulation, an EIS must include a section devoted to alternatives of a proposed major action. 40 C.F.R. 1502.14. The FEIS adopted by the DOE contained a list of alternatives including the "No Action Alternative, system alternatives, route alternatives, and aboveground facility site alternatives." FEIS, *supra* note 31, at 3-1 – 3-12. Notably, the No Action Alternative in the EIS stated that denial of the Freeport LNG's site and export applications would deny natural gas producers "with new access to global gas markets" but that environmental impacts otherwise described in the FEIS would not occur. *Id.* at 3-1.

86. Final Reply Brief for Petitioner at 35, *Freeport DOE*, 867 F.3d 189 (No. 15-1489).

87. *Id.* at 36.

88. *Freeport DOE*, 867 F.3d at 192.

89. *Id.* at 189, 203.

environmental effects that increased LNG exports would have on increased gas production at a local level.⁹⁰ As the DOE argued, correlating incremental export-induced natural gas production due to LNG exports originating from Freeport LNG's Quintana Island Terminal would be quite difficult.⁹¹ The correlation would require the DOE to make numerous market assumptions about factors which are difficult to predict.⁹² Such predictions include estimating the price of gas in foreign markets, which in turn would require the DOE to make predictions about global and domestic market conditions and potential disruptions.⁹³ The DOE would have needed to account for foreign and domestic energy and environmental policies, which are often complex and may be unpredictable.⁹⁴

If the DOE could reasonably model quantities of domestic LNG export-induced production, the difficulty in predicting where such quantities would be produced locally would remain.⁹⁵ This difficulty is based on the sources of domestic natural gas, specifically shale-plays or unconventional reservoirs, that are interconnected by an elaborate natural gas pipeline system throughout the U.S.⁹⁶ Any natural gas well might be used to meet export-induced LNG demand, thus "[f]orecasting the locale of export-induced production would require an economic model that used as an input the price elasticity of each potentially productive area at the local level throughout the country."⁹⁷

Due to the unpredictability of local responses to national price changes, it is impossible for the DOE to predict increases in local or wellhead production induced by Freeport LNG's non-FTA contracts.⁹⁸ The DOE concluded that because most environmental issues associated with natural gas production in the U.S. are local, it was not reasonably foreseeable to assess the corresponding impacts without knowing where the production would occur.⁹⁹ The D.C. Circuit accepted the DOE's detailed reasoning of why forecasting local environmental effects related to LNG export-induced production was a speculative undertaking, noting that the agency "was not required to 'foresee the unforeseeable'" when assessing the indirect effects of its action under NEPA.¹⁰⁰

Similarly, the D.C. Circuit held that a regional analysis of the indirect effects of LNG export-induced production was not necessary because the DOE could not correlate the location of export-induced production at the shale-play level.¹⁰¹ The Sierra Club argued that because the DOE engaged in a shale-play level economic

90. *Id.* at 198-99.

91. *Id.* at 198.

92. *Freeport DOE*, 867 F.3d at 198.

93. *Id.* at 198-99.

94. *Id.* at 198-99.

95. *Id.* at 199.

96. *Id.*

97. *Freeport DOE*, 867 F.3d at 199.

98. *Id.*

99. *Id.*

100. *Freeport DOE*, 867 F.3d at 199 (quoting *Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n*, 481 F.2d 1079, 1092 (D.C. Cir. 1973)).

101. *Id.* at 200.

analysis to determine the location of increased production, it should have used the same economic tools to analyze the environmental impacts of DOE approved LNG exports.¹⁰² Here, the D.C. Circuit accepted the DOE's explanation that the tools used to make economic projections at a shale-play level do not easily translate into an analysis of environmental impacts.¹⁰³ Since shale-plays span thousands of square miles across the U.S., the DOE cannot accurately predict where incremental production would occur *within* the shale-plays.¹⁰⁴ Identifying which shale-plays contribute to increased production does not provide a meaningful impacts analysis to a unique, regional environment.¹⁰⁵ The D.C. Circuit also recognized that "[a]t a certain point, [the DOE's] obligation to drill down into increasingly speculative projections about regional environmental impacts is limited by the fact it lacks any authority to control the locale or amount of export-induced gas production, much less any of its harmful effects."¹⁰⁶

ii. The Indirect Effects of GHG Emissions Due to LNG Export-Induced Production

The D.C. Circuit found the DOE's analysis of the indirect effects of GHG emissions resulting from export-induced production to be neither arbitrary, nor capricious.¹⁰⁷ The Sierra Club argued that the DOE's Life Cycle Report did not thoroughly consider the downstream environmental effects of increased GHG emissions associated with LNG exports.¹⁰⁸ The Sierra Club also claimed that the DOE's review failed to satisfy the requirements under NEPA because it only compared U.S. LNG emissions to other fossil fuel sources, omitting a comparison to renewable energy sources, which compete with LNG in certain foreign markets.¹⁰⁹

