



May 3, 2013

**VIA ELECTRONIC FILING**

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street NE, Room 1A  
Washington, DC 20426

Re: Comments on *Dominion Cove Point LNG, LP*, Docket No. CP13-113-000

Dear Secretary Bose:

On behalf of proposed interveners EarthReports, Inc. (dba Patuxent Riverkeeper); Potomac Riverkeeper, Inc.; Shenandoah Riverkeeper; Sierra Club; and Stewards of the Lower Susquehanna, Inc., and the additional undersigned organizations, we respectfully submit these comments on the application of Dominion Cove Point LNG, LP (“DCP”) for authorization to construct, install, modify, own, operate, and maintain facilities for liquefaction and export of natural gas and for a Certificate of Public Convenience and Necessity (“Application”).<sup>1</sup> In its Application, DCP sets forth its intent to resuscitate the largely moribund Cove Point liquefied natural gas (“LNG”) import terminal near Lusby, Maryland, by adding liquefaction facilities with nameplate capacity of 5.75 million metric tons per annum (“MTPA”) of LNG (collectively, the “Project”). If approved, the Project will increase industrial activity and pollution in impaired waters, sensitive wetlands, and intact forest in Maryland and Virginia, and it will induce upstream gas production and associated pollution in shale gas regions to the north. As a result, the Project will have significant adverse effects on the Cove Point site and off-site Project areas, the lands and waters of Mid-Atlantic states, and communities and ecosystems throughout much of the Northeast. Those Project impacts, taking into account both their context and intensity, warrant preparation of a comprehensive environmental impact statement (“EIS”), especially when considered together with impacts from other proposed LNG export facilities. Because the significant direct, indirect, and cumulative effects that will be revealed in the EIS cannot be fully mitigated, the Federal Energy Regulatory Commission (“FERC” or the “Commission”) should deny DCP’s requested approvals. Independently, these significant effects also warrant a finding that the Project does not satisfy the requirements of Sections 3 and 7 of the Natural Gas Act (“NGA”). Given the severity of the environmental and economic impacts, the Project is not and will not be in the public interest or required by the public convenience and necessity. Indeed, rather than benefitting the United States public, the Project will concentrate negative

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<sup>1</sup> In their accompanying Motion to Intervene, EarthReports, Inc. (dba Patuxent Riverkeeper); Potomac Riverkeeper, Inc.; Shenandoah Riverkeeper; Sierra Club; and Stewards of the Lower Susquehanna, Inc., have moved for permission to participate as formal parties in this proceeding. For the convenience of the Commission, DCP, and the other proposed interveners, an electronic copy of all materials cited in this document’s footnotes will be submitted to FERC under separate cover.

environmental and economic impacts here, while allowing the benefits to flow abroad.<sup>2</sup> FERC therefore should deny DCP's Application.

## **I. Before Making a Decision, FERC Must Satisfy Substantive and Procedural Statutory Obligations.**

FERC has substantive and procedural obligations to fulfill before it can decide whether or not to approve the Project. Below, we set forth the legal standards governing the Commission's obligations under the NGA, 15 U.S.C. § 717 *et seq.*; the National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4321 *et seq.*; the Endangered Species Act ("ESA"), 16 U.S.C. § 1531 *et seq.*; and the National Historic Preservation Act ("NHPA"), 16 U.S.C. § 470 *et seq.* In sections II-V of these comments, we focus on FERC's obligations under NEPA and the NGA.

### **A. NGA**

DCP has applied for authorizations under sections 3 and 7 of the NGA. Section 3 provides in pertinent part:

[N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the [Federal Power] Commission authorizing it do so. The Commission 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.

15 U.S.C. § 717b(a). In 2006, FERC acquired "exclusive authority to approve or deny an application for the siting, construction, expansion, or operation of an LNG terminal." 15 U.S.C. § 717b(e)(1); *see* Dep't of Energy Delegation Order No. 00-004.00A (May 16, 2006). Although the Department of Energy Office of Fossil Energy ("DOE/FE") has authority to decide whether or not to approve natural gas exports and must make the ultimate public interest determination with respect to DCP's application to export gas from the Cove Point terminal, *see* Dep't of Energy Redelegation Order No. 00-002.04E (Apr. 29, 2011), FERC may not approve a terminal that DOE independently deems not to be in the public interest. Moreover, FERC's evaluation of the environmental impacts of siting, construction, and operation of the Project, including the

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<sup>2</sup> The two weeks FERC provided for comment on the thousands of pages of material in this application has not afforded the public sufficient time to prepare complete comments in this matter. The 32 different citizens' organizations, representing hundreds of thousands of members, never received a response from FERC to their request for a limited extension of the comment period. DCP has asserted that the pre-filing process provided a sufficient public participation opportunity, but review of the complete application was not possible until after its formal filing. Offering only two weeks for comment after notice of the filing was published in the Federal Register defies NEPA's mandate to involve the public fully and fairly in decisionmaking. *See, e.g.*, 40 C.F.R. § 1506.6. In light of this, we reserve the right to raise additional issues not specifically addressed in this document in subsequent filings.

NEPA analysis that FERC generally undertakes on behalf of both agencies, is an important factor in DOE/FE's decision-making.<sup>3</sup>

Section 7 of the NGA precludes DCP from beginning construction or operation of facilities for the transportation or sale of natural gas without first obtaining a Certificate of Public Convenience and Necessity ("Certificate") from FERC. Specifically, section 7 states:

[A] certificate shall be issued to any qualified applicant therefor, authorizing the whole or any part of the operation, sale, service, construction, extension, or acquisition covered by the application, if it is found that the applicant is able and willing properly to do the acts and to perform the service proposed and to conform to the provisions of this chapter and the requirements, rules, and regulations of the Commission thereunder, and that the proposed service, sale, operation, construction, extension, or acquisition, to the extent authorized by the certificate, is or will be required by the present or future public convenience and necessity; otherwise such application shall be denied. The Commission shall have the power to attach to the issuance of the certificate and to the exercise of the rights granted thereunder such reasonable terms and conditions as the public convenience and necessity may require.

15 U.S.C. § 717f(e). As is explained below, the Project is not and will not be required by the present or future public convenience and necessity, and DCP's application for a Certificate therefore should be denied.

## **B. NEPA**

"NEPA procedures . . . insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 C.F.R. § 1500.1(b); *see also Dep't of Transp. v. Public Citizen*, 541 U.S. 752, 768 (2004) (explaining that NEPA requires agencies to "carefully consider[] detailed information concerning significant environmental impacts" and "guarantees that the relevant information will be made available to the larger" public) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989)). If approval of a project is a "major Federal action[] significantly affecting the quality of the human environment," 42 U.S.C. § 4332(c), then the agency must prepare a comprehensive EIS, rather than a more cursory environmental assessment ("EA"). *See* 40 C.F.R. § 1502.3.

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<sup>3</sup> Under the NGA, the public interest determination is rooted in the statute's "fundamental purpose [of] assur[ing] the public a reliable supply of gas at reasonable prices." *United Gas Pipe Line Co v. McCombs*, 442 U.S. 529 (1979). In addition to that consumer protection function, the NGA also extends to DOE/FE "the authority to consider conservation, environmental, and antitrust questions." *Nat'l Ass'n for the Advancement of Colored People v. Fed. Power Comm'n*, 425 U.S. 662, 670 n.4 (1976) (citing 15 U.S.C. § 17b as an example of a public interest provision); *see id.* at n.6 (explaining that the public interest includes environmental considerations); *see also* 10 C.F.R. § 90.202(b)(7) (requiring export applicants to provide information documenting "[t]he potential environmental impact of the project"). As Deputy Assistant Secretary Smith has testified, "[a] wide range of criteria are considered as part of DOE's public interest review process, including . . . U.S. energy security . . . [i]mpact on the U.S. economy . . . [e]nvironmental considerations . . ." Testimony of Christopher Smith, Deputy Assistant Secretary of Oil and Gas Before the Senate Committee on Energy and Natural Resources (Nov. 8, 2011).

Importantly, though an agency may prepare a more concise EA in order to determine whether an EIS is necessary, *see* 40 C.F.R. § 1508.9, an EA should be a preliminary assessment tool. Where the EA uncovers significant impacts, it may not serve as a substitute for the careful analysis provided by an EIS. That said, even an EA must “provide sufficient evidence and analysis” supporting its conclusions and must include consideration of alternatives to a project, including the no-action alternative. *See id.*

“The primary purpose of an environmental impact statement is to serve as an action-forcing device to insure that the policies and goals defined in [NEPA] are infused into the ongoing programs and actions of the Federal government.” 40 C.F.R. § 1502.1 (stating that an EIS “shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment”). Accordingly, every EIS must describe:

- (i) the environmental impact of the proposed action,
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) alternatives to the proposed action,
- (iv) the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity, and
- (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

42 U.S.C. § 4332(C). The analysis of alternatives, in particular, “is the heart of the environmental impact statement,” 40 C.F.R. § 1502.14, and a federal agency must take care not to define a project’s purpose so narrowly as to prevent consideration of a reasonable range of alternatives. *See, e.g., Simmons v. U.S. Army Corps of Eng’s*, 120 F.3d 664, 666 (7th Cir. 1997). Without such consideration, there would be no “clear basis for choice among options by the decisionmaker and the public.” *See* 40 C.F.R. § 1502.14.

An EIS also must describe the direct and indirect effects, and cumulative impacts, of a proposed action. *See* 40 C.F.R §§ 1502.16, 1508.7, 1508.8; *N. Plains Res. Council v. Surface Trans. Bd*, 668 F.3d 1067, 1076 (9th Cir. 2011). Direct effects are “caused by the action and occur at the same time and place.” 40 C.F.R. § 1508.8(a). Indirect effects also are “caused by the action,” but:

are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

*Id.* § 1508.8(b). Cumulative impacts, on the other hand, are not causally related to the proposed action. Instead, they are:

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 regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

*Id.* § 1508.7. The EIS may not ignore any of these categories of impacts, and, while the EIS is under consideration, federal agencies may take no action that would tend to “[l]imit the choice of reasonable alternatives,” or “tend[] to determine subsequent development .” *Id.* §§ 1506.1, 1506.1(c)(3).

FERC is committed to compliance with NEPA regulations promulgated by the Council on Environmental Quality (“CEQ”), 40 C.F.R. §§ 1500-08, unless those rules are inconsistent with statutory provisions governing the Commission. *See* 18 C.F.R. § 380.1. In addition, FERC has adopted its own regulations implementing NEPA procedures. *See id.* Those regulations specifically provide that an EIS “will normally be prepared first for . . . [a]uthorization . . . for the siting, construction, and operation of jurisdictional liquefied natural gas import/export facilities used wholly or in part to liquefy, store, or regasify liquefied natural gas transported by water.” 18 C.F.R. § 380.6(a)(1). An EIS is not required if an EA “indicates that a proposal has adverse environmental effects and the proposal is not approved.” *Id.* § 380.6(c). As is explained below, an EIS is required for the Project, unless the adverse environmental effects that will be disclosed in an EA of the Project lead FERC to deny DCP’s application for a Certificate.

### **C. ESA**

The ESA provides that all agencies “shall seek to conserve endangered species,” 16 U.S.C. § 1531(c)(1). Under this mandate, agencies must ensure that the Project “is not likely to jeopardize the continued existence of any endangered species . . . or result in the destruction or adverse modification of [critical] habitat of such species.” *Id.* § 1536(a)(2). In furtherance of that objective, the regulations implementing the ESA state: “Each Federal agency shall review its actions at the earliest possible time to determine whether any action may affect listed species or critical habitat.” 50 C.F.R. § 402.14(a); *see also* 16 U.S.C. § 1536(a)(2).

In this proceeding, FERC’s review under the ESA must be wide-ranging because, if the Project is approved, gas production activities will increase throughout the Northeast, at least. Thus, FERC may not limit its review only to Project effects at the Cove Point site (although the Commission must examine impacts on endangered sturgeon, among other species, that inhabit the site). Rather, FERC also must consider the effects of off-site Project activities and of increased gas production induced by the Project.

FERC has promulgated regulations implementing requirements under the ESA. *See* 18 C.F.R. § 380.13. Pursuant to those regulations, the Commission has designated DCP as its non-federal representative for purposes of informal consultations with the U.S. Fish and Wildlife Service (“FWS”) and the National Marine Fisheries Service (“NMFS”). *See id.* § 380.13(b). Unless

FWS or NMFS “indicates that the proposed Project is not likely to adversely affect a specific listed species or its designated critical habitat,” DCP must prepare a Biological Assessment of impacts on those species. *Id.* § 380.13(b)(5)(ii).

For each relevant species, the Biological Assessment must include information about the “[r]esults of detailed surveys” that have been “conducted by qualified biologists”; potential impacts of Project construction and operation; and proposed measures to mitigate those impacts. *Id.* § 380.13(b)(5)(ii)(B)-(D), (iii). A draft of the Biological Assessment must be provided to FERC staff and the consulted agency, whether FWS or NMFS, which in turn must provide comments to DCP within 30 days. *Id.* § 380.13(b)(5)(iv). If the consulted agency fails to provide formal comments, FERC determines how to proceed. *See id.* § 380.13(c).

If formal consultation is required to ensure that the Project does not jeopardize any endangered species or adversely modify its habitat, *see* 16 U.S.C. § 1536(a), (b), Commission staff will initiate the process and then coordinate meetings with the consulted agency and DCP, to determine potential impacts and mitigation measures. *See* 18 C.F.R. § 380.13(d)(1)-(2). The consultation will last no more than 90 days, unless all three parties agree to an extension. *See id.* § 380.13(d)(3). Thereafter the consulted agency has 45 days to provide FERC with a Biological Opinion on the Project. *See id.* § 380.13(d)(4).

#### **D. NHPA**

FERC also has obligations under section 106 of the NHPA, which requires that the Commission “take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register.” 16 U.S.C. § 470f; *see also* 18 C.F.R. § 380.14(a) (recognizing the obligation to afford the Advisory Council on Historic Preservation an opportunity to comment on projects proposed for FERC approval, if required under 36 C.F.R. Part 800). DCP is expected to assist the Commission in this process by following the procedures set forth in FERC’s regulations, 18 C.F.R. § 380.12(f), and by consulting with state historic preservation officers. 18 C.F.R. § 380.12(f)(v).

The purpose of the NHPA Section 106 consultation and analysis process is to “identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties.” 36 C.F.R. § 800.1(a). NHPA regulations make clear that the scope of a proper analysis is defined by the project’s area of potential effects, *see id.* § 800.4, which in turn is defined as “the geographic area . . . within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties,” *Id.* § 800.16(d). This area is “influenced by the scale and nature of an undertaking.” *Id.* The area of the Project’s potential effects is extensive because, as in the NEPA and ESA contexts, the Project will affect not only areas of facility construction but also regions where gas production increases.

The regulations governing the Section 106 process provide that “[c]ertain individuals and organizations with a demonstrated interest in the undertaking may participate as consulting parties” either “due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking’s effects on historic properties.” *Id.* § 800.2(c)(5). Sierra Club meets that test, because the Club and its members are interested in

preserving intact historic landscapes, for their ecological and social value, and reside through the region affected by the DCP proposal. Sierra Club members have worked for years to protect and preserve the rich human and natural fabric of the region and would be harmed by any damage to those resources. Sierra Club must therefore be given consulting party status under the NHPA for this application.

## **II. Under NEPA, an EIS Must Be Prepared for the Project.**

FERC has acknowledged in its own regulations that LNG export facilities such as the Project typically qualify for the in-depth review afforded by an EIS, *see* 18 C.F.R. § 380.6(a), and the Commission should not depart from its presumptive environmental review process now. Independently of that presumption, however, application of a reasonable baseline for environmental analysis of the Project demonstrates that an EIS is required. In addition, the requested approval of the Project—which will involve substantial new industrial development at the Cove Point terminal site, the emission of a wide array and large volumes of air pollutants; and the dumping of 16 to 25 million gallons of foreign ballast water per vessel calling at the terminal into the already impaired Chesapeake Bay—is a major federal action that will significantly affect the quality of the human environment. When the mandated “considerations of both context and intensity” are taken into account, 40 C.F.R. § 1508.27, those impacts satisfy the criteria for significance under NEPA and therefore must be analyzed in an EIS. *See* 42 U.S.C. § 4332(C).

### **A. A Fair Environmental Baseline Demonstrates That Project Impacts Are Significant.**

NEPA requires that each federal action be judged against a “no action” baseline. 42 U.S.C. § 4332(E); 40 C.F.R. §§ 1502.14(d), 1508.9. This baseline is intended to provide a fair “benchmark, enabling decisionmakers to compare the magnitude of environmental effects of the action alternatives.” 46 Fed. Reg. 18,026, 18,027 (Mar. 23, 1981). DCP’s failure to identify an appropriate benchmark illegally masks many of the significant environmental impacts of the Project.