The DOE explained that following Sierra Club's desired review standard would require the agency to project how each renewable energy source might affect each individual LNG-importing country.¹¹⁰ The inherent uncertainties in modeling energy markets make such an analysis too speculative.¹¹¹ In accepting the DOE's explanation, the D.C. Circuit reiterated its reasoning from *Freeport FERC* - that an agency is constrained by "practical considerations of feasibility [which] might well necessitate restricting the scope of an agency's analysis."¹¹²

102. *Id.*

103. *Id.*

104. *Id.*

105. *Freeport DOE*, 867 F.3d at 199.

106. *Id.*; see generally *Pub. Citizen*, 541 U.S. 752 (recognizing that agencies need to draw a line in NEPA review where they lack any real decision-making authority).

107. *Freeport DOE*, 867 F.3d at 202.

108. Final Reply Brief for Petitioner at 33-35, *Freeport DOE*, 867 F.3d 189 (No. 15-1489).

109. *Id.* at 34.

110. *Freeport DOE*, 867 F.3d at 202.

111. *Id.*

112. *Id.* (quoting *Freeport FERC*, 827 F.3d at 50).

iii. Cumulative Impacts Analysis Under NEPA

In reviewing the DOE's assessment of the cumulative environmental effects associated with its authorization of LNG exports, the D.C. Circuit recognized that the same difficulties existed in identifying where the corresponding increased production might occur at local and regional levels.¹¹³ The court held that the DOE's Addendum adequately considered the cumulative impacts of export-induced production by assuming the impacts could occur anywhere as opposed to ignoring potential cumulative impacts altogether.¹¹⁴ The Addendum also identified general steps which could curtail environmental impacts by identifying relevant policy makers and listing key governing laws that could mitigate such impacts.¹¹⁵

The D.C. Circuit ultimately deferred to the DOE's assessment of the cumulative impacts analysis, refusing to substitute its judgment for the agency's decision not to make specific environmental impact projections related to natural gas production.¹¹⁶ Generalizing such impacts, the D.C. Circuit reasoned, did not minimize those impacts and the cumulative risks associated with export-induced gas production were thoroughly discussed in the DOE's Addendum.¹¹⁷

iv. Public Interest Challenge Under the NGA

In denying Sierra Club's challenge under the NGA, the D.C. Circuit applied an arbitrary and capricious standard of review as to whether the DOE's approval of Freeport LNG's application was consistent with the public interest as required by the NGA.¹¹⁸ The D.C. Circuit engaged in a textual analysis of the NGA's statutory language, which required the DOE to authorize Freeport LNG's application *unless* doing so was contrary to the public interest.¹¹⁹ Specifically, the court construed such language as a rebuttable presumption in favor of authorization, unless there is "an affirmative showing of inconsistency with the public interest."¹²⁰

The Sierra Club's specific objection to the DOE's action was that it failed to thoroughly examine the environmental impacts in considering whether the application was consistent with the public interest.¹²¹ The D.C. Circuit held that even if the DOE had given greater weight to environmental impacts, the Sierra Club did

113. *Id.* at 200-01.

114. *Freeport DOE*, 867 F.3d at 201.

115. *Id.*

116. *Id.*

117. *Id.*

118. *Id.* at 202.

119. *Freeport DOE*, 867 F.3d at 203; *see also* 15 U.S.C. § 717b (a) (providing the DOE "shall issue such order upon application, unless after opportunity for hearing, it finds that the proposed exportation or importation will not be consistent with the public interest.").

120. *Freeport DOE*, 867 F.3d at 203 (citing *Panhandle Producers & Royalty Owners Ass'n v. Econ. Reg. Admin.*, 822 F.2d 1105, 1111 (D.C. Cir. 1987)).

121. *Id.*

not present sufficient evidence to overcome the presumption in favor of authorization.¹²² This outcome underscores that NEPA is a procedural mechanism because adverse environmental impacts will not constrain a valid authorization under the NGA, so long as those impacts are adequately identified and evaluated.¹²³

B. The D.C. Circuit's Consistency Under NEPA and the NGA

The D.C. Circuit's holding in *Freeport DOE* is consistent with prior holdings on issues of agency decision review under NEPA and the NGA.¹²⁴ It provides the DOE with a guide by which it can conduct its NEPA review where LNG exports are concerned and allows future applicants subjected to provisions of the NGA to expect a predictable outcome, provided they comply with the law.¹²⁵

i. NEPA

In *Freeport DOE*, the D.C. Circuit reviewed Sierra Club's NEPA challenges from the perspective that NEPA is a procedural mechanism rather than a tool that prevents agency action.¹²⁶ This interpretation is consistent with the Supreme Court's finding that NEPA itself imposes no requirements to obtain specific results, but rather "prescribes the necessary process for preventing uninformed-rather than unwise agency action."¹²⁷ Because NEPA evinces that an agency makes a "fully informed and well-considered decision" rather than dictating a required outcome, indirect or cumulative effects resulting from the DOE's NEPA review process necessarily may not be mitigated under NEPA.¹²⁸

The D.C. Circuit's holding is consistent with previous holdings related to LNG exports in requiring the DOE "take a 'hard look' at [its] proposed actions' environmental consequences in advance of deciding whether and how to proceed[.]" while still allowing for the agency to restrict the scope of its analysis.¹²⁹ Just as the D.C. Circuit declined to impose a nationwide cumulative impacts requirement on FERC in *Freeport FERC*, the court upheld the DOE's decision not to consider renewable energy sources in its downstream GHG effects assessment in *Freeport DOE*.¹³⁰ These examples appear to illustrate the D.C. Circuit's view that the court's role was not to "flyspeck" agency analysis, but rather "to 'ensure the agency has adequately considered and disclosed the environmental impact of its actions and that its decision is not arbitrary or capricious.'" ¹³¹

122. *Id.*

123. *Id.* at 203.

124. See generally *Freeport FERC*, 827 F.3d 36; *EarthReports, Inc.*, 828 F.3d 949; *W. Va. Pub. Serv. Comm'n v. U.S. Dept. of Energy*, 681 F.2d 847 (D.C. Cir. 1982); and *Panhandle Producers*, 822 F.2d 1105.

125. *Freeport DOE*, 867 F.3d at 196 – 203.

126. *Id.* at 196.

127. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 333 (1989).

128. *Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1309-10 (D.C. Cir. 2014) (quoting *Vt. Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 558 (1978)).

129. *Sierra Club v. U.S. Army Corp. of Engineers*, 803 F.3d 31, 42 (D.C. Cir. 2015); *Freeport DOE*, 867 F.3d at 202.

130. *Freeport FERC*, 827 F.3d at 39; *Freeport DOE*, 867 F.3d at 202.

131. *Freeport DOE*, 867 F.3d at 196 (quoting *Del. Riverkeeper*, 753 F.3d at 1312-13).

In *Freeport DOE*, the D.C. Circuit asserted it was not to substitute its judgment for the decisions of the DOE in situations involving highly technical assessments.¹³² The court also consistently deferred to the DOE's decision making process.¹³³ This included when the D.C. Circuit accepted the DOE's explanation of the difficulty in modeling localized environmental impacts of export-induced production.¹³⁴ Similarly, the D.C. Circuit deferred to the DOE when the DOE declined to engage in a comparative downstream GHG emission analysis with renewable energy sources.¹³⁵ The D.C. Circuit's deference to the DOE on the modeling issues related to its indirect and cumulative impact analyses is consistent with its holding in prior cases involving highly technical matters where NEPA was triggered.¹³⁶

ii. NGA

In *Freeport DOE*, the D.C. Circuit interpreted the NGA by analyzing the Act's plain meaning and relying on its legislative purpose consistent with relevant case law within the D.C. Circuit.¹³⁷ The court cited precedent to illustrate that the NGA is first and foremost, a law to "encourage the orderly development . . . of natural gas at reasonable prices."¹³⁸ While it was important to consider environmental concerns when making a public interest determination under the NGA (outside of the relevant NEPA analysis), the court reasoned that environmental considerations were a mere subsidiary purpose of the Act.¹³⁹