DCP portrays the Project as an addition of export capacity to a working import terminal and analyzes the construction and operation impacts only of the new facilities. But DCP’s description of existing conditions is a fiction: only a trickle of LNG ships has docked at Cove Point in recent years, and the facility is unlikely to receive many, if any, import shipments in the foreseeable future. As a result, without the Project, operations at Cove Point will have very limited environmental impacts; if the Project is approved, by contrast, construction and operation of the export facilities and associated infrastructure (including existing facilities which would otherwise see little use) will have very large impacts. FERC’s analysis, for all categories of impacts, must begin with a baseline grounded in those facts.

According to the U.S. Energy Information Administration (“EIA”), national LNG imports already have fallen 31 percent from a high of 4,608 billion cubic feet (“bcf”) per year in 2007 to

3,135 bcf in 2012—a level last seen in the late 1990s.<sup>4</sup> This import slump, driven by the shale gas boom that began roughly five years ago, has occurred even though the U.S. has added a great deal of LNG import capacity (including DCP’s recent expansion) during that period. EIA now expects the U.S. to become a net producer and exporter of gas, with production exceeding consumption for the foreseeable future.<sup>5</sup> In this market, there is really no room for a viable LNG import business at any significant volume. To the extent that limited imports remain viable for reasons of regional supply or economic arbitrage, cheaper pipeline supplies from Canada and Mexico are far more likely than LNG terminals to fill the gap.

DCP’s own experience reflects this market trend. As U.S. Department of Transportation (“DOT”) data demonstrate, the terminal’s import volume always has been well below projected import volumes, and it has declined precipitously—even as DCP’s import expansion project has come online. In 2007, the last year before the shale gas boom, 46 vessels called at Cove Point, delivering nearly 3.5 million metric tons of LNG.<sup>6</sup> By 2011, business had dropped off sharply, with only five vessels calling, carrying approximately 388,000 metric tons of LNG—an 88 percent decrease in volume.<sup>7</sup> Without the Project, Cove Point would very likely cease operating or operate only at a greatly reduced level from initial projections.<sup>8</sup>

Because DCP fails to acknowledge this economic reality, FERC’s adoption of DCP’s proposed no action baseline would obscure the choice before the Commission and thus violate NEPA. “NEPA procedures emphasize clarity and transparency of process,” and, for this reason, “courts not infrequently find NEPA violations when an agency miscalculates the ‘no build’ baseline.” *N.C. Wildlife Fed’n v. N.C. Dep’t of Transp.*, 677 F.3d 596, 603 (4th Cir. 2012). Failing to provide complete baseline data, or relying on stale or misleading data, violates the statute’s requirement that agencies provide a fair benchmark for their decisions. *See N. Plains Res. Council*, 668 F.3d at 1084-86. Because the “current level of activity is used as a benchmark,” *Custer Cty. Action Ass’n v. Garvey*, 256 F.3d 1024, 1040 (10th Cir. 2001), FERC should reject DCP’s efforts to define the baseline in terms of a flourishing import business that no longer exists.

The real choice here—whether to revive a moribund import terminal and convert it to a massive export facility—is an environmentally significant one that warrants preparation of a full EIS. FERC must reject DCP’s attempts to obscure that choice. To comply with NEPA, the Commission instead should adopt a no action baseline that accurately reflects reality and can

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<sup>4</sup> EIA, Monthly Energy Review 69, Table 4.1(Apr. 2013), *available at* [http://www.eia.gov/totalenergy/data/monthly/pdf/sec4\\_3.pdf](http://www.eia.gov/totalenergy/data/monthly/pdf/sec4_3.pdf).

<sup>5</sup> *See* EIA, Annual Energy Outlook 2013, Reference Case, “Natural Gas Supply, Disposition, and Prices” (2013), *available at* <http://www.eia.gov/forecasts/aeo/>.

<sup>6</sup> Maritime Administration, Dep’t of Transp., “Vessels Calls at U.S. Ports by Vessel Type,” *available at* [http://www.marad.dot.gov/library\\_landing\\_page/data\\_and\\_statistics/Data\\_and\\_Statistics.htm](http://www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm) (under HTML heading “Vessel Calls”) (last updated Mar. 28, 2013).

<sup>7</sup> *Id.*

<sup>8</sup> Indeed, an easement upon the Cove Point plant site, held by Sierra Club, requires that the site be tendered to the state or to conservation groups for restoration if the terminal should cease to operate. *See* Settlement Between DCP, Sierra Club, and Maryland Conservation Council (Mar. 2005).

serve as a fair benchmark against which to measure the significant impacts that the Project would cause.<sup>9</sup>

**B. Considerations of Context and Intensity Demonstrate That the Project Will Have Significant Effects.**

NEPA authorizes federal action only after analysis of a project's direct, indirect, and cumulative environmental impacts, including "ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, [and] economical" impacts. 40 C.F.R. § 1508.8. The agency must assess the significance of those impacts in light of "considerations of both context and intensity." *Id.* § 1508.27. With respect to the first consideration, FERC must consider "several contexts" that are relevant to the Project, ranging from short-term local impacts to regional and global impacts. 40 C.F.R. § 1508.27(a); *The Mountaineers v. U.S. Forest Serv.*, 445 F. Supp. 2d 1235, 1245 (W.D. Wash. 2006) (noting the mandate to consider both local and regional impacts). Intensity "refers to the severity of the impact" and involves factoring in ten considerations:

- (1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.
- (2) The degree to which the proposed action affects public health or safety.
- (3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
- (4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.
- (5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
- (6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- (7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
- (8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

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<sup>9</sup> FERC cannot "tier" its review of the Project to prior environmental review documents of actions at Cove Point undertaken for a different purpose and with different effects. *See, e.g.*, 40 C.F.R. § 1508.28.

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

(10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

40 C.F.R. § 1508.27(b). If there is a “substantial question” as to the severity of impacts, an EIS must be prepared. *See Klamath Siskiyou Wildlands Ctr. v. Boody*, 468 F.3d 549, 561-62 (9th Cir. 2006) (holding that the “substantial question” test sets a “low standard” for plaintiffs to meet). Considerations of both context and intensity militate in favor of preparing an EIS for the Project.<sup>10</sup>

### **1. The Project’s Direct and Indirect Impacts, Considered in Context, Are Significant.**

The context inquiry concerns the “scope of the agency’s action,” *Nat’l Parks Conserv. Ass’n v. Babbitt*, 241 F.3d 722, 731 (9th Cir 2001), and requires a broad look at the Project at a number of levels. 40 C.F.R. § 1508.27(a). Because the Project would provide a primary route for shipping Marcellus and Utica shale gas to the world market, the Project would have effects on a local, regional, national, and global scale, as DCP admits. In DCP’s words:

DCP is especially well positioned to export gas production from the Marcellus Shale, one of the largest shale plays with among the lowest development costs, as well as the very promising Utica Shale— as discussed in Section V.B.1. below. The pipeline industry in the Marcellus area has recently experienced a surge in pipeline expansions as the gas producers look for ways to get their gas to markets. With export authorization, DCP would be able to provide an additional outlet for these growing domestic gas supplies.<sup>11</sup>

DCP also owns a pipeline system that underlies these shale plays and provides “direct access” to the terminal, thus linking Cove Point to the larger regional gas fields, connecting their production to the world market.<sup>12</sup> Indeed, DCP already has contracted with Japanese and Indian companies to accept LNG from its terminal.<sup>13</sup> Thus, the terminal is much more than a local project (though it will have significant local impacts in their own right). It is designed as a lynch-pin in a global transaction and must be analyzed as such.

Significant impacts are present at every level. Locally, the Project will require significant construction work and will have ongoing operational impacts. *See, e.g.*, Resource Report 10 at

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<sup>10</sup> As evidenced by the numerous citations to scientific authority contained in the discussion below, the effects of the Project on the quality of the human environment are likely to be highly controversial, which also heavily weights in favor of preparing an EIS for the Project.

<sup>11</sup> DCP, Application for Export to the Department of Energy 9 (Oct. 3, 2011).

<sup>12</sup> *Id.*

<sup>13</sup> Application at 2; *see also* Reuters, *Dominion Signs Deals to Export U.S. Natural Gas from Cove Point* (Apr. 1, 2013), available at <http://www.reuters.com/article/2013/04/01/us-lng-dominion-export-idUSBRE9300CH20130401>.

10-2 (identifying proposed facilities). Regionally, the terminal is “well positioned” to market gas from the Marcellus and Utica shales and thereby to substantially increase gas production in those regions.<sup>14</sup> On a national scale, DCP claims credit for helping to align the U.S. Balance of Trade, *see id.* at 10-3, but it also will contribute to a national shift in gas demand that will impact domestic industries and utilities and deepen national dependence on fossil fuels. And on a global scale, DCP’s LNG exports will alter the energy mix and emissions of the nations that receive them. DCP’s proposal, in short, bids to alter not only the local environment but also the regional, national, and global energy status quo. At each of these levels, there are, at a minimum, substantial questions as to whether impacts of the Project will be significant. FERC must prepare an EIS to fairly explore these questions.

## **2. The Intensity of Direct and Indirect Project Impacts Demands Preparation of an EIS.**

CEQ regulations provide that the intensity of impacts is a function of 10 factors. *See* 40 C.F.R. § 1508.27(b). When these factors (quoted above) are considered, especially but not exclusively with respect to the following areas of environmental concern, there are substantial questions as to whether the Project will have significant impacts, and an EIS therefore is required.<sup>15</sup>

### **a. The Project’s Air Emissions Will Be Significant.**

If it is constructed, the Project would emit millions of tons of air pollution and would make the facility one of the largest sources of greenhouse gases (“GHGs”) in Maryland. Without the Project, those impacts would be avoided and air emissions likely would decrease, because the terminal would be idle or shut down operations. The large quantities of avoidable air pollution that the Project would cause underscore the significance of Project impacts.

#### **i. GHGs at the Terminal**

The Cove Point terminal has been among the largest sources of GHG pollution in Maryland. If the Project is approved, the terminal will become an even more dominant polluter.

GHG pollution is a potent local, regional, and national threat to public health and welfare, as the Environmental Protection Agency (“EPA”) has acknowledged. GHG emissions will increase global warming, harming both the local and global environments. The impacts of global warming include “increased air and ocean temperatures, changes in precipitation patterns, melting and thawing of global glaciers and ice, increasingly severe weather events, such as

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<sup>14</sup> Requested intervenor Pennsylvania Independent Oil & Gas Association (“PIOGA”) bases its Motion to Intervene in these proceedings on the fact its members are “potential shippers on DCP if DPC’s facilities are used to liquefy and export Appalachian gas supplies, including Marcellus shale gas and other gas produced by PIOGA members.” Motion to Intervene of PIOGA, Dkt. No. CP13-113 (May 2, 2013).

<sup>15</sup> The focus on the discrete categories of impacts discussed below should not be construed as acknowledgment that the Project causes no other significant environmental impacts. Additional significant impacts may be identified later, when FERC releases its draft environmental review document for public comment.

hurricanes of greater intensity, and sea level rise.”<sup>16</sup> A warming climate also will lead to loss of coastal land in densely populated areas, shrinking snowpack in Western states, increased wildfires, and reduced crop yields.<sup>17</sup> More frequent heat waves as a result of global warming already have affected public health, leading to premature deaths, and threats to public health are expected only to increase as global warming intensifies. For example, a warming climate will lead to increased incidence of respiratory and infectious disease, greater air and water pollution, increased malnutrition, and greater casualties from fire, storms, and floods.<sup>18</sup> Vulnerable populations—such as children, the elderly, and those with existing health problems—are the most at risk from these threats.

According to EPA’s Greenhouse Gas Reporting Program, Cove Point was already among the top 20 largest sources in Maryland, emitting 141,000 metric tons of carbon-dioxide-equivalent (“CO<sub>2</sub>e”) GHGs in 2011.<sup>19</sup> The facility would leapfrog up the list if the Project were approved. DCP reports that its emissions would increase by 2.02 million tons per year, Resource Report 9 at 9-30, making Cove Point the fifth largest source of GHGs in Maryland, according to EPA data, behind only four coal-fired power plants. Moreover, this figure does not include fugitive emissions at the terminal site or along pipelines and compressor stations leading to the terminal, so it is likely understated.

This emissions increase is a strong indication of the Project’s significance under NEPA. CEQ has advised that projects with emissions greater than 25,000 metric tons of CO<sub>2</sub>e GHGs are likely to be significant, warranting an EIS.<sup>20</sup> Cove Point’s emissions exceed this amount by more than 80 times. A full EIS is required to analyze these massive GHG emissions and examine alternatives that might avoid them.

## ii. Criteria Pollutants at the Terminal

Cove Point’s existing import-related facilities already have the potential to be significant sources of air pollution, and the Project would perpetuate and increase these emissions by ensuring that the facility continues to operate. Additional air pollution from export-linked facilities would add to existing pollution substantially. This air pollution “affects public health [and] safety,” *see* 40

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<sup>16</sup> Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 76 Fed. Reg. at 52,738, 52,791-22 (citing EPA, 2011 U.S. Greenhouse Gas Inventory Report Executive Summary (2011)).

<sup>17</sup> *Id.* at 66,532–33.

<sup>18</sup> EPA, Climate Change, Health and Environmental Effects, <http://epa.gov/climatechange/effects/health.html>.

<sup>19</sup> EPA, Greenhouse Gas Reporting Program Data for Maryland (2011), <http://ghgdata.epa.gov/ghgp/main.do#/listFacility/?q=Find a Facility or Location&st=MD&fid=&sf=11001000&lowE=0&highE=23000000&g1=1&g2=1&g3=1&g4=1&g5=1&g6=0&g7=1&g8=1&g9=1&g10=1&s1=1&s2=1&s3=1&s4=1&s5=1&s6=1&s7=1&s8=1&s9=1&s201=1&s202=1&s203=1&s204=1&s301=1&s302=1&s303=1&s304=1&s305=1&s306=1&s307=1&s401=1&s402=1&s403=1&s404=1&s601=1&s602=1&s701=1&s702=1&s703=1&s704=1&s705=1&s706=1&s707=1&s708=1&s709=1&s710=1&s711=1&s712=1&s801=1&s802=1&s803=1&s804=1&s805=1&s806=1&s807=1&s808=1&s809=1&s810=1&s901=1&s902=1&s903=1&s904=1&s905=1&s906=1&s907=1&s908=1&s909=1&ss=&so=0&ds=E&yr=2011&tr=current&cyr=2011>.

<sup>20</sup> CEQ, Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions 3 (Feb. 18, 2010).

C.F.R. § 1508.27(b)(2), and so further demonstrates the significance of the Project for NEPA purposes.

**Nitrogen Oxide (“NO<sub>x</sub>”):** By volume, NO<sub>x</sub> is the most significant air pollutant at DCP’s existing facility. Exposure to NO<sub>x</sub> can cause asthma attacks, and the pollutant is also one of two principal ozone precursors.<sup>21</sup> Ozone pollution harms human respiratory systems and has been linked to premature death, heart failure, chronic respiratory damage, and premature aging of the lungs.<sup>22</sup> Ozone also may exacerbate existing respiratory illnesses, such as asthma and emphysema, or cause chest pain, coughing, throat irritation, or congestion. Children, the elderly, and people with existing respiratory conditions are the most at risk from ozone pollution.<sup>23</sup> Significant ozone pollution also damages plants and ecosystems.<sup>24</sup> Calvert County, Maryland is out of attainment for both the 1997 and 2008 8-hour ozone standards.<sup>25</sup> In light of these serious health impacts, the existing violations in Calvert County raise serious concerns about the Project’s additional ozone precursor emissions and warrant analysis in a full EIS.

According to DCP, even after implementing proposed air pollution controls at the level of best available control technology (“BACT”), the Project’s new gas turbines alone will emit 99.1 tons per year of NO<sub>x</sub>.<sup>26</sup> These emissions must be added to those from other equipment, including the flares that DCP plans to install (which will emit tens of tons of NO<sub>x</sub> annually and have the potential to emit hundreds of tons of that pollutant) and gas turbines and other machinery already onsite (which collectively have the potential to emit nearly 280 tons per year of NO<sub>x</sub>). *See* Resource Report 9 at Table 9-8. Construction emissions also will add several hundred more tons of NO<sub>x</sub> during peak years. *Id.* at Tables 9-31 to 9-34. Thus, the Project will greatly increase emissions of air pollutants in an area already struggling with air pollution.

Further, DCP understates the ongoing importance of its emissions in at least two regards. First, it again fails to acknowledge that emissions at Cove Point would greatly decrease without the Project and thus obscures the real local impact of its proposal. Second, DCP did not fairly analyze the full emissions impacts of LNG tanker traffic to and from the site. Initially, DCP

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<sup>21</sup> *See* EPA, Nitrogen Dioxide, Health, <http://www.epa.gov/air/nitrogenoxides/health.html>.

<sup>22</sup> EPA, Proposed New Source Performance Standards and Amendments to the National Emissions Standards for Hazardous Air Pollutants for the Oil and Natural Gas Industry: Regulatory Impact Analysis, 4-25 (July 2011) (“O&G NSPS RIA”), <http://www.epa.gov/ttnecas1/regdata/RIAs/oilnaturalgasfinalria.pdf>; Jerrett et al., *Long-Term Ozone Exposure and Mortality*, *New England Journal of Medicine* (Mar. 12, 2009), *available at* <http://www.nejm.org/doi/full/10.1056/NEJMoa0803894#t=articleTop>.

<sup>23</sup> *See* EPA, Ground-Level Ozone, Health Effects, <http://www.epa.gov/glo/health.html>; EPA, Nitrogen Dioxide, Health, <http://www.epa.gov/air/nitrogenoxides/health.html>.

<sup>24</sup> O&G NSPS RIA, *supra* note 22, at 4-26. Ozone also contributes substantially to global climate change over the short term. According to a recent study by the United Nations Environment Program (“UNEP”), behind carbon dioxide and methane, ozone is now the third most significant contributor to human-caused climate change. UNEP, *Integrated Assessment of Black Carbon and Tropospheric Ozone Summary for Decision Maker*, 7 (2011), *available at* [http://www.unep.org/dewa/Portals/67/pdf/Black\\_Carbon.pdf](http://www.unep.org/dewa/Portals/67/pdf/Black_Carbon.pdf) (hereinafter “UNEP Report”).

<sup>25</sup> *See* EPA, Currently Designated Nonattainment Areas for All Criteria Pollutants (as of Dec. 4, 2012), <http://www.epa.gov/oaqps001/greenbk/ancl.html>.

<sup>26</sup> DCP, PSD/NSR Air Permit Application Report (Mar. 2013), Appendix B: Detailed Emissions Calculations, at B-3.

conducted air dispersion modeling of tankers only “when in the security zone of the pier.”<sup>27</sup> *Id.* at 9-66. DCP therefore failed to discuss the air quality impacts of the dozens of tanker trips it forecasts every year. Since LNG carriers can emit tens of tons of NO<sub>x</sub> during their brief stay at DCP’s docking facilities, *id.* at 9-45, emissions during their longer transit of Chesapeake Bay are likely to be substantially larger and undoubtedly will affect air quality in the region. DCP analyzed emissions from barge traffic for construction and yet, oddly, appears to have neglected this potentially much larger emissions source. DCP must account for all of its emissions.

Indeed, DCP understates tanker emissions associated with the Project, even with its limited dock-side analysis. DCP calculates an emissions “decrease” because it assumes that export carriers do not require dockside pumping facilities, unlike import carriers, and therefore asserts that the export carriers use less fuel. *See id.* at 9-44 to 9-45. DCP therefore maintains that the 85 export carriers assumed to visit the facility annually mark a decrease from the 200 import carriers once projected to visit Cove Point. *See id.* at 9-45. This calculation is wrong because it does not reflect the reality at the terminal. DCP has never had more than 74 tankers at the facility (it reached that peak in 2005), and it received only five carriers in 2011.<sup>28</sup> Traffic has not picked up since. Without export, that number would remain at or near zero, and so would emissions from tanker traffic. Thus, 85 export tankers would cause an emissions increase, not a decrease, and that increase would be substantial.

These understatements are troubling because DCP acknowledges that the National Ambient Air Quality Standards (“NAAQS”) for both NO<sub>x</sub> and fine particulate matter (“PM<sub>2.5</sub>”) were exceeded when the LNG terminal’s impacts were modeled. Resource Report 9, Appendix 9-A, at 4-2. DCP does not state where the exceedances occurred. It must do so, and FERC must carefully investigate and disclose those impacts in its EIS for the Project. This analysis is particularly important because, in other areas, the combined impact of Cove Point’s emissions and other area emissions are exceedingly close to the NAAQS. Specifically, Resource Report 9 shows modeled concentrations of PM<sub>2.5</sub> concentrations over a year at 11.993 µg/m<sup>3</sup>, just 0.007 µg/m<sup>3</sup> below the relevant NAAQS, and NO<sub>2</sub> concentrations over 1 hour of 187.9 µg/m<sup>3</sup>, just 0.1 µg/m<sup>3</sup> below the relevant NAAQS. These exceptionally close calls indicate that the facility will have a substantial impact on regional air quality and raise serious questions as to the quality and robustness of DCP’s modeling. FERC must weigh these impacts carefully, including providing an independent review of DCP’s analysis, in a full EIS.<sup>29</sup>

Although DCP insists that Cove Point emissions do not contribute significantly to NAAQS exceedances, *id.* at 4-3, the analysis shows that Project emissions, modeled on their own and without full consideration of tanker traffic, can cause maximum NO<sub>x</sub> concentrations of 14 percent of the NAAQS, *id.* at 9-22 (showing maximum modeled concentrations of 26.9

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<sup>27</sup> DCP claims that this decision was “[b]ased on the FERC guidance” but does not cite a specific portion of that guidance to support its protocol.

<sup>28</sup> Maritime Administration, *supra* note 6.

<sup>29</sup> Fewer than two days before these comments were due, DCP filed nearly a hundred pages of additional modeling results. Meaningful public review of the new information requires more time, and we reserve our right to file additional comments.

micrograms per cubic meter)— a non-trivial contribution in a region with many other combustion sources.<sup>30</sup> DCP may downplay its contribution, but the fact is that the Project would contribute substantially to NAAQS exceedances and to air pollution generally.

Even if the hundreds of tons of NO<sub>x</sub> pollution from Cove Point will not cause NAAQS violations, they remain environmentally significant. They degrade air quality and make it more difficult to comply with the NAAQS in the future. They may also be avoidable; the lion's share of emissions come from gas turbines, but DCP has neither demonstrated that it could not source all, or a portion, of the power required for its liquefaction trains and other equipment from the power grid, nor established what the total emissions profile of that purchased power might be. Instead, it offers only that power is not available and it is not "planning" to construct new transmission. *Id.*, Appendix 9-A, at 6-4. Although new transmission ultimately may not be the best alternative, DCP's bald refusal even to consider that option is inconsistent with NEPA. In considering DCP's application, FERC must weigh this alternative and disclose its impacts.

***Volatile Organic Compound ("VOC") Emissions:*** As DCP acknowledges, the Project also has the potential to greatly increase VOC emissions from the site. *Id.* at 9-27. VOCs can cause a wide array of health problems, including "[e]ye, nose, and throat irritation; headaches, loss of coordination, nausea; damage to liver, kidney, and central nervous system," and cancer.<sup>31</sup> VOCs are also important ozone precursors—again, a matter of particular concern in Calvert County, which is not in attainment with ozone standards.

Cove Point is a major source of VOC pollution when operating at its potential, and this pollution would get worse with the Project. Even with the imposition of DCP's proposed controls, the Project's additional combustion turbines will increase VOC emissions by 9.8 tons per year, and its flares will increase VOC emissions by 14.8 tons per year; with additional sources, the Project has a potential to increase VOC emissions by 33.1 tons per year. Resource Report 9 at 9-27. These increases come on top of as much as 33.8 tons per year of VOC emissions from existing equipment. *Id.* at 9-26. These emissions increases, too, are avoidable if the Project is not approved, and they demonstrate the environmental significance of moving forward with DCP's proposal.

Notably, even though, when operating at capacity, Cove Point contributes significant amounts of both ozone precursors—VOCs and NO<sub>x</sub>—to Calvert County, an ozone nonattainment area, DCP appears to have provided no ozone modeling to FERC demonstrating that the facility will not

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<sup>30</sup> Nor is it clear to us that all possible violations have been modeled. DCP's evaluation was conducted for each receptor using its "5 Yr Average Concentration from All Sources." It is not clear if this amount is the maximum (i.e. 1st) highest concentration. For NO<sub>2</sub>, violations are not based on the maximum concentration but the 8th highest concentration. Each receptor may have multiple violations based on the 9th, 10th, 11th and succeeding level of concentration. The current version of AERMOD has an option to create a file, MAXDCONT, which can evaluate contribution to exceedances. It is not clear if this AERMOD option was used, and so not clear if violations associated with slightly lower concentrations from Cove Point were evaluated. FERC should verify that correct procedures were used to assure the Project does not contribute significantly to any NAAQS exceedance for NO<sub>2</sub>.

<sup>31</sup> EPA, VOCs, Health Effects, [http://www.epa.gov/iaq/voc.html#Health\\_Effects](http://www.epa.gov/iaq/voc.html#Health_Effects).

cause ozone NAAQS violations. DCP must provide this modeling and the results must be disclosed in the final EIS.

**Carbon Monoxide (“CO”):** The Project also will increase CO emissions. CO can cause harmful health effects by reducing oxygen delivery to the body’s organs and tissues.<sup>32</sup> CO can be particularly harmful to persons with various types of heart disease, who already have a reduced capacity for pumping oxygenated blood to the heart. “For these people, short-term CO exposure further affects their body’s already compromised ability to respond to the increased oxygen demands of exercise or exertion.”<sup>33</sup>

DCP’s new gas turbines, on their own, would emit 36.2 tons per year of CO. Resource Report 9, Appendix B, at B-3. As with NO<sub>x</sub>, these emissions must be added to those caused by other facility equipment, tanker traffic, and construction. Again, DCP fails to discuss the possibility of providing electric power to its site, which would offset at least some of the combustion-related emissions. And, again, DCP fails to acknowledge that all of these emissions—both from export and from much of the underlying operation of the terminal—would be avoided if the Project were not approved and the terminal remained idle. This pollution, too, demonstrates that the Project will have significant environmental impacts, warranting an EIS.

**Particulate Matter (“PM”)/Fugitive Dust:** PM emissions will increase as a result of DCP’s proposal. PM consists of tiny particles of a range of sizes suspended in air. Small particles pose the greatest health risk. These small particles include “inhalable coarse particles,” which are smaller than 10 micrometers in diameter (“PM<sub>10</sub>”), and PM<sub>2.5</sub>, the “fine particles” of less than 2.5 micrometers in diameter. PM<sub>10</sub> is formed primarily from crushing, grinding, or abrasion of surfaces. PM<sub>2.5</sub> is formed primarily by incomplete combustion of fuels or through secondary formation in the atmosphere.<sup>34</sup>

PM causes a wide variety of health and environmental impacts. PM has been linked to respiratory and cardiovascular problems, including coughing, painful breathing, aggravated asthma attacks, chronic bronchitis, decreased lung function, heart attacks, and premature death. Sensitive populations, including the elderly, children, and people with existing heart or lung problems, are most at risk from PM pollution.<sup>35</sup> PM also reduces visibility,<sup>36</sup> and may damage important cultural resources.<sup>37</sup> Black carbon, a component of PM emitted by combustion

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<sup>32</sup> EPA, Carbon Monoxide, Health, <http://www.epa.gov/air/carbonmonoxide/health.html>.

<sup>33</sup> *Id.*

<sup>34</sup> See EPA, Particulate Matter, Health, <http://www.epa.gov/pm/health.html>; BLM, West Tavaputs Plateau Natural Gas Full Field Development Plan Final Environmental Impact Statement (“West Tavaputs FEIS”), at 3-19 (July 2010), available at [http://www.blm.gov/ut/st/en/fo/price/energy/Oil\\_Gas/wtp\\_final\\_eis.html](http://www.blm.gov/ut/st/en/fo/price/energy/Oil_Gas/wtp_final_eis.html).

<sup>35</sup> O&G NSPS RIA, *supra* note 22, at 4-19; EPA Particulate Matter, Health, *supra* note 34.

<sup>36</sup> EPA “Visibility— Basic Information,” <http://www.epa.gov/visibility/what.html>.

<sup>37</sup> See EPA, Particulate Matter, Health, *supra* note 34; West Tavaputs EIS, *supra* note 34, at 3-19; O&G NSPS RIA, *supra* note 22, at 4-24.

sources, such as flares and older diesel engines, also warms the climate and thus contributes to climate change.<sup>38</sup>

According to DCP, its new gas turbines will alone emit 135.2 tons per year of PM, much of it PM<sub>2.5</sub>. Resource Report 9, Appendix B, at B-3. These emissions, too, would be avoided if the Project were not approved.

**Sulfur Dioxide (“SO<sub>2</sub>”):** According to DCP, the Project has the potential to emit 2.2 tons per year of SO<sub>2</sub> from new combustion terminals, on top of 1.84 tons per year from existing equipment. *Id.* at Tables 9-8 & 9-9. SO<sub>2</sub> causes respiratory problems, including increased asthma symptoms. Short-term exposure to SO<sub>2</sub> has been linked to increased emergency room visits and hospital admissions. SO<sub>2</sub> reacts in the atmosphere to form PM, which can cause significant human health harm, as is discussed above.<sup>39</sup> SO<sub>2</sub> also can cause haze, or decreased visibility.

DCP did not consider these impacts because it did not believe its facility triggered prevention of significant deterioration requirements. But SO<sub>2</sub> emissions may still be locally significant, even if they do not render the terminal a major source for the purpose of air permitting. DCP should have considered whether these emissions were likely to degrade air quality in the immediate vicinity of the terminal.

DCP’s projected SO<sub>2</sub> emissions also do not appear to account for marine vessel traffic. This is a significant oversight. The Oregon LNG proposal, for example, estimated 80.88 tons per year in SO<sub>2</sub> emissions emitted by marine vessel traffic.<sup>40</sup> DCP must explain whether it anticipates similar emissions as a result of the significant vessel traffic that the Project would cause.

**Mitigation Issues:** DCP maintains that it will offset some of its VOC and NO<sub>x</sub> emissions with the purchase of emissions credits. Resource Report 9 at 9-69. However, DCP has not purchased these credits and admits that it will be unable to do so for VOCs in the Washington DC Air Quality Control Region. *Id.* Although DCP suggests that it may be able to purchase credits in Baltimore, DCP has conducted only “preliminary discussions” with the Maryland Department of the Environment (“MDE”) on this point and has no assurances that such offsets will be available. FERC therefore may not simply assume that these offsets will materialize. Instead, the Commission must weigh the real possibility that DCP will be unable fully to offset its VOC emissions in the Calvert County nonattainment area.

### iii. Toxic Air Pollutants at the Terminal

DCP acknowledges that Cove Point is “an area source of [hazardous air pollutants (“HAPs”)] and will remain an area source after [construction of] the Project.” *Id.* at 9-31. DCP has the potential to emit 20.4 tons per year of a total of five HAPs—formaldehyde, hexane, propylene,

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<sup>38</sup> UNEP Report, *supra* note 24, at 6; Intergovernmental Panel on Climate Change (“IPCC”), Climate Change 2007: Working Group I: The Physical Science Basis, 2.5.4. (2007) (hereinafter “IPCC Working Group I”).

<sup>39</sup> EPA, Sulfur Dioxide, Health, <http://www.epa.gov/air/sulfurdioxide/health.html>.

<sup>40</sup> Oregon LNG Export Project, Dkt. PF12-18, Resource Report 9, at 9-16 to 9-19 (2012).

toluene, and xylene—all of which are carcinogenic. *Id.* at 9-32. Yet, because DCP’s modeling allegedly demonstrates that emissions of these pollutants are below Maryland screening levels, DCP proposes no specific control technology for these pollutants. *Id.*, Appendix 9-A, at 7-20 to 7-22. Even if DCP’s modeling is correct, the Project’s emissions of 20 tons of hazardous pollutants annually next to Calvert Cliffs State Park and several residential areas would be a significant environmental impact, warranting an EIS.

Further, DCP’s terminal is a source of an extremely toxic air pollutant, hydrogen sulfide (“H<sub>2</sub>S”). Because H<sub>2</sub>S is not formally listed as a HAP, DCP does not appear to have conducted a modeling analysis for the pollutant’s impacts; nor has DCP proposed any BACT-based controls.<sup>41</sup> Yet, DCP admits that the Project alone has the potential to emit 1.4 tons per year of H<sub>2</sub>S (leaving aside existing emissions). H<sub>2</sub>S is toxic at even very low concentrations and can cause neurological impairment or death. Long-term exposure to H<sub>2</sub>S is linked to respiratory infections, eye, nose, and throat irritation, breathlessness, nausea, dizziness, confusion, and headaches.<sup>42</sup> At a minimum, DCP must disclose what concentrations of H<sub>2</sub>S the public may experience near its facilities.

#### **iv. Conclusions on Air Impacts**

Without the Project, air emissions from the Cove Point facilities would likely decline towards zero. With the Project, terminal facilities will emit millions of tons per year of air pollution. DCP attempts to obscure these impacts by pretending that its import activities are operating and will continue to operate at permitted levels, but the proper baseline for the Project will reflect the fact that imports have effectively ceased at Cove Point.