The D.C. Circuit held that the NGA creates a rebuttable presumption in favor of exports, which can only be overcome by a showing that DOE authorization is contrary to public interest.¹⁴⁰ By deferring to the DOE's authorization in favor of Freeport LNG's application despite some adverse environmental effects, the D.C. Circuit reinforced the procedural aspect of NEPA, which tends to make the act an instrument of government information rather than a tool to promote a conservative environmental policy.¹⁴¹

132. *Id.*

133. *Id.* at 190, 199, 201.

134. *Id.* at 199.

135. *Id.* at 202.

136. *Del. Riverkeeper*, 753 F.3d at 1305 (holding where an issue requires a high degree of technical expertise, the D.C. Circuit will defer to the "informed discretion of the agency.").

137. *Freeport DOE*, 867 F.3d at 203; *see also* *NAACP v. Fed. Power Comm'n*, 425 U.S. 662, 669-70 (1976) (holding it is proper to examine the public purpose for which the NGA was adopted when interpreting the scope of "public interest" as found in the NGA).

138. *Id.* at 202 (quoting *NAACP v. Fed Power Comm'n*, 425 U.S. at 669-70).

139. *Id.* at 203.

140. *Id.*; *see also* 15 U.S.C. § 717b (b).

141. *Freeport DOE*, 867 F.3d at 203.

C. *Developments in LNG After Freeport DOE*

The D.C. Circuit's holding in *Freeport DOE* elucidates an outer boundary for deciding NEPA challenges where LNG exports are at issue.¹⁴² The D.C. Circuit established that the DOE need not consider renewable energy alternatives in an EIS assessing LNG exports.¹⁴³ *Freeport DOE* is one of many cases in a litany of environmental challenges due to the expansion of LNG terminals in the U.S.¹⁴⁴ *Freeport DOE*, however, appears to be the first case in which the holding outlines the extent to which the DOE needs to consider the indirect and cumulative effects of LNG-export induced production under NEPA.¹⁴⁵ Specifically, the holding illustrates that an agency will not be expected to quantify the indirect and cumulative environmental effects of export-induced production at local or regional levels because measuring such effects are currently too complex and otherwise speculative.¹⁴⁶

The decision in *Freeport DOE* had an immediate impact on similar legal challenges.¹⁴⁷ Less than three months after the *Freeport DOE* decision, the D.C. Circuit Court of Appeals denied three other Sierra Club challenges of DOE authorization to export LNG applications on grounds that the challenges had been resolved principally in *Freeport DOE*.¹⁴⁸

In *Sierra Club v. DOE (Dominion Cove Point LNG, LP)*, the D.C. Circuit reviewed Sierra Club's challenge of DOE's authorization of LNG exports to applicants Dominion Energy, Inc. (Dominion Energy) at its LNG terminal in Maryland.¹⁴⁹ The D.C. Circuit rejected Sierra Club's argument that the DOE had at its disposal additional facts in reviewing Dominion Energy's application which otherwise might have allowed the agency to identify environmental impacts related to incremental production, and thus, distinguish it from *Freeport DOE*.¹⁵⁰ While the court acknowledged the additional information might have allowed the DOE to better assess environmental impacts in certain regions, the agency had no obligation to engage in such a speculative and nonspecific exercise, where, in the agency's informed discretion, it was not proper to do so.¹⁵¹ To wit, the DOE's refusal to engage in additional environmental analysis was not arbitrary or capricious for those reasons made clear in *Freeport DOE* that the D.C. Circuit is willing to defer to the DOE's informed discretion on highly technical matters.¹⁵²

142. See generally *Freeport DOE*, 867 F.3d 189.

143. *Id.* at 202.

144. See generally *Freeport FERC*, 827 F.3d 36; *Sabine Pass FERC*, 827 F.3d 59; *EarthReports, Inc.*, 828 F.3d 949; *Sierra Club v. FERC*, No. 15-1133 (D.C. Cir. 2016) (per curiam); *Freeport DOE*, 867 F.3d 189.