Moreover, FERC’s analysis of DCP’s air pollution must include a fair and careful analysis of technologies and operating practices that would reduce emissions from the level anticipated for the Project. In particular, DCP has put forward no compelling reason why all or a large portion of the Project’s need could not be met from the existing power grid, which would greatly reduce the combustion-related emissions that dominate the site’s emission profile. Electrically driven compression, powered by the grid, is a feasible alternative. At least two pending applications for construction of domestic LNG export terminals propose to use this option.<sup>43</sup> Existing LNG

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<sup>41</sup> Although H<sub>2</sub>S originally was included in the Clean Air Act’s list of HAPs, the chemical was removed with industry support. *See* Pub. L. 102-187 (Dec. 4, 1991). We do not concede that this removal was appropriate. Hydrogen sulfide meets section 112 of the Clean Air Act’s standards for listing as a HAP and should be regulated accordingly.

<sup>42</sup> EPA, Office of Air Quality Planning and Standards, Report to Congress on Hydrogen Sulfide Air Emissions Associated with the Extraction of Oil and Natural Gas (EPA-453/R-93-045), at ii (1993) (hereinafter “EPA Hydrogen Sulfide Report”).

<sup>43</sup> Freeport LNG Development, L.P., et al., FERC Dkt. No. CP-12-509, Application for Authorization under Section 3 of the Natural Gas Act 8 (Aug. 31, 2012) (proposing “electric motor-driven refrigeration and other compressors, expanders, and pumps”), *available at* <http://elibrary.ferc.gov/IDMWS/common/OpenNat.asp?fileID=13057428>; Jordan Cove Energy Project, L.P., DOE/FE Dkt. No. 12-32-LNG, Application of Jordan Cove Energy Project, L.P. for Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Nations 4 (Mar. 23, 2012) (proposing “electrically driven liquefaction equipment”), *available at* [http://www.fossil.energy.gov/programs/gasregulation/authorizations/2012\\_applications/12\\_32\\_LNG\\_Application.pdf](http://www.fossil.energy.gov/programs/gasregulation/authorizations/2012_applications/12_32_LNG_Application.pdf).

export terminals in Norway, Indonesia, Africa and Saudi Arabia use electrical compression.<sup>44</sup> Electrically driven compression and refrigeration is therefore an available alternative. This alternative would have vastly lower air emissions than the proposed technology. Electric motor drivers have more efficient turndown characteristics for variable output operations, they can be sized to allow more efficient design, they generate no waste heat, and are not affected by the weather. Turbines lose efficiency as temperatures and humidity deviate from design, a major issue for the Mid-Atlantic, where high temperatures and humidity are present much of the year. For these and other reasons, electric compression has lower emissions of conventional and greenhouse gas pollutants, even when emissions associated with upstream electricity production are considered

Even assuming grid connections are not favored, DCP has not offered a careful analysis of the efficiencies of the turbines it proposes to demonstrate that the selected designs offer the lowest possible emissions. Likewise, DCP has not demonstrated that the flares that it proposes to operate throughout the year are necessary in whole or even in part. FERC must require careful analysis of whether flaring emissions can be reduced or eliminated through systems to capture emissions and divert them back into gas lines (for instance) or otherwise managed to maximize combustion efficiency.

Further, it is not clear from DCP's submission what, if any, leak detection and repair program it intends to implement at the site or along the pipeline system leading to Cove Point, even though many phases of the gas transport and processing process will have substantial fugitive emissions that contribute substantially to air pollution and that can indicate potentially dangerous equipment failures. DCP might, for instance, be required to conduct regular inspections, to replace higher-bleed pneumatics with low or zero-bleed devices, or regularly replace compressor equipment.<sup>45</sup>

In brief, although emissions are significant, DCP does not provide a sufficient discussion of alternatives that might reduce or eliminate them—alternatives that NEPA requires. FERC must ensure a fuller discussion in its EIS. That discussion, again, must begin by recognizing that, without the Project, essentially all of the emissions above would be entirely avoided.<sup>46</sup> In short, FERC's decision whether or not to permit this massive emissions increase will have significant effects on the human environment, and so warrants an EIS.

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<sup>44</sup> Siemens Energy, *Pushing the Limits of Productivity: The All-Electric Liquefaction Plant Concept* 9, 11 (2008), available at [http://www.energy.siemens.com/us/pool/hq/industries-utilities/oil-gas/applications/lng/Pushing%20the%20limits%20of%20productivity\\_EN.pdf](http://www.energy.siemens.com/us/pool/hq/industries-utilities/oil-gas/applications/lng/Pushing%20the%20limits%20of%20productivity_EN.pdf).

<sup>45</sup> EPA's recent NSPS for new gas system sources provides a useful guide to options here, which FERC should consult. See 77 Fed. Reg. 49,490 (Aug. 16, 2012).

<sup>46</sup> These emissions, again, will have substantial regional impacts. In this regard, we note that DCP records impacts above significant impact levels (SILs) more than 50 km from the plant. See Resource Report 9 at 9-22. Ordinarily, this would require CALPUFF modeling to check impacts on Federal Class I areas, several of which are near the facility, see *id.* at 9-14, but no such modeling has been done. It must be in the final EIS.

## **b. The Project Will Have Significant Water Quality Impacts.**

The Project would negatively affect water quality in the Chesapeake Bay, the Patuxent River, groundwater resources, and streams near Project facilities. These impacts, which are described below, are significant and must be considered in an EIS. In particular, FERC must take a hard look at the likely impacts on the Chesapeake Bay from a substantial increase in annual ship traffic at the existing offshore pier and the dumping of billions of gallons of ballast, on the Patuxent River from sediment disturbance during construction and removal of a temporary offshore pier, and on groundwater resources near the LNG terminal from substantially increased water withdrawals.

### **i. Impacts on the Chesapeake Bay**

Ballast discharges from increased shipping traffic could impact water quality in the Chesapeake Bay near the offshore pier. *See* Resource Report 1 at 1-20 (“Ships receiving LNG for export will discharge ballast water at the LNG Terminal offshore pier during the loading process.”). DCP notes that the terminal is authorized to receive up to 200 vessels annually, ranging up to 267,000 cubic meters in size, Resource Report 1 at 1-19 & n.6, and estimates that 85 vessels would be devoted annually to LNG export, *see* Resource Report 9 at 9-45. Smaller ships are expected to carry approximately 16 million gallons (60,000 m<sup>3</sup>) of ballast, while larger ships are expected to carry approximately 25 million gallons (94,000 m<sup>3</sup>) of ballast. Resource Report 2 at 2-24. The ballast water on board these vessels will have lower concentrations of dissolved oxygen than the water near the offshore pier. *Id.* at 2-26. Dissolved oxygen is critical for survival of aquatic organisms in the Bay near the offshore pier, and for the Bay to meet its designated use. The use designated by MDE for this area of the Bay is support of estuarine and marine aquatic life and shellfish harvesting. *Id.* at 2-17.<sup>47</sup> Because the Chesapeake Bay is not currently meeting dissolved oxygen standards,<sup>48</sup> dumping an additional 16 to 25 million gallons of oxygen-

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<sup>47</sup> Each waterbody in Maryland is assigned a use. The use is a goal for the waterbody and measures are taken to ensure that the waterbody can continue to be used as designated. *See, e.g.,* Maryland Department of the Environment, Maryland’s Designated Uses for Surface Waters, [http://www.mde.state.md.us/programs/Water/TMDL/Water%20Quality%20Standards/Pages/programs/waterprograms/tmdl/wqstandards/wqs\\_designated\\_uses.aspx](http://www.mde.state.md.us/programs/Water/TMDL/Water%20Quality%20Standards/Pages/programs/waterprograms/tmdl/wqstandards/wqs_designated_uses.aspx). Under its designated use, the area of the Bay near the Pier must support Open Water Fish and Shellfish and Seasonal Deep Water Fish and Shellfish. Resource Report 2 at 17. The minimum required dissolved oxygen concentration varies depending upon the specific species to be protected—i.e., survival of threatened or endangered sturgeon species—and the timeframe evaluated, for example over a 30-day period. EPA, Region III, Chesapeake Bay Program Office et al., Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll for the Chesapeake Bay and Its Tidal Tributaries 66 (Apr. 2003); Md. Code Regs. 26.08.02.03-3(C)(8)(b)-(f).

<sup>48</sup> *See* EPA, Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment 2-13 (2010) (listing the segment of the Chesapeake Bay around the export facility, segment CH4MH, as Category 5 under the 303(d) list status, “impaired or threatened water that requires a TMDL”), *available at* <http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>; Resource Report 2 at 20 (“[T]he Bay in the vicinity of the LNG Terminal is listed as Category 5 because it is impaired for its designated use of aquatic life and wildlife based on low benthic index of biotic integrity (IBI) scores. The MDE has also listed the entire Bay as impaired for biological life and nutrients. The Bay is considered impaired because concentrations of dissolved oxygen necessary to support aquatic life are not always as high as required by Maryland state water quality standards.”); Chesapeake Bay Program, Dissolved Oxygen, [http://www.chesapeakebay.net/indicators/indicator/dissolved\\_oxygen](http://www.chesapeakebay.net/indicators/indicator/dissolved_oxygen) (explaining that between 2009 and 2011, only

deficient ballast water *per vessel*, *id.* at 2-24, for up to 5 billion gallons of ballast water per year, very likely will impair water quality and could determine whether this area of the Bay will be able to meet its designated use.

The ballast water also has higher salinity than the water near Cove Point, with salinity of approximately 30 to 35 parts per thousand compared to 5 to 18 parts per thousand in the vicinity of Cove Point. *Id.* at 2-26. Because many aquatic species are sensitive to salinity changes,<sup>49</sup> these discharges could affect whether the Bay can continue to meet its designated use. In addition, ballast discharges threaten to introduce invasive species, which also threaten water quality by “altering the chemical and physical aquatic environment.”<sup>50</sup> Finally, ballast water could contain residual LNG that has dissolved into the water, as well as other pollutants, such as metals.<sup>51</sup>

DCP dismisses these ballast water issues, claiming that ballast discharges are insignificant when viewed in context of the 15 trillion gallons of water held across the Bay’s 3,237 square miles. Resource Report 2 at 2-24 (“The Bay holds 15 trillion gallons of water. The volume of water discharged by each ship, therefore, will be 0.0001 percent or less of the total amount of water in the Bay, an insignificant amount of the Bay’s volume.”); *see also id.* at 2-7 to 2-8 (describing the Bay’s size). DCP also argues, without evidence, that the Bay’s tides will ensure even mixing across waters, with salt water from the ocean and fresh water from the Bay’s tributaries, limiting any water quality impacts from the ballast water discharges. *See id.* at 2-24. Given the substantial volumes of ballast water to be discharged, however, FERC must evaluate the localized impacts of the ballast water on the area directly surrounding the offshore pier, not on the Bay at large. Finally, DCP implies that its customers’ compliance with ballast water management programs under Coast Guard Regulations will mitigate any impacts from ballast water discharges. *Id.* Because DCP cannot vouch for its customers’ compliance, FERC cannot ignore the potential for unmitigated impacts from the dissolved oxygen content or salinity of the ballast water, and DCP must provide FERC with as much information as it can about the origin of the expected ships and their ballast water so that FERC can assess those risks and the threat of invasive species.

FERC has yet to consider how ballast water will impact local water quality near DCP’s offshore pier. Neither of the environmental reviews for the Cove Point Expansion Project and the Cove

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34 percent of the Bay’s tidal waters met the Maryland and Virginia dissolved oxygen standards during the months of June to September).

<sup>49</sup> Chesapeake Bay Program, Bay Barometer: A Health and Restoration Assessment of the Chesapeake Bay and Watershed in 2010, at 4 (Dec. 2011), *available at*

[http://www.chesapeakebay.net/publications/title/bay\\_barometer\\_a\\_health\\_and\\_restoration\\_assessment\\_of\\_the\\_chesapeake\\_ba4](http://www.chesapeakebay.net/publications/title/bay_barometer_a_health_and_restoration_assessment_of_the_chesapeake_ba4) (“[F]resh water river flow is a fundamentally important force that shapes conditions in the Bay and the salinity levels that can affect oysters, crabs, and fish.”); *cf. id.* at 6 (“Phytoplankton are especially sensitive to changes in pollution levels, water clarity, temperature and salinity, and therefore serve as an excellent indicator of the health of the Bay’s surface waters.”).

<sup>50</sup> EPA, 2008 Final Issuance of National Pollutant Discharge Elimination System (NPDES) Vessel General Permit (VGP) for Discharges Incidental to the Normal Operation of Vessels Fact Sheet 13 (Dec. 18, 2008) (hereinafter EPA, 2008 NPDES Vessel General Permit Fact Sheet).

<sup>51</sup> *See id.* at 18.

Point Pier Reinforcement Project considered the ballast water impacts;<sup>52</sup> those projects assumed that Cove Point would operate as an import terminal, and import customers do not discharge ballast water into the Bay.<sup>53</sup> Now that DCP is proposing to serve export customers, FERC must analyze how ballast water discharges will impact local water quality in the Bay near the offshore pier and beyond.

To ensure that FERC can properly analyze the effect of ballast water discharges on the Bay, DCP must provide an accurate estimate of the expected shipping traffic. DCP has noted that it does not intend to increase shipping over what was previously authorized, citing its prior EIS for the Expansion Project and the prior EA for the Pier Reinforcement Project. Resource Report 1 at 1-19. DCP's reliance on prior authorizations effectively conceals that the Project would drastically change future shipping over current shipping levels, which do not come close to the maximum authorized number. Vessel call data from the Maritime Administration of the Department of Transportation indicates that, on average from 2003 to 2011, the Cove Point LNG Terminal received just over 33 ships per year, with only five vessel calls in 2011.<sup>54</sup> Thus, far from maintaining the status quo, the Project would dramatically increase the number of ships entering this area of the Bay. Unlike prior import vessels, moreover, the proposed export traffic would discharge water high in salinity, low in dissolved oxygen, and potentially carrying invasive species into the Bay, so the impacts from increased shipping could be significant. FERC not only must consider those impacts relative to actual current use of the Bay but also must account for the fact that ballast water impacts—especially the negative effects from dumping billions of gallons of oxygen-deficient water into the Bay—likely will worsen as the climate changes.<sup>55</sup>

Moreover, because DCP has never used its maximum authorized capacity, it should not be permitted to rely on its July 29, 2008 Coast Guard Waterway Suitability Assessment (“WSA”) and Letter of Recommendation. *See, e.g.*, Resource Report 1, Appendix 1-B (Letter from Mark P. O’Malley, Captain, U.S. Coast Guard, to Mark Reaser, Director, LNG Operations, Dominion Cove Point LNG, L.P., dated July 2, 2012). The Coast Guard indicated that the prior letter was sufficient because the Project “should not result in an increase in the size and/or frequency of

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<sup>52</sup> Cove Point Expansion Project, CP05-130 et al., EIS at 4-33 (“Because LNG ships would be fully loaded with LNG when arriving at Cove Point, there would be no ballast water on board, and ships would not discharge ballast water while docked at the terminal.”); *see also id.* at 4-57 to 4-58 (same); Pier Reinforcement Project, CP09-60, EA at 33 (“LNG vessels would not discharge any sanitary wastewater, petroleum products, or ballast water while in transit in the bay.”).

<sup>53</sup> Indeed, the import customers arrive at the Cove Point Offshore Pier loaded with LNG. As they offload the LNG, they take up ballast from the Bay to maintain a steady weight. *See, e.g.*, Cove Point Expansion Project, CP05-130 et al., EIS at 4-33. Conversely, the export customers would arrive at the Cove Point Offshore Pier loaded with ballast, which they will unload into the Bay as they take on the LNG cargo.

<sup>54</sup> U.S. Dep’t of Transp., Maritime Administration, “Vessels Calls at U.S. Ports by Vessel Type,” *available at* [http://www.marad.dot.gov/library\\_landing\\_page/data\\_and\\_statistics/Data\\_and\\_Statistics.htm](http://www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm) (under HTML heading “Vessel Calls”) (last updated Mar. 28, 2013).

<sup>55</sup> Climate change is expected to have an effect on dissolved oxygen concentrations in the Bay. For example, higher temperatures accelerate rates of nutrient recycling and stimulate phytoplankton production, as do increasing concentrations of carbon dioxide in the Bay. When phytoplankton decompose, they take up oxygen, so their increased presence can be expected to drive oxygen concentrations in the Bay lower than current levels. Raymond G. Najjar et al., *Potential Climate-Change Impacts on the Chesapeake Bay*, 86 *Estuarine, Coastal and Shelf Science* 10 (2010).

LNG marine traffic beyond those envisioned in the WSA, Environmental Impact Statement or Environmental Assessment.” *Id.* However, as is noted in the preceding paragraph, DCP has never come anywhere close to receiving ships at prior contemplated or authorized levels. Once the Project begins operations, the number of ships entering the Bay will increase substantially. The Coast Guard should consider this increase relative to current use of the Bay, which may have changed since 2008, and may affect the WSA analysis. FERC, as the lead agency for NEPA review, should ensure that DCP provides all the relevant and proper authorizations to operate the facility, including an updated WSA analysis, before FERC completes its environmental review.

Finally, questions have been raised regarding whether increased shipping threatens to erode the shoreline near the Cove Point lighthouse. *See* Resource Report 2 at 2-39. FERC must consider shoreline erosion in its environmental review, taking particular care to evaluate how shoreline erosion will be affected by the future climate change. Although DCP claims that past environmental reviews looked at the potential for LNG vessels to contribute to shoreline erosion, those assessments were completed approximately four years ago and must be updated to account for new impacts on the shoreline from climate change.<sup>56</sup>

In addition to impacts from shipping, water quality in the Bay could also suffer from stormwater runoff from construction and operation of the liquefaction facility. The waterway defined as Waters of the United States (“WUS1”) near the liquefaction facility flows to an unnamed tributary to Grays Creek, which is a tributary of the Bay. Resource Report 2 at 2-8. DCP proposes to permanently fill 150 feet of the intermittent portion and 866 feet of the ephemeral reach of WUS1. *Id.* at 2-11, 2-13. Yet DCP dismisses impacts from stormwater runoff from increasing the impervious surfaces near channels that flow to the Bay. According to DCP, the impacts will be minimized because DCP will adhere to state and federal stormwater and erosion and sedimentation standards, and will obtain all necessary federal and state permits. *Id.* at 2-13, 3-22. Given the importance and sensitive nature of the Bay,<sup>57</sup> these plans should go above and beyond generally approved minimums. FERC should obtain these plans before evaluating potential stormwater and sedimentation impacts in its EIS. In its analysis, FERC should account for the fact that climate change will increase sediment runoff from increasing tropical storms and increasingly intense rainfall events.<sup>58</sup> These measures must be carefully scrutinized in any environmental analysis.

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<sup>56</sup> Chelsie Papiez, NOAA Coastal Management Fellow, Coastal Land Conservation in Maryland: Targeting Tools and Technique for Sea Level Rise Adaptation and Response 6 (Nov. 2012) (“Currently the State of Maryland is losing 580 acres a year due to shoreline erosion, which will only continue to exacerbate with projected sea level rise and extreme storms. Over the past century, coastal erosion contributed to a loss total of 18,000 hectares of coastal lands in the Chesapeake Bay.” (citation omitted)).

<sup>57</sup> *See, e.g.,* Resource Report 2 at 2-28 to 2-29 (noting that the Bay is a sensitive surface water because, *inter alia*, it does not meet water quality standards associated with its designated beneficial use, it has been designated for intensified water quality management and improvement, it provides habitat for protected species, and it is ecologically significant).

<sup>58</sup> Najjar et al., *supra* note 55, at 1, 5; *see also infra* Section II.B.2.d.

## ii. Impacts on the Patuxent River Near Offsite Area B

The Project is likely to impact water quality in the Patuxent River near Offsite Area B. The construction and removal of the temporary shipping and mooring pier at Offsite Area B, and barge visits at the pier, have the potential to suspend sediment, adversely affecting water quality. Resource Report 2 at 2-15. Likewise, terrestrial construction of the roadways and parking lot at Offsite B will induce stormwater discharges that could impair water quality in the Patuxent River. *See id.* at 2-14. FERC must analyze those impacts in an EIS and ensure that they can be mitigated.

Offsite Area B is described as a “temporary barge offloading pier . . . extending 166 feet into the Patuxent River . . . providing access for barges to reach the site.” *Id.* at 2-15. This 40-foot wide pier will be held together by up to 24 hollow steel pilings, each approximately 36-inches in diameter. DCP correctly notes the likely water quality concern arising from construction and removal of the pier as well as barge traffic at the pier: suspension of sediment and increased turbidity in the area. *Id.* at 2-15, 2-23.

Sediment suspension and turbidity related to in-water construction pose a threat to local water quality.<sup>59</sup> DCP states that it will try to use vibratory hammers in pile driving operations, which allegedly minimizes the potential for sediment suspension. *Id.* at 2-23. However, even the vibratory hammer will increase turbidity and suspend sediment over natural conditions. Moreover, should vibratory hammers not be capable of performing the anticipated task, DCP intends to use impact hammers, which have far greater potential to increase sediment suspension and aquatic noise impacts to local water quality and marine species, respectively. *Id.* DCP also notes that barges and tug boats will leave their engines running while at the pier, which can cause column disturbance. *Id.* Finally, DCP notes that removal of Offsite Area B’s pier and pilings will likely create a second “round” of water quality impacts similar to the installation of the pier. Resource Report 2 at 2-14. Thus, the construction and removal of the temporary pier could create a sediment plume, with potentially significant impacts on local marine water quality and species.

In addition, stormwater runoff from the temporary access road and parking and laydown area could harm water quality. *Id.* at 14. The runoff may contain heavy metals, petroleum products, and brake chemicals and compounds harmful to water quality. Resource Report 1 at 1-17 (noting that the offshore area will house equipment and a temporary parking area).

DCP has offered no evidence documenting its claim that construction, use, and removal of the pier and the larger area created to support the pier will have negligible impacts on aquatic resources. In particular, DCP’s statement that high current and significant tidal fluctuations will make construction impacts negligible is unsupported and probably unsupported. Resource Report 2 at 2-23. If anything, high currents and significant tidal fluctuations will increase the

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<sup>59</sup> *Cf.* EPA, Sediment Removal to Improve Water Quality, <http://www.epa.gov/ordntrnt/ORD/annualreport/2012/sed-removal.htm> (“Excess sediments and nutrients, especially nitrogen and phosphorous, are a leading cause of water quality impairment in streams and wetlands throughout the nation, particularly in the mid-Atlantic region.”).

breadth of impact that sediment suspension and re-suspension creates for local water quality. In addition, at least in the shallow areas near the pier, the impacts of sediment suspension and re-suspension will likely be pronounced. *See* Resource Report 1 at 1-17 (noting that barges require only 8 to 9 feet of water for offloading equipment at the temporary pier). Similarly, DCP cannot claim, without more evidence, that its stormwater management plans will mitigate all impacts from operation of the land-based aspects of Offsite Area B. Resource Report 2 at 2-14. DCP must disclose these plans before FERC can analyze the potential environmental impacts on the Patuxent River.

Given the potential impacts, FERC should require mitigation and minimization best management practices (“BMPs”) to protect local water quality surrounding Offsite Area B, especially because Offsite Area B is located within the Bay Critical Area, an area in which all development must maintain or improve water quality and conserve existing natural resources. *Id.* Many of the BMPs proposed by NMFS to reduce underwater noise impacts will minimize impacts to water quality as well as to marine species and habitat, and therefore we support their adoption.<sup>60</sup>

### **iii. Impacts on Groundwater Resources Near the LNG Terminal**

Operation of the proposed liquefaction facility could have negative impacts on groundwater resources in Maryland. To operate its proposed liquefaction facility, DCP proposes to withdraw an additional 210,000 gallons of water per day from the Lower Patapsco aquifer in Calvert County to support a steam generator system. *Id.* at 2-5. As DCP freely acknowledges, these withdrawals would constitute an approximate 500 percent increase over DCP’s current Lower Patapsco aquifer withdrawals, which provide water for drinking, cooling, fire protection, and testing. *Id.* at 2-4 to 2-5.

DCP claims that its proposed additional water withdrawals will not adversely affect local groundwater levels. *Id.* at 2-5. However, available evidence suggests that additional withdrawals of up to 210,000 gallons of water per day from the Lower Patapsco aquifer could have significant negative impacts on local aquifers in Southern Maryland and those who rely on those resources. For example, a 2007 report by the Maryland Geological Survey indicates that water levels in the Lower Patapsco aquifer have declined significantly over the past 35 years.<sup>61</sup> Hydrographs have shown steady declines in the Lower Patapsco aquifer, even in areas such as in Calvert County where the aquifer is not a major part of the water supply, indicating that the aquifer is hydraulically connected on a regional scale.<sup>62</sup> Although DCP asserts that the Lower Patapsco aquifer is not a major source of drinking water in Calvert County, Resource Report 2 at

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<sup>60</sup> Resource Report 3 at Appendix 3-B (Letter from Mary A. Colligan, Assistant Regional Administrator for Protected Resources, NOAA NMFS to Lisa C. Moerner, Dominion Resource Services, Inc., dated Letter dated December 12, 2012 (stating that “[m]easures should be developed and implemented to reduce exposure to these elevated levels of underwater noise (e.g., time of year restriction, installation of a turbidity curtain around ensonified area, use of vibratory hammer, etc.).”).

<sup>61</sup> David D. Drummond, Maryland Geological Survey, Water-Supply Potential of the Coastal Plain Aquifers in Calvert, Charles, and St. Mary’s Counties, Maryland, with Emphasis on the Upper Patapsco and Lower Patapsco Aquifers 18 (2007).

<sup>62</sup> *Id.*

2-4,<sup>63</sup> many residents in nearby Charles County, Maryland, rely heavily upon the Lower Patapsco aquifer for their daily water use, including for drinking water.<sup>64</sup> And, available evidence suggests that declining water levels in the Lower Patapsco aquifer already are causing significant problems in Charles County. In 2007, declining water levels in the Lower Patapsco aquifer compelled a community on the border of Prince George's and Charles Counties to request that the County Commissioners freeze area developments for fear of exhausting their water supply.<sup>65</sup> Thus, DCP's withdrawals from the Lower Patapsco aquifer in Calvert County could contribute directly to residential water supply challenges elsewhere in Maryland.

Although impacts of reduced water levels in the Lower Patapsco aquifer so far may have centered in Charles County, there is reason to anticipate that the health of the Lower Patapsco will become important to Calvert County's water supply as well in the coming years. In the past, Calvert County has drawn much of its water from the Aquia aquifer, but declining water levels and elevated arsenic levels in that aquifer have prompted water supply managers to begin shifting portions of groundwater withdrawals down toward the Upper and Lower Patapsco aquifers.<sup>66</sup> Combined with expected population growth, the decreased viability of the Aquia aquifer may prompt Calvert County to increase its reliance upon the Lower Patapsco aquifer.

In addition, declining water levels in the Lower Patapsco aquifer could lead to river-water intrusion, an effect that has been documented in sections of the Lower Patapsco aquifer and that is expected to worsen over time.<sup>67</sup> River water intrusion threatens the health of the aquifer because rivers can be more polluted and often are higher in salinity than the aquifer. Additional impacts from the withdrawals include salt-water intrusion, land subsidence, decreased flow to streams, and altered wetland ecology.<sup>68</sup> The risk of salt-water intrusion also increases as sea levels rise as a result of climate change.<sup>69</sup>

Given these threats to the water level of the Lower Patapsco aquifer, DCP's claim that its additional water withdrawals will not have a significant impact on local groundwater resources, Resource Report 2 at 2-5, is questionable. In conditions of scarcity, even a minor additional daily water withdrawal can have an impact, and DCP's proposed additional withdrawal is hardly minor. Maryland defines those pumping over 10,000 gallons of water per day as major users.<sup>70</sup> In its application to the FERC, DCP proposes to add 21 times that amount to its already existing water withdrawals of up to a daily average of 40,000 gallons on a yearly basis, or a daily average

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<sup>63</sup> DCP supports its assertion by citing to a report prepared almost two decades ago. Resource Report 2 at 4 ("The . . . Lower Patapsco aquifer [is] not being used as [a] significant water source[] in southern Calvert County because of [its] depth and the availability of groundwater from more shallow aquifers (USGS, 1997)").

<sup>64</sup> *Id.*

<sup>65</sup> Ahmar Mustikhan, *Water Wells Are Drying Up in Moyaone Reserve Community*, Gazette.Net, Dec. 27, 2007, available at [http://ww2.gazette.net/stories/122707/uppenew224240\\_32355.shtml](http://ww2.gazette.net/stories/122707/uppenew224240_32355.shtml)

<sup>66</sup> Drummond, *supra* note 61, at 41.

<sup>67</sup> *Id.* at 22.

<sup>68</sup> *Id.* at 21-23.

<sup>69</sup> Maryland Commission on Climate Change Adaptation and Response Working Group, Report: Comprehensive Strategy for Reducing Maryland's Vulnerability to Climate Change, Phase I: Sea-Level Rise and Coastal Storms, 6 (July 2008) (hereinafter "MCCC Phase I Report").

<sup>70</sup> Drummond et al., *supra* note 61, at 23.

of 60,000 gallons per month of maximum use, for a combined withdrawal of between 250,000 and 270,000 gallons per day. Resource Report 2 at 2-4 to 2-5.<sup>71</sup> FERC must consider the potentially significant effect of DCP's proposed withdrawals on groundwater resources.

#### **iv. Impacts on Waters Near Offsite Area A**

Stormwater runoff threatens water quality near Offsite Area A. Offsite Area A is located in a forested area containing a number of waters and wetlands. *Id.* at 2-8 to 2-9. DCP proposes to clear and grade 96.9 acres within Offsite Area A to be used as a material storage area and contractor staging area for the Project. Application at 21; Resource Report 1 at 1-16. The Project will include parking for 1,700 vehicles, field offices, warehouse space, and outdoor storage. Resource Report 1 at 1-16. Clearing and grading this large swath of forested area will have impacts during the clearing process as well as during the time when Offsite Area A is used to support construction activities.

Major impacts can be expected from increasing the amount of impervious surfaces from which sediment and other pollutants can run off. Waterbodies of particular concern include: (1) WUS2, which United States Geological Survey ("USGS") maps identify as a blue line stream known as the St. Paul Branch; (2) WUS4, an intermittent stream channel that contributes to the St. Paul Branch; (3) a large wetland seep, classified as Wetland 4 that also feeds the St. Paul Branch; and (4) WUS5A, which USGS maps identify as a blue line stream and a tributary to Hellen Creek. Resource Report 2 at 2-8 to 2-9. These streams and wetlands are ecologically important and must be protected to the maximum extent possible. *See* Resource Report 3, Appendix 3-B (letter from Gregory L. Golden, Director, Environmental Review Unit, Maryland Department of Natural Resources ("MDNR"), to Randal L. Rogers, Jr., Dominion Resources Services, Inc., dated Jan. 15, 2013 ("Golden Letter")); *see also* Resource Report 2 at 2-30 (explaining that Offsite Area A contains sensitive surface waters).

While DCP acknowledges that clearing and grading 97 acres of forest within Offsite Area A could increase sediment runoff that could affect these waters, DCP asserts that any potential impact will be mitigated through compliance with stormwater management plans, erosion and sedimentation plans, and other permits. *Id.* at 2-14, 2-22. Again, these plans must go above and beyond generally approved minimums, given the sensitive nature of the surrounding area. FERC should obtain DCP's stormwater and erosion and sedimentation plans before publishing its draft environmental review, and FERC's review must ensure that the plans are adequate to protect surface water near Offsite Area A and downstream. The plans must account for and control all expected runoff, including toxic runoff from the proposed parking lot on Offsite Area A that will

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<sup>71</sup> Because DCP intends to use the water to support an electric generating facility, DCP's request for water appropriation is considered under its application to the Maryland Public Service Commission for a Certificate of Public Convenience and Necessity to build the facility. In this application, DCP made plain that it intends to withdraw an additional 210,000 gallons of water per day *over* its current 40,000 gallon daily withdrawals. The application states that DCP will withdraw 250,000 gallons per day from its main well. CPCN Appendix A-1 at iv (Apr. 2013).

accommodate 1,700 vehicles.<sup>72</sup> FERC also should pay careful attention to potential sedimentation issues with nearby wetlands. Wetlands, like Wetland 4, are vital to the health of waterways and communities that are downstream, and they must be protected by any and all plans and permits.<sup>73</sup>

In addition to the impacts from clearing the forested area generally, DCP intends to build an access road to Offsite Area A. The access road, as currently proposed, would cross WUS4. Resource Report 2 at 2-13. DCP plans on clearing and grading the riparian habitat near WUS4, increasing the impervious surfaces in that area. *Id.* DCP also intends to divert WUS4 under the proposed access road. *Id.* DCP notes that diverting the stream could affect downstream bed and bank development, yet DCP dismisses these impacts because WUS4 was found to be intermittent in nature in field surveys from April of last year. *Id.* Whether intermittent or not, WUS4 feeds other relatively permanent waters, namely the St. Paul Branch. Thus, DCP cannot lightly dismiss impacts from diverting this stream, and FERC must consider them in its NEPA review. DCP also notes that the clearing and grading to support the access road near WUS4 could increase runoff, but again it dismisses these impacts on the grounds that it intends to comply with stormwater management plans, erosion and sedimentation plans, and other state and federal water quality permits. *Id.* at 2-14, 2-22. FERC should obtain the plans before publishing its draft environmental review and ensure that the plans minimize impacts on the St. Paul Branch and other waters near Offsite Area A.