145. Keith Goldberg, *DC Circ. Nixes Challenges To DOE Gas Export Approvals*, LAW360 (Nov. 1, 2017, 1:44 PM), <https://0-www.law360.com.library.utulsa.edu/articles/980547>.

146. *Freeport DOE*, 867 F.3d at 200-01.

147. Goldberg, *supra* note 145.

148. *Sierra Club v. DOE*, 703 Fed. Appx. 1.

149. *Id.* at 1-2.

150. *Id.*

151. *Id.*

152. *Id.*; *Freeport DOE*, 867 F.3d at 196-97.

The impacts of *Freeport DOE* on the LNG export market and export-induced natural gas production is unknown. Since the D.C. Circuit's decision was rendered in August of 2017, through December of 2018, the Henry Hub spot price of natural gas increased by 26%.¹⁵³ Though natural gas supply affects its price, it is only one of many factors which could explain the price increase.¹⁵⁴ Likewise, while natural gas prices fluctuate seasonally with demand, the recent natural gas price spike has corresponded with the increase in U.S. LNG export capacity.¹⁵⁵ While only three LNG export terminals were operational in the U.S. at the beginning of 2019, as additional domestic facilities come online, the probability of U.S. LNG exports to global markets will likely increase.¹⁵⁶ This probability is bolstered by the predictability of more lenient regulatory review that was reinforced by *Freeport DOE*.¹⁵⁷ Applicants may rely on the pattern of decreased environmental opposition to the DOE's NEPA procedure, which could otherwise delay an applicant's export targets.¹⁵⁸

One lasting argument from the *Freeport DOE* opinion is prominently displayed in the DOE's explanation of its recent rule regarding small scale natural gas exports—the presumption that NGA section 3(a) creates a rebuttable presumption that LNG exports to non-FTA countries are in the public interest.¹⁵⁹ By doing away with the notice and procedure requirements for small-scale exports, the DOE is reinforcing the legal interpretation of the D.C. Circuit in *Freeport DOE* - that

153. U.S. ENERGY INFO. ADMIN., NATURAL GAS, (Feb. 6, 2019), <https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm> (indicating from September 2017 through January 2018, the NYMEX spot price of natural gas increased by over 26%); see also INVESTOPEDIA, HENRY HUB, https://www.investopedia.com/terms/h/henry_hub.asp (last visited Feb. 10, 2019) (explaining that Henry Hub is the name of the natural gas pipeline in Louisiana which serves as the delivery location for NYMEX futures contracts and the Henry Hub spot price is used by parties as the market benchmark for futures contracts in both natural gas and LNG (last visited Feb. 10, 2019).

154. U.S. ENERGY INFO. ADMIN., FREQUENTLY ASKED QUESTIONS—WHAT ARE THE MAJOR FACTORS AFFECTING NATURAL GAS PRICES? (May 23, 2018), <https://www.eia.gov/tools/faqs/faq.php?id=43&t=8> (last visited Feb. 18, 2019).

155. Compare TODAY IN ENERGY, *supra* note 2 (indicating Dominion Energy's Cove Point LNG export facility came online in 2018); *c.f.* U.S. ENERGY INFO. ADMIN., *supra* note 153 (showing the increase in Henry Hub Natural Gas Spot Price between September of 2017 and December of 2018); see also, Tom DiChristopher, *Cheniere taps China's booming natural gas market, signing first-ever US long-term LNG Contract*, CNBC (Feb. 9, 2018 7:22 PM), <https://www.cnbc.com/2018/02/09/cheniere-energy-cracks-into-chinas-booming-natural-gas-market.html> (noting that China, importer of 26.1 million tons of LNG in 2016, recently signed a long term contract with the U.S. company Cheniere Energy to import 1.2 million tons of LNG per year).

156. FERC, NORTH AMERICAN LNG IMPORT/EXPORT TERMINALS: EXISTING (Oct. 23, 2018), <https://www.ferc.gov/industries/gas/indus-act/lng/lng-existing.pdf>.