### **c. Project Impacts on Wildlife and Land Will Be Significant.**

The Project will have negative effects on wildlife and land near the Project. These impacts, which are described below, must be considered in an EIS. In particular, FERC must take a hard look at the likely impacts on aquatic species in the Chesapeake Bay, including the endangered sturgeon and right whale, from increased ship traffic and ballast water dumping. FERC also must consider impacts on aquatic species in the Patuxent River that would be subject to increased sedimentation while the offshore pier is constructed, used, and dismantled. Finally, FERC must consider how clearing forest near Offsite Area A, the Pleasant Valley Compressor Station, and the LNG terminal will affect rare plant species and wildlife.<sup>74</sup>

#### **i. Impacts on Aquatic Species in the Bay.**

Increased shipping at the LNG terminal offshore pier, in an area that NMFS has classified as Essential Fish Habitat (“EFH”), *see* Resource Report 3 at 3-4 to 3-5, 3-11, threatens aquatic species in the Chesapeake Bay in a number of ways. First, the ballast water discharged at the pier will be lower than normal in dissolved oxygen, which is critical for the survival of fish species. *See* Resource Report 2 at 2-26. The oxygen-deficient water could affect the federally

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<sup>72</sup> D. Greenstein, L. Tiefenthaler, S. Bay, *Toxicity of Parking Lot Runoff After Application of Simulated Rainfall*, 47 Archives of Env'tl. Contamination & Toxicology 199 (Aug. 2004).

<sup>73</sup> EPA, Wetlands, <http://water.epa.gov/type/wetlands/index.cfm>.

<sup>74</sup> As is noted in the legal background section, FERC has an obligation under the ESA to consider the effects on species of off-site Project activities and of increased gas production induced by the Project. FERC must consider these impacts in addition to the impacts described throughout this section.

endangered shortnose and Atlantic sturgeon, which are known to occur in Chesapeake Bay.<sup>75</sup> See Resource Report 3 at 3-4 to 3-5. The oxygen-deficient ballast discharges also could impact the summer flounder, windowpane flounder, bluefish, Atlantic butterfish, black sea bass, king mackerel, Spanish mackerel, cobia, and red drum, for which the Bay near the offshore pier provides EFH. *Id.* at 3-10.

Atlantic sturgeon in particular are vulnerable to situations of high temperature and low oxygen; those conditions significantly affect whether sturgeon will use an area as habitat.<sup>76</sup> Indeed, scientists have found a correlation between decreasing Chesapeake Bay sturgeon populations and decreasing water quality from increased nutrient loadings and an increase in hypoxic (low oxygen) conditions.<sup>77</sup> Thus, LNG tanker ballast water discharge will exacerbate the ongoing nutrient enrichment and low dissolved oxygen issues that the Chesapeake Bay currently experiences, threatening the sturgeon and their habitat, among other species. FERC must consider these significant impacts in an EIS.<sup>78</sup>

Ballast water discharges also can introduce invasive species, which “pose several dangers to aquatic ecosystems, including outcompeting native species, threatening endangered species, damaging habitat, changing food webs, and altering the chemical and physical aquatic environment.”<sup>79</sup> These impacts, too, are significant and must be considered in an EIS.

Increased shipping can present other issues in addition to concerns about ballast water. For example, through bow and hull strikes or propeller scarring, the ships can affect marine species, including federally listed endangered species that live in the Bay and in larger ocean shipping corridors leading to the Bay. NMFS previously has noted instances of vessel strikes to the Chesapeake Bay DPS of the Atlantic sturgeon, suggesting a possible risk arising from increased Project shipping.<sup>80</sup> In addition, four federally listed whales, including the northern right, humpback, fin, and sperm whales, are known to travel past the mouth of Chesapeake Bay, and the Coast Guard previously has found that carriers passing to and from the Cove Point LNG terminal could affect listed whales.<sup>81</sup> Northern right whales are particularly vulnerable to vessel

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<sup>75</sup> See Resource Report 3, Appendix 3-B (Letter from Kimberly Damon-Randall, Acting Assistant Regional Administrator for Protected Resources, NOAA NMFS, to Randal L. Rogers, Dominion Resources Services, Inc., dated July 20, 2012) (noting that the federally endangered shortnose sturgeon and the Atlantic sturgeon, including the federally endangered New York Bight, Chesapeake Bay, and South Atlantic distinct population segments (“DPS”) and the federally threatened Gulf of Maine DPS, are known to occur in the Chesapeake Bay).

<sup>76</sup> Endangered and Threatened Wildlife and Plants; Threatened and Endangered Status for Distinct Population Segments of Atlantic Sturgeon in the Northeast Region, 77 Fed. Reg. 5880, 5891 (Feb. 6, 2012) (noting that “extensive watersheds of [the Chesapeake Bay] funnel nutrients, sediment, and organic material into secluded, poorly flushed estuaries that are more susceptible to eutrophication” and that studies have shown that “within the Chesapeake Bay, a combination of low dissolved oxygen, water temperature, and salinity restricts available Atlantic sturgeon habitat to 0–35 percent of the Bay’s modeled surface area during the summer.”).

<sup>77</sup> *Id.* at 5906.

<sup>78</sup> As noted in the legal background section, because NMFS has yet to dismiss impacts of the Project on sturgeon, DCP must prepare a Biological Assessment on the Project’s impacts to these species and their habitat.

<sup>79</sup> EPA, 2008 NPDES Vessel General Permit Fact Sheet, *supra* note 50, at 13.

<sup>80</sup> 77 Fed. Reg. at 5908.

<sup>81</sup> U.S. Coast Guard, Supplemental Environmental Assessment for the Dominion Cove Point Liquefied Natural Gas (LNG) Terminal Expansion Project: LNG Ship Transit in United States Waters (May 2008).

collision because of “their critical population status, slow swimming speed, and behavioral characteristics that cause them to remain close to the surface.”<sup>82</sup>

FERC must consider these impacts from increased shipping in an EIS. The EIS should account for new statistics on shipping volumes in the Bay, especially the currently low numbers of ships received at the offshore pier, as the risk of ship strike increases as shipping increases.<sup>83</sup> As was previously done, FERC and NMFS must work together to develop a plan to mitigate potential ship strikes.<sup>84</sup> Any shipping-related effects from this Project should be considered against a baseline of the limited existing shipping traffic, not prior authorizations that bear no relation to current circumstances.

To support preparation of the Project EIS, DCP should clarify whether export vessels would approach and leave the LNG terminal from different directions than the previously authorized import vessels. DCP has indicated that its export customers include a United States subsidiary of a Japanese corporation that is one of the world’s leading trading companies and a United States subsidiary of the largest natural gas processing and distribution company in India, *see* Application at 2, but has not provided any information regarding expected shipping routes.

In addition to the shipping-related impacts, water quality in the Bay could suffer from runoff of sediment-laden stormwater from the construction and operation of the liquefaction facility. *Id.* at 2-16. This, in turn, can affect the species within the Bay listed above. Climate change has the potential to exacerbate any stormwater-related impacts, as it threatens to increase the frequency and intensity of storms near the Bay.<sup>85</sup> FERC must consider all of these impacts as it undertakes its review.

## **ii. Impacts on Aquatic Species in the Patuxent River**

As is noted above, DCP plans on constructing a temporary barge offloading pier in the Patuxent River at Offsite B. This area would be used for mooring barges and offloading materials and equipment to be used in construction. Resource Report 1 at 1-17. Construction, operation, and

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<sup>82</sup> *Id.*

<sup>83</sup> *See* Letter from Patricia A. Kurkul, Regional Administrator, NOAA NMFS to Alisa M. Lykens, Chief, Gas Branch 2, FERC “Re: Cove Point Expansion Project: Sec. 7 Consultation Regarding Right Whale,” 1 (Feb. 28, 2007) (“The Chesapeake Bay region has seen an increase in reported ship strikes in recent years, and is a high risk area for ship strike events due to the large volume of shipping traffic entering and transiting past the mouth of the Bay.”) *reproduced in* Appendix M, United States Coast Guard, Supplemental Environmental Assessment for the Dominion Cove Point Liquefied Natural Gas (LNG) Terminal Expansion Project: LNG Ship Transit in United States Waters (May 2008); *see also* Resource Report 3 at Appendix 3-B (Letter from Kimberly Damon-Randall, Acting Assistant Regional Administrator for Protected Resources, NOAA NMFS, to Randal L. Rogers, Dominion Resources Services, Inc., dated July 20, 2012) (noting the potential importance of shipping impact and explaining that should DCP propose to increase shipping, it should further consult with the Agency).

<sup>84</sup> *See* Dominion Cove Point LNG, LP, Cove Point LNG Terminal Expansion Project, Vessel Strike Avoidance Measures and Injured or Dead Protected Species Reporting Plan, *included in* Appendix M, United States Coast Guard, Supplemental Environmental Assessment for the Dominion Cove Point Liquefied Natural Gas (LNG) Terminal Expansion Project: LNG Ship Transit in United States Waters (May 2008).

<sup>85</sup> *See, e.g., infra* Section II.B.2.d.

demolition of the pier could have significant impacts on the surrounding environment. These effects are potentially significant and should be considered in an EIS.

The sediment associated with the pier's construction and removal could disturb the natural oyster bar in the area, and sediment could bury fish eggs, larvae, and benthic fish species. Resource Report 3 at 3-13. To the extent that sediment in the Patuxent River contains polychlorinated biphenyls ("PCBs") (*see* Resource Report 2 at 2-20 to 2-21), stirring up the sediment from construction and removal of the piles could have significant impacts on these species.<sup>86</sup> In addition, when too much sediment is suspended in water, it clouds the water and can prevent sunlight from fostering aquatic vegetation, which are important habitat for fish and shellfish.<sup>87</sup>

DCP dismisses concerns about sediment, positing that it will resettle quickly and that mobile species will be able to avoid the sediment plumes. Resource Report 3 at 3-13. Yet, DCP has not provided any specific evidence to document its claim that effects will be temporary; nor has it denied the impact on benthic species. Many aquatic species likely to be found in this area are benthic, or benthic feeders, including the federally listed endangered shortnose and Atlantic sturgeon and the summer flounder. *See id.*, Appendix 3-B (Letter from Mary A. Colligan, Assistant Regional Administrator for Protected Resources, National Ocean and Atmospheric Administration ("NOAA"), NMFS, to Lisa C. Moerner, Dominion Resource Services, Inc., dated Dec. 12, 2012) (noting the various distinct population segments of sturgeon that might be found near the temporary pier at Offsite Area B).<sup>88</sup>

Moreover, additional benthic species might suffer from the Project. According to MDNR, DCP's draft resource reports did not identify all of the species that could inhabit Offsite Area B. *See id.*, Appendix 3-B ("Golden Letter"). MDNR reported that "approximately 75 species of fish that may inhabit this area due to the site being in tidal portion of the river, with significant spawning habitat upstream and with close proximity to the Bay." *Id.* (Golden Letter at 2). In the Resource Reports accompanying the application, DCP noted this comment but continued to identify significantly fewer than 75 species. *See id.* at 3-8. FERC must ensure that its environmental review identifies the full universe of affected species and how they will respond to the sediment associated with installation and removal of the temporary offshore pier.

In addition to the sediment issues, the noise associated with installing and removing the piles could affect fish populations in the area, including not only the sturgeon and summer flounder, but also the bluefish, windowpane flounder, king mackerel, Spanish mackerel, cobia, and red

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<sup>86</sup> *See, e.g.*, Status Review of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), Report to National Marine Fisheries Service, Northeast Regional Office 36 (Feb. 23, 2007), *available at* <http://www.nmfs.noaa.gov/pr/pdfs/statusreviews/atlanticsturgeon2007.pdf> ("In fish, exposure to PCBs reportedly causes a higher incidence of fin erosion, epidermal lesions, blood anemia, and an altered immune response.") (citation omitted).

<sup>87</sup> *Cf.* Bay Barometer 2011-2012: Spotlight on Health and Restoration in the Chesapeake Bay and its Watershed, *available at* [http://www.chesapeakebay.net/blog/post/bay\\_barometer\\_bay\\_impaired\\_but\\_signs\\_of\\_resilience\\_abound](http://www.chesapeakebay.net/blog/post/bay_barometer_bay_impaired_but_signs_of_resilience_abound) ("Without sunlight, underwater bay grasses cannot grow. . . . As underwater bay grasses die off, important habitat for fish and shellfish is lost.")

<sup>88</sup> Given the potential impacts on the sturgeon and their critical habitat, DCP must prepare a Biological Assessment.

drum—all species for which the Patuxent River provides EFH—as well as any other species that may be present. *See id.* at 3-10. NMFS is concerned that exposure to elevated levels of underwater noise may have negative physiological or behavioral effects on the sturgeon, and these effects should be part of any environmental review. *See id.*, Appendix 3-B (letter from Mary A. Colligan, Assistant Regional Administrator for Protected Resources, NOAA, NMFS to Lisa C. Moerner, Dominion Resource Services, Inc., dated Dec. 12, 2012). In addition, pile installation and removal could create pressure waves, which are lethal to fish, *see id.* at 3-13, and thus should be considered in FERC’s environmental review.

Finally, operating the pier has the potential to affect aquatic species. Ship traffic to the pier could create noise that will scare away species. In addition, ship traffic could create additional sediment issues that will disturb the fish populations. *Id.* at 3-14. Rather than addressing these issues, DCP claims that epibenthic species will utilize the newly constructed pier at Offsite Area B for habitat. *Id.* at 3-13. DCP has not supported this claim, nor has it adequately addressed impacts from operating the pier. FERC must consider these impacts in an EIS.

### **iii. Impacts on Vegetation and Terrestrial Species Near Offsite Area A**

DCP’s proposal to clear a large swath of previously undeveloped land at Offsite A threatens rare plant species, a rare hemlock preserve, and forest interior dwelling species (“FIDS”) habitat and wildlife, impacts that FERC should consider in an EIS. Proposed Offsite Area A is predominantly undeveloped forest, including deciduous mixed oak forest, coniferous forest, successional woodland, disturbed land, and old field/pioneer. *Id.* at 3-17 to 3-18, 3-31. Approximately 104.3 acres of the forest is FIDS habitat. FIDS habitat refers to areas where interior forest is more than 300 feet from the forest edge. *Id.* at 3-17. FIDS habitat is important to many wildlife species, including bird species that can reproduce in only forest interiors.

DCP intends to clear and remove 94 acres of forest and 1.85 acres of successional woodland habitat at Offsite Area A to support the Project’s construction activities. *Id.* at 3-36. DCP’s proposed clearing threatens endangered plant species. Offsite Area A is home to three state endangered and threatened plant species, including the threatened Engelmann’s arrowhead, the endangered kidneyleaf grass-of-parnassus, and the endangered evergreen bayberry, which Maryland identified in its review of the Project, as well as the endangered tobaccoweed, which was observed during site surveys. *Id.* at 3-40. DCP has not explained how its clearing activities would impact these species or how it would mitigate any impacts. Without that information, FERC cannot adequately assess the environmental risks of the Project.

The clearing activities also threaten the Hellen Creek Hemlock Preserve, which is located just downstream from Offsite Area A. *Id.* at 3-1. As MDNR explained, the Hellen Creek Hemlock Preserve is an isolated stand of Canadian hemlock that is very sensitive to upstream pollution impacts. *See id.*, Appendix 3-B (Golden Letter at 2) (“The sensitivity of this area of this environment should not be underestimated; any upstream sedimentation and pollution introduction will be detrimental to this area.”). DCP is dismissive of the sensitivity of this area, arguing that riparian buffers and erosion and sedimentation control plans will minimize impacts to the preserve from clearing activities. *See id.*, Appendix 3-B (letter from Pamela Faggert, Vice President and Chief Environmental Officer, Dominion Resources Services, Inc. to Lori Byrne,

Wildlife & Heritage Service, MDNR, and Bob Sadzinski, Environmental Review Unit, MDNR, dated Mar. 6, 2013 (“Faggert Letter”) at 7). However, DCP has not explained how those yet-undisclosed plans would protect this sensitive area, nor whether it intends to employ special measures to protect this special place. FERC should require submission of MDNR-approved plans for riparian buffers and erosion and sedimentation control before completing its environmental review. Without those plans, FERC will have no evidentiary basis for assessing the significance of the impacts or the sufficiency of DCP’s efforts to mitigate impacts.

The proposed clearing and grading of Offsite Area A also would have a significant effect on important FIDS habitat and species within Offsite Area A, including migratory birds. *Id.* at 3-20. The substantial forest clearing could result in the loss of breeding habitat for FIDS bird species, such as the Barred Owl, Eastern Whip-poor-will, Cerulean Warbler, Kentucky Warbler, Worm-eating Warbler, and Wood Thrush, as well as other migratory bird species. *Id.* at 3-27. In addition, clearing this area could convert nearby FIDS to edge or riparian habitat, multiplying the impacts. *See id.* at 3-19. Given the importance of FIDS habitat, these clearing activities can be expected to affect wildlife significantly. *See, e.g., id.*, Appendix 3-B (undated letter from Lori A. Byrne, Environmental Review Coordinator, Wildlife and Heritage Service, MDNR, to Randal L. Rogers, Jr., Dominion Resource Services, Inc.) (“Byrne Letter”) (“Populations of FIDS are declining in Maryland and throughout the Eastern United States. The conservation of FIDS habitat is strongly encouraged.”). DCP intends to mitigate these effects by reseeded the area after the construction phase. *Id.* at 3-37. However, DCP has not provided sufficient information to evaluate the effectiveness of these efforts, including information on the maturity of the forest near Offsite Area A and how long it will take to fully restore the area with appropriate tree species.

Finally, the clearing operations could allow invasive plant species to colonize or expand, altering remaining habitat. *Id.* at 3-27, 3-32 (explaining that the following invasive species are present at Offsite Area A: wineberry, Nepalese browntop, Japanese honeysuckle, and Chinese bush-clover). Yet DCP has not provided an invasive species management plan that would control the spread of invasive species from the substantial clearing operations. FERC should not allow construction and operation to move forward until DCP obtains an adequate plan to control invasives.

#### **iv. Impacts on Vegetation and Terrestrial Species Near Pleasant Valley Compressor Station**

Construction of the Pleasant Valley Compressor Station and the supporting infrastructure would destroy wildlife habitat and could impact rare plant species, impacts that merit consideration in an EIS. The Pleasant Valley Compressor Station and its suction and discharge pipelines and metering and regulating site are located near the Elklick Diabase Flatwoods Conservation Site. *Id.* at 3-33. DCP estimates that 15.8 acres of land would be cleared and developed for the additional compression units, of which 6.7 acres are currently forested. *Id.* Clearing of the forested areas can increase edge exposure, which can expose eggs and nestlings of migratory birds. *Id.* at 28. DCP also proposes to clear approximately 1.9 acres of mowed and maintained vegetation to install the Pleasant Valley suction and discharge pipelines during construction. *Id.* This area likewise supports wildlife, significant impacts on which must be considered in an EIS.

In addition to destroying wildlife habitat, the construction activities could harm important plants found in the nearby Elklick Diabase Flatwoods Conservation Site. The Elklick Diabase Flatwoods Conservation Site has been ranked a site of very high significance (B2), hosting three species of concern: Torrey's mountain-mint, grove sandwort, and purple milkweed. *Id.*; *see also id.* at 3-40 to 3-41. In addition, the whorled pogonia might be present in this area. *Id.* at 3-40. DCP indicates that it will reseed these areas after construction, but does not provide any information as to how this will mitigate the impacts on the important Conservation Site, or how this affects the rare species on-site. *Id.* Given the importance of the Elklick Diabase and the rare species it supports, impacts must be mitigated to the maximum extent possible.

Finally, the clearing operations could allow invasive plant species to colonize or expand, altering remaining habitat. *Id.* at 3-28, 3-33 (explaining that the Nepalese browntop and Chinese bush-clover are present in the understory in the forest near the Compressor Station). Yet DCP has not provided an invasive species management plan that will control the spread of invasive species from the substantial clearing operations. FERC should not release a draft environmental review document until DCP produces a plan to control invasive species.

#### **v. Impacts on Vegetation and Terrestrial Species Near the LNG Terminal and Proposed Liquefaction Facility**

DCP intends develop previously untouched land around the liquefaction facility, an action that will destroy deep forest that supports bird species and will impair wetlands that support rare odonate species. It also threatens to allow the expansion of invasive species. These impacts are significant and should be considered in an EIS.

The area around the LNG terminal and the proposed site of the liquefaction facility is composed of deciduous forest and old field and pioneer habitat, including a tulip poplar forest and a mixed oak forest. *Id.* at 3-17, 3-30. The area just outside the liquefaction facility consists of FIDS habitat. *Id.* at 3-17. To construct and operate the liquefaction facility, DCP plans to clear 11.4 acres of forest and 0.008 acres of old field/pioneer habitat, and to permanently fill 0.006 acres of nontidal wetlands. *Id.* at 3-36. This clearing will affect important vegetation and wildlife in a few ways.

First, the clearing operations could impact the two state-listed endangered species on the site: the potato dandelion and the thread-leaved gerardia. *Id.* at 3-39. DCP has not indicated how it will mitigate impacts to these species. In addition, there is reason to believe that the Project would impact other rare plant species. MDNR has indicated that, based on past field surveys of the LNG terminal, several additional uncommon or rare, threatened, or endangered plant species could be present, including the Large-seeded Forget-me-not; Lancaster's Sedge and Fescue Sedge, potentially rare species; and the Pink Milkwort, which is rare and on Maryland's watchlist. *Id.*, Appendix 3-B (Byrne Letter at 1). In response, DCP indicated that it did not identify those species in its field survey. *See id.*, Appendix 3-B (Faggert Letter at 12). DCP's failure to find rare plant species that were previously found on site suggests either that its field surveys may have been inadequate or that the existing LNG terminal is destroying those species. Given the rarity of those species, FERC should ensure that it has all information needed to evaluate species impacts and potential mitigation measures.

Second, the clearing operations could impair the nearby FIDS habitat and species that rely on the habitat. Potentially significant impacts on FIDS habitat near the LNG terminal are identified above in the section discussing impacts on vegetation and terrestrial species near Off-Site Area A. The impacts and required mitigation must be disclosed with respect to both FIDS habitats.

Third, construction and operation of the facility would impact wetlands that support important wildlife. Indeed, MDNR has cautioned that “[a]long a tributary to Grey’s Creek west of the fenced compound, there are records for the state rare/watchlist Yellow-sided Skimmer (*Libellula flavida*) and the Sable Clubtail (*Gomphus rogersi*), a species with In-Need-of-Conservation status in Maryland. These are odonate species that are associated with small forested streams in this area.” *Id.*, Appendix 3-B (Byrne Letter). Odonate species “have an aquatic larval stage in which the larvae are especially sensitive to changes in hydrology and water quality, including siltation.” *Id.* DCP dismisses potential impacts to these species because it believes the species are present downstream and that its erosion and sedimentation control plan and other water quality permits will mitigate the impacts. *See id.*, Appendix 3-B (Faggert Letter at 11-12). However, given the sensitivity of these species, and the extent of the clearing to be done in this area, FERC should not publish a draft environmental review document until DCP produces the plans and permits needed to protect the wildlife.

Finally, the clearing operations also could allow invasive plant species to colonize or expand, altering remaining habitat. *Id.* at 3-26; *see also id.* at 3-30 (indicating that the following invasive species are present in the area: wineberry, autumn olive, field garlic, bull thistle, Chinese bush-clover, and Japanese honeysuckle). Yet DCP has not sought an invasive species management plan that will control the spread of invasive species while the facility is built and in use. Invasive species are a significant threat to the habitat near the facility, and must be considered in the environmental review. Furthermore, FERC should not release a draft environmental review document until DCP produces an adequate plan to control invasives.

**d. FERC’s Environmental Review Must Consider Climate Change Impacts on Project Facilities.**

In light of the location and lifespan of the Project, FERC should consider the environmental and safety impacts that climate change may have on the proposed LNG export terminal and its associated infrastructure. There is a recognized “pressing need” for agencies to account for climate change in performing their duties under NEPA. *See, e.g., Conservation Nw. v. Rey*, 674 F. Supp. 2d 1232, 1253 (W.D. Wash. 2009). Past FERC EAs and EISs incorporate climate change considerations into their analyses.<sup>89</sup> In addition, evaluating the impacts of climate change as part of the NEPA analysis has become an increasingly common practice among other federal agencies.<sup>90</sup>

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<sup>89</sup> *See, e.g.,* FERC, Environmental Assessment for the Sabine Pass Liquefaction Project 2-97 to 2-100 (Dec. 2011).

<sup>90</sup> *See, e.g.,* Bureau of Ocean Energy Mgmt., U.S. Dep’t of the Interior, Outer Continental Shelf Oil and Gas Leasing Program: 2012-2017, 3-18 to 3-2712 (2012); U.S. Army Corps of Eng’rs, Mississippi River Gulf Outlet (MRGO) Ecosystem Restoration Final Environmental Impact Statement 2-96, 2-128, 2-139, 3-53 (2012).

The CEQ's draft guidance also highlights the need to analyze the risks posed by climate change under NEPA and suggests ways in which climate change can increase the vulnerability of a proposed facility:

[C]limate change can affect the integrity of a development or structure by exposing it to a greater risk of floods, storm surges, or higher temperatures. Climate change can increase the vulnerability of a resource, ecosystem, or human community, causing a proposed action to result in consequences that are more damaging than prior experience with environmental impacts analysis might indicate.<sup>91</sup>

The Nuclear Regulatory Commission further noted the importance of assessing the effects of climate change at coastal locations:

Implications of global climate change—including implications for severe weather and storm intensity—are important to coastal communities and to critical infrastructure. . . . Based on findings to date, . . . potential impacts from warming of the climate system include expansion of sea water volume; decreases in mountain glaciers and snow cover resulting in sea level rise; changes in arctic temperatures and ice; changes in precipitation, ocean salinity, and wind patterns; and changes in extreme weather.<sup>92</sup>

The effects of climate change likely will create a variety of environmental risks to the facilities DCP proposes to construct and will heighten the environmental impacts and safety risks posed by the Project. The analysis of the climate impacts the Project may have as a result of GHG emissions is addressed above. Discussions of the heightened environmental effects the Project may have on water resources and wildlife in light of stresses imposed by climate change are included in Sections II.B.2.b. and II.B.2.c, *supra*. The location of the proposed LNG facility and its infrastructure should be evaluated independently, however, in light of climate change impacts on their integrity and safety.

Climate change likely will pose a variety of environmental risks to the infrastructure DCP proposes to construct on the shores of the Chesapeake Bay and to the ships that will sail the Bay's waters to export LNG from DCP's terminal. The proposed LNG facility is located near the shore at Cove Point on a peninsula mid-way up the Chesapeake Bay, bordered by the Bay to the east and the Patuxent River to the west. As described in Resource Report 6, the Coastal Plain where the proposed Liquefaction Facility would be located is a "relatively low-lying region." Resource Report 6 at 6-4. Due to natural subsidence, moreover, the Cove Point peninsula's elevation relative to sea level has decreased by approximately 0.66 feet in the last century.<sup>93</sup>

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<sup>91</sup> Memorandum from Nancy H. Sutley to Heads of Federal Departments and Agencies (Feb. 18, 2010) ("CEQ Climate Change Guidance").

<sup>92</sup> U.S. Nuclear Regulatory Comm'n, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 46, Regarding Seabrook Station 2-20 (2011).

<sup>93</sup> MCCC Phase I Report, *supra* note 69, at 3 (subsidence in this region is mostly a result of postglacial rebound or readjustment (sinking) of land elevations since the retreat of the glaciers at the end of the last ice age).

The Chesapeake Bay is one of the largest and most productive estuaries in the world.<sup>94</sup> The Bay coast is particularly vulnerable to threats such as hurricanes, shore erosion, coastal flooding, storm surge, and inundation.<sup>95</sup> The area also has experienced sea level rise of nearly twice the global average over the last 100 years due to naturally-occurring regional land subsidence.<sup>96</sup>

As FERC previously has acknowledged, the potential global and regional impacts from climate change include:

- An increase in global average temperatures by approximately 2°F since 1970 and a projected increase of an additional 4.5 to 9°F during this century;
- Greater summer heat stress;
- Increased destructive potential of Atlantic hurricanes due to greater intensity, with higher peak wind speeds, rainfall intensity, and higher and stronger storm surge;
- Potential sea level rise by a projected 3 to 4 feet this century;
- Warming coastal waters; and
- Greater incidence of seasonal drought.<sup>97</sup>

The global and regional impacts of climate change are likely to have particularly significant effects on the Chesapeake Bay, given its vulnerable location and ecosystem.<sup>98</sup> The Maryland Commission on Climate Change, created by an executive order signed by the Governor of Maryland, produced a report on Maryland's vulnerability to climate change and concluded:

Due to its geography and geology, the Chesapeake Bay region is considered the third most vulnerable to sea-level rise, behind Louisiana and southern Florida. . . . In fact, sea-level rise impacts are already being detected all along Maryland's coast.<sup>99</sup>

A graphical illustration in the same report indicates that the Cove Point area "may likely" be subject to sea level rise of up to five feet over the next 100 years.<sup>100</sup>

The Chesapeake Bay also is particularly vulnerable to coastal flooding, which will be exacerbated as sea levels rise. Sea-level rise increases the height of storm waves and enables the waves to extend further inland.<sup>101</sup> In lower-lying coastal areas, one foot of sea level rise can amplify flooding by a foot, resulting in more intense coastal flooding events.<sup>102</sup> Studies project "very likely" sea-level increases of approximately 27.5 to 63 inches by 2100 in the Chesapeake

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<sup>94</sup> Najjar et al., *supra* note 55, at 4.

<sup>95</sup> See MCCC Phase I Report, *supra* note 69, at 3.

<sup>96</sup> *Id.*

<sup>97</sup> FERC, Environmental Assessment for the Sabine Pass Liquefaction Project 2-98 (Dec. 2011).

<sup>98</sup> See, e.g., Najjar et al., *supra* note 55, at 1 (noting that estuaries are particularly vulnerable to climate change).

<sup>99</sup> *Id.*; MCCC Phase I Report, *supra* note 69, at 4.

<sup>100</sup> *Id.* at 5.

<sup>101</sup> *Id.*

<sup>102</sup> *Id.*

Bay.<sup>103</sup> A one-meter (33-inch) increase in sea level also will increase the tidal range in the upper parts of the Bay by 15-20 percent.<sup>104</sup> Moreover, climate change is predicted to affect the seasonable variability in basin-wide rain events and the incidence of more intense rainfall, which could exacerbate flooding risks by significantly altering the flow from the rivers and streams that drain into the Bay.<sup>105</sup>

In addition, studies project that storm activity in the Atlantic likely will increase. Studies suggest that the rise in global temperature averages will result in greater numbers of intense hurricanes and storm events, including the doubling of Katrina-magnitude events over the next century.<sup>106</sup> An approximately 0.4° C global average warming may reduce the time between Katrina-magnitude events by half.<sup>107</sup> Studies also indicate that the North Atlantic and the East Coast of North America may see increased numbers of hurricanes.<sup>108</sup> The evidence further suggests that there will be a “greatly increased Atlantic hurricane surge threat.”<sup>109</sup> The Chesapeake Bay may be particularly impacted by this change in storm activity, because major storms have been known to have “dramatic and long-lasting effects” on the area.<sup>110</sup> For example, 50 percent of the sediment deposited in the northern Chesapeake Bay between 1900 and the mid-1970s originated with Tropical Storm Agnes in 1972 and an extratropical storm in 1936.<sup>111</sup>

Taken together, the impacts of climate change on the Project’s proposed location could be significant and should be evaluated in an EIS. The proposed LNG facility and associated local pipelines would be located in low-lying areas that may be increasingly susceptible to flooding from a combination of sea-level rise, continued subsidence, increased storm frequency, and increased storm surge. There thus may be a significant longer-term risk of flooding and sea surge that could seriously damage the LNG facility or piping leading from the interstate grid to the liquefaction plant. This risk likely is even greater for the pipeline connecting the liquefaction facility to the offshore pier. Flooding of these areas and the ensuing damage to the infrastructure by corrosive estuary water could result in significant environmental harms to the Chesapeake Bay and also significant threats to the safety of local communities.

In addition, the increased threat of intense hurricanes could pose a substantial risk to the up to 200 ships traveling up the Bay to the Project and then back to the Atlantic full of large volumes of LNG. More frequent Katrina-magnitude storms could make shipping accidents and spills more likely and increase the risk that LNG carriers will run aground in the Bay. Such an event

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<sup>103</sup> *Id.*

<sup>104</sup> *Id.* at 8.

<sup>105</sup> *Id.* at 4.

<sup>106</sup> Aslak Grinsted et al., *Projected Atlantic Hurricane Surge Threat from Rising Temperatures*, 110 Proceedings of the National Academy of Sciences 5369 (Apr. 2, 2013).

<sup>107</sup> *Id.* at 5372.

<sup>108</sup> Stanley B. Goldenberg et al., *The Recent Increase in Atlantic Hurricane Activity: Causes and Implications*, 293 Science 474, 477 (2001); see also, Morris A. Bender et al., *Modeled Impact of Anthropogenic Warming on the Frequency of Intense Atlantic Hurricanes*, 327 Science 454 (Jan. 22, 2010).

<sup>109</sup> *Id.*

<sup>110</sup> Najjar et al., *supra* note 55, at 5.

<sup>111</sup> Grinsted et al., *supra* note 106, at 5372.

would be devastating to the Chesapeake Bay environment and ecosystem and could cripple the regional economic activities that are sustained by the Bay.