157. See generally *Freeport DOE*, 867 F.3d 189.

158. *Id.*

159. In July of 2018, DOE issued a rule regarding small-scale natural gas exports. *Final Rule, Small-Scale Natural Gas Exports*, 83 Fed. Reg. 35,106 (July 25, 2018). The rule, since codified in the U.S. Code of Federal Regulations, 10 C.F.R §§ 590.102(p), 590.208 (2018), allows the DOE to issue authorization to any applicant wishing to export natural gas, including LNG, to FTA and non-FTA countries upon receipt of any completed application. The rule applies to exports up to 51.75 Bcf per year (0.14 Bcf per day) and is permitted if no EIS or EA is required under NEPA. The rule also did away with prior DOE notice and procedure requirements for small-scale LNG exports, which will expedite the administrative application process. See also *Venture Global Calcasieu Pass, LLC, et. al.* 166 FERC ¶ 61,144 (2019).

the NGA is a tool favoring LNG export authorization even if negative environmental impacts result.¹⁶⁰ In promulgating its rule, the DOE also expressly cited the D.C. Circuit's holding in *Freeport DOE* that NEPA does not require the agency to consider upstream environmental effects of increased natural gas production due to LNG exports, in part, because of "fundamental uncertainties [that] constrain its ability to foresee and analyze with any particularity the incremental natural gas production that may be induced by permitting exports of LNG . . . whether from unconventional shale gas formations or otherwise."¹⁶¹ Since the rule went into effect in August of 2018, the DOE has authorized numerous applications to export LNG to both FTA and non-FTA countries.¹⁶²

VI. CONCLUSION

The U.S. Court of Appeals for the D.C. Circuit determined that the DOE sufficiently considered the indirect and cumulative environmental effects of export-induced production before approving Freeport LNG's export application by limiting its review to what was reasonably quantifiable and not otherwise speculative.¹⁶³ During the course of its NEPA review, the DOE explained that it did not quantify localized or regional upstream effects of export-induced production because of the inherent difficulties in modeling such effects.¹⁶⁴ Likewise, the DOE's refusal to engage in a comparative analysis of renewable energy sources to evaluate the indirect effects of GHG emissions due to increased LNG exports was reasonable, as the analysis involved too many uncertainties to inform an accurate assessment.¹⁶⁵

The D.C. Circuit relied on the expertise of the agency charged with making the environmental evaluation under NEPA, finding that the agency was not constrained where it believed certain aspects of its review were impractical.¹⁶⁶ This deferential view is consistent with the court's prior holdings in which highly technical matters were at issue.¹⁶⁷ The D.C. Circuit reiterated its interpretation that the NGA is presumed to favor natural gas export authorization, unless it is contrary to the public interest.¹⁶⁸ While environmental concerns factor into the public interest assessment, environmental concerns are secondary to the law's primary purpose of promoting the development of natural gas at reasonable prices.¹⁶⁹ The D.C.

160. *Freeport DOE*, 867 F.3d at 203.

161. 83 Fed. Reg. 35,106 at 35,112.

162. OFFICE OF FOSSIL ENERGY, LISTING OF DOE/FE AUTHORIZATIONS/ORDER ISSUED IN 2018, U.S. DEP'T OF ENERGY, <https://www.energy.gov/fe/listing-doe-fe-authorizations/orders-issued-2018> (last visited Feb. 10, 2019); OFFICE OF FOSSIL ENERGY, LISTING OF DOE/FE AUTHORIZATIONS/ORDER ISSUED IN 2019, U.S. DEP'T OF ENERGY, <https://www.energy.gov/fe/listing-doe-fe-authorizations/orders-issued-2019> (last visited Feb. 10, 2019).

163. *Freeport DOE*, 867 F.3d at 201.

164. *Id.* at 199-200.

165. *Id.* at 202.

166. *Id.*

167. *Del. Riverkeeper*, 753 F.3d. at 1305.

168. *Freeport DOE*, 867 F.3d at 202-03.

169. *Id.* at 202.

Circuit's decision is consistent with its past interpretations of the NGA where the court was charged with reviewing an agency's decision.¹⁷⁰

While the effects of the DOE's new rule cannot be measured for some time, the EIA has grown increasingly optimistic about the role of LNG in U.S. trade since *Freeport DOE*.¹⁷¹ The future of the LNG export trade after *Freeport DOE* appears to be bright, ushering in a favorable regulatory environment for future export applicants and limiting the scope of legal challenges based on broad environmental impacts to the DOE's NEPA review process.¹⁷²

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170. *Id.* at 202-03.

171. AEO 2018 *supra* note 3, at 22.

172. *See generally Freeport DOE*, 867 F.3d 189.

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