To date, the materials DCP has submitted do not adequately analyze these climate change risks. Regarding the potential for flooding, Resource Report 6 states that the proposed LNG liquefaction facility is currently not in a Federal Emergency Management Agency-designated flood zone. Resource Report 6 at 6-14. DCP then summarily concludes that “[b]ased on regional conditions, the potential for flash flooding to significantly impact construction or operation of the Project is low.” *Id.* The remaining discussion in this section, however, focuses only on risks of flooding during construction. *See id.* It contains no evaluation or consideration of potential future conditions. The materials also fail to discuss the potential for sea level rise or storm activity to increase the likelihood of flooding over the longer term or the impacts of more intense storms on the safety of shipping.

The infrastructure DCP is proposing to construct and operate will last at least through the 20-year service contract term for the Project and likely for many years after that. *See* Application at 2. This is FERC’s only opportunity to evaluate the reasonably foreseeable long-term impacts climate change will have on the infrastructure being considered, as well as the risks climate change will create for the future operation of the LNG export facility. The evaluation of these risks is particularly critical given the high susceptibility of the Chesapeake Bay area to the impacts of climate change and the potential for climate change to increase the environmental impacts of the Project on the Chesapeake Bay ecosystem and local communities. The EIS should analyze these longer-term significant risks.

**e. Gas Production Induced By the Project Will Have Significant Effects.**

In addition to the local impacts set forth in the preceding section, further, and likely greater, environmental impacts would result from increased gas production induced by the Project. DCP, EIA, NERA Economic Consulting (which recently reported to DOE/FE on the macroeconomic impacts of LNG exports), essentially every other LNG export applicant, and other informed commenters all agree that LNG exports will induce additional production in the United States.<sup>112</sup>

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<sup>112</sup> *See, e.g.,* David Madden, *Natural Gas Drilling Could Pick Up If Marcellus Shale Export Plans Are Approved*, CBS Philly (Apr. 3, 2013), available at <http://philadelphia.cbslocal.com/2013/04/03/natural-gas-drilling-could-pick-up-if-marcellus-shale-export-plans-are-approved/>; *Dominion Seeks Exports of Marcellus Shale Gas*, Wall Street Journal Online (Oct. 9, 2011), available at <http://online.wsj.com/article/APa2451e7e31a14be2816f8ec202b26bc1.html>; Timothy B. Wheeler, *Natural Gas Exports Eyed through Calvert County; Environmentalists Question Maryland Role Enabling ‘Fracking.’* Baltimore Sun (Feb. 10, 2012), available at [http://articles.baltimoresun.com/2012-02-10/features/bs-gr-gas-export-20120210\\_1\\_fracking-fluids-shale-gas-gas-exports](http://articles.baltimoresun.com/2012-02-10/features/bs-gr-gas-export-20120210_1_fracking-fluids-shale-gas-gas-exports); Casey Junkins, *Export of Gas Sought: Dominion Wants to Ship Overseas*, The Intelligencer Wheeling News-Register (Oct. 9, 2011), available at <http://www.news-register.net/page/content.detail/id/560425/Export-Of-Gas-Sought--Dominion-Wants-to-Ship-Overseas.html?nav=515>; Andrew Maykuth, *Natural Gas Producers Pushing White House to Allow More Exports*, Greeley Tribune (Jan. 20, 2013), available at <http://www.greeleytribune.com/news/4414891-113/gas-exports-natural-prices>; Keith Johnson, *Natural-Gas Export Fight Heats Up*, Wall Street Journal (Jan. 10, 2013), available at <http://online.wsj.com/article/SB10001424127887324081704578233920061510586.html>; Andrew Maykuth, *Deals*

Moreover, available tools allow FERC to predict where increased production will occur, although such localized predictions are not necessary for meaningful analysis of environmental impacts. It would be arbitrary and capricious for FERC to fail to acknowledge and analyze this patently foreseeable and measurable indirect effect of DCP's proposal<sup>113</sup>

**i. The Project Will Induce Additional U.S. Gas Production.**

The Project would affect the environment by inducing additional natural gas production. Indeed, the asserted economic benefit of the Project rests primarily on the view that exports will create additional jobs in the gas exploration and production industry. *See, e.g.*, Application at 40 (“The Project will result in a host of benefits to the public interest including: supporting demand for the continued development of domestic natural gas, which in turn increases the output of liquid hydrocarbons which can be used as a feedstock; [and] the creation of thousands of new jobs, providing a huge economic stimulus locally, statewide, and nationally”). DCP's application relies on data from a Sage Group report, which also estimates the Project will increase Maryland exports by almost \$5 billion per year. Application, Appendix 5-A at 7. In addition, the report asserts that between 2010 and 2035, domestic production, as measured by energy content, is expected to increase 25 percent, while total consumption will increase by only 10 percent. *Id.* at 9. That report also noted the increasing role of shale gas production in supplying the additional gas and concluded that much of the gas for the Project will come from shale gas sources. *Id.* at 12. That prediction generally accords with EIA's estimates that “about 60 to 70 percent” of additional demand created by LNG exports would be met by increases in domestic production, with “about three quarters of this increased production [coming] from shale sources.”<sup>114</sup>

Precise tools already available to EIA, FERC, and DOE can assist the agencies in forecasting where induced production will occur by predicting how producers will respond to the demand created by exports, including at the level of individual gas plays. EIA's core analytical tool is the National Energy Modeling System (“NEMS”). NEMS was used to produce the EIA Export Study.<sup>115</sup> NEMS models the economy's energy use through a series of interlocking modules that represent different energy sectors on geographic levels.<sup>116</sup> Notably, the “Natural Gas Transmission and Distribution” module models the relationship between U.S. and Canadian gas production, consumption, and trade, specifically projecting U.S. production, Canadian production, and imports from Canada.<sup>117</sup> For each region, the module links supply and demand annually, taking transmission costs into account, in order to project how demand will be met by

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*Would Export Natural Gas to India, Japan*, Philadelphia Inquirer (Apr. 3, 2013), available at [http://articles.philly.com/2013-04-03/business/38221532\\_1\\_cove-point-dominion-resources-Ing](http://articles.philly.com/2013-04-03/business/38221532_1_cove-point-dominion-resources-Ing).

<sup>113</sup> As is explained below, although FERC recently refused to consider induced production in the *Sabine Pass* proceeding, that decision was factually and legally erroneous, and the Commission should not follow it here.

<sup>114</sup> EIA, *Effect of Increased Natural Gas Exports on Domestic Energy Markets 6* (2012) (“EIA Export Study”).

<sup>115</sup> *Id.*

<sup>116</sup> EIA, *The National Energy Modeling System: An Overview 1-2* (2009), available at [http://www.eia.gov/oiaf/aeo/overview/pdf/0581\(2009\).pdf](http://www.eia.gov/oiaf/aeo/overview/pdf/0581(2009).pdf).

<sup>117</sup> *Id.* at 59.

the transmission system.<sup>118</sup> Importantly, the Transmission Module is *already* designed to model LNG imports and exports, and it contains an extensive modeling apparatus allowing it to do so on the basis of production in the U.S., Canada, and Mexico.<sup>119</sup> At present, the Module focuses largely on LNG imports, reflecting U.S. trends to date, but it also already links the Supply Module to the existing Alaskan *export* terminal and projects exports from that site and their impacts on production.<sup>120</sup>

Similarly, the “Oil and Gas Supply” module models individual regions and describes how production responds to demand across the country. Specifically, the supply module is built on detailed state-by-state reports of gas production curves across the country.<sup>121</sup> As EIA explains, “production type curves have been used to estimate the technical production from known fields” as the basis for a sophisticated “play-level model that projects the crude oil and natural gas supply from the lower 48.”<sup>122</sup> The module distinguishes coalbed methane, shale gas, and tight gas from other resources, allowing for specific predictions distinguishing unconventional gas supplies from conventional supplies.<sup>123</sup> The module further projects the number of wells drilled each year and their likely production—which are important figures for estimating environmental impacts.<sup>124</sup> In short,

[the supply module] includes a comprehensive assessment method for determining the relative economics of various prospects based on future financial considerations, the nature of the undiscovered and discovered resources, prevailing risk factors, and the available technologies. The model evaluates the economics of future exploration and development from the perspective of an operator making an investment decision.<sup>125</sup>

Thus, for each play in the lower 48 states, EIA is able to predict future production based on existing data. The model also is equipped to evaluate policy changes that might impact production; according to EIA, “the model design provides the flexibility to evaluate alternative or new taxes, environmental, or other policy changes in a consistent and comprehensive manner.”<sup>126</sup> Thus, there is no technical barrier to modeling where exports will induce production going forward. Indeed, EIA used this model for its export study, which forecasted production and price impacts.

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<sup>118</sup> EIA, Model Documentation: Natural Gas Transmission and Distribution Module of the National Energy Modeling System 15-16 (2012), *available at* [http://www.eia.gov/FTP/ROOT/modeldoc/m062\(2011\).pdf](http://www.eia.gov/FTP/ROOT/modeldoc/m062(2011).pdf).

<sup>119</sup> *See id.* at 22-32.

<sup>120</sup> *See id.* at 30-31.

<sup>121</sup> EIA, Documentation of the Oil and Gas Supply Module 2-2 (2011), *available at* [http://www.eia.gov/FTP/ROOT/modeldoc/m063\(2011\).pdf](http://www.eia.gov/FTP/ROOT/modeldoc/m063(2011).pdf).

<sup>122</sup> *Id.* at 2-3.

<sup>123</sup> *Id.* at 2-7.

<sup>124</sup> *See id.* at 2-25 to 2-26.

<sup>125</sup> *Id.* at 2-3.

<sup>126</sup> *Id.*

EIA is not alone in its ability to predict localized effects of LNG exports. A study and model developed by Deloitte Marketpoint, for example, asserts its ability to make localized predictions about production impacts, and numerous other LNG export terminal proponents have relied on this study in applications to FERC and DOE.<sup>127</sup> According to Deloitte, its “North American Gas Model” and “World Gas Model” allow it to predict how gas production, infrastructure construction, and storage will respond to changing demand conditions, including those resulting from LNG export.<sup>128</sup> According to Deloitte, the model connects to a database that contains “field size and depth distributions for every play,” allowing the company to model dynamics between these plays and demand centers.<sup>129</sup> “The end result,” Deloitte maintains, “is that valuing storage investments, identifying maximally effectual storage field operation, positioning, optimizing cycle times, demand following modeling, pipeline sizing and location, and analyzing the impacts of LNG has become easier and generally more accurate.”<sup>130</sup> Regardless of the strengths or weaknesses of Deloitte’s models relative to EIA’s, it is plain that multiple tools exist for predicting how and where production will respond to exports.

**ii. Induced Production Must Be Considered in the NEPA and NGA Analyses.**

NEPA regulations, applicable case law, and recent EPA scoping comments all call for FERC to consider the environmental effects of induced production. As is noted above, NEPA requires consideration of “indirect effects” of the proposed action, which include “growth inducing effects and other effects related to induced changes in the pattern of land use . . . and related effects on air and water and other natural systems,” and “reasonably foreseeable” effects “removed in distance” from the site of the proposed action. 40 C.F.R. § 1508.8(b). Here, induced production is not only an effect of the Project, it is one of DCP’s justifications for the Project. DCP is candid that the Project will “support ongoing supply development” (that is, stimulate production in gas fields) and claims credit for creating upstream production jobs as part of production that would not occur but for the Project.<sup>131</sup> DCP’s LNG export proposal is designed to drive development of U.S. gas plays, especially in the Northeast, and depends upon that development to function. Such development is therefore plainly a “reasonably foreseeable” effect that must be analyzed in NEPA.

Several courts have held that natural resource production and other analogous upstream impacts induced by new infrastructure development must be considered under NEPA. For example, the Ninth Circuit recently held that, where the Surface Transportation Board was considering a proposal to expand a railway line which would enable increased coal production at several mines, NEPA required that the Board consider the impacts of increased mining. *N. Plains Res.*

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<sup>127</sup> Deloitte Marketpoint, *Made in America: The Economic Impact of LNG Exports from the United States* (2011), [http://www.deloitte.com/assets/Dcom-UnitedStates/Local percent20Assets/Documents/Energy\\_us\\_er/us\\_er\\_MadeinAmerica\\_LNGPaper\\_122011.pdf](http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/Energy_us_er/us_er_MadeinAmerica_LNGPaper_122011.pdf) (hereinafter “Deloitte Report”).

<sup>128</sup> Deloitte, *Natural Gas Models*, [http://www.deloitte.com/view/en\\_US/us/Industries/power-utilities/deloitte-center-for-energy-solutions-power-utilities/marketpoint-home/marketpoint-data-models/b2964d1814549210VgnVCM200000bb42f00aRCRD.htm](http://www.deloitte.com/view/en_US/us/Industries/power-utilities/deloitte-center-for-energy-solutions-power-utilities/marketpoint-home/marketpoint-data-models/b2964d1814549210VgnVCM200000bb42f00aRCRD.htm).

<sup>129</sup> *Id.*

<sup>130</sup> *Id.*

<sup>131</sup> DCP DOE Application at 15-16.

*Council*, 668 F.3d at 1081-82. In *Northern Plains*, the court pointed to the agency’s reliance on the induced coal mine development “to justify the financial soundness of the proposal.” *Id.* at 1082. Because the agency anticipated induced coal production in justifying its proposal, such production was reasonably foreseeable, and NEPA analysis of its impacts was required. Here, a decision by FERC to rely on the supposed economic benefits of increased production, while simultaneously ignoring the impacts of this production, would be squarely inconsistent with *Northern Plains*. *Accord Mid States Coalition for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 548-50 (8th Cir. 2003).

*Border Power Plant Working Group v. DOE*, 260 F. Supp. 2d 997 (S.D. Cal. 2003), also required consideration of upstream environmental impacts induced by the construction of new energy infrastructure. That case involved applications to construct and operate transmission lines across the U.S.-Mexico border. The court held that DOE was required to consider the environmental effects of upstream electricity generation induced by the new infrastructure, rejecting DOE’s decision to exclude these upstream impacts from analysis.<sup>132</sup> *Id.* at 1017. Consideration of induced impacts was required even though the upstream electricity generation would occur in Mexico, outside the jurisdiction of DOE or any other U.S. agency. *Id.* at 1016-17. Here, too, FERC is required to consider the impacts of natural gas production induced by DCP’s proposal, regardless of FERC’s regulatory authority over that production.

EPA also has argued, in scoping comments it submitted on two other LNG export proposals, that induced production should be included in NEPA review. In scoping comments for the Jordan Cove project, EPA opined that, in light of the regulatory definition of indirect effects and the EIA Export Study’s prediction of induced production, “it is appropriate to consider available information about the extent to which drilling activity might be stimulated by the construction of an LNG export facility on the west coast, and any potential environmental effects associated with that drilling expansion.”<sup>133</sup> EPA’s scoping comments for the Cove Point facility in Maryland also recommended analyzing “indirect effects related to gas drilling and combustion” and stressed that, in addition to reviewing the *economic* impacts of induced drilling, DOE/FE should “thoroughly consider the indirect and cumulative *environmental* impacts” of export.<sup>134</sup>

Although FERC refused to consider induced production in the *Sabine Pass* proceeding, FERC’s rulings in that case contain factual and legal errors and thus should not be the basis for future FERC decisions.<sup>135</sup> 139 FERC ¶ 61,039 (Apr. 16, 2012); 140 FERC ¶ 61,076 (July 26, 2012).

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<sup>132</sup> The final EIS for the project at issue in *Border Power Plant Working Group*, produced after remand from the court, is available at <http://energy.gov/nepa/downloads/eis-0365-final-environmental-impact-statement>. Upstream air quality impacts are considered on pages 4-43 to 4-65 of this final EIS.

<sup>133</sup> EPA, Scoping Comments – The Jordan Cove Energy Project LP, FERC Dkts. PF12-7 and PF12-17, 14 (Oct. 29, 2012); *see also* EPA, Scoping Comments – The Oregon LNG Export Project and Washington Expansion Project, FERC Dkts. PF12-18 and PF12-20 (Dec. 26, 2012).

<sup>134</sup> EPA Region III, Scoping Comments -- The Dominion Cove Point LNG, LP, FERC Dkt. CP13-133, 2-3 (Nov. 15, 2012) (emphasis added).

<sup>135</sup> FERC is not bound by its prior decisions. It may reverse its position “with or without a change in circumstances” so long as it provides “a reasoned analysis” for the change. *La. Pub. Serv. Comm’n v. FERC*, 184 F.3d 892, 897 (D.C. Cir. 1999) (quoting *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 57 (1983)).

The first flaw in FERC's *Sabine Pass* decision is that FERC refused to analyze reasonably foreseeable future environmental effects based on its unlawful demand that these effects' scope and nature first be known with a high degree of certainty. 139 FERC ¶ 61,039 at \*23. FERC stated that it is unknown "how much, if any" new production will result from the proposed exports. *Id.* Although it is true that the precise scope of production impacts cannot be determined with complete certainty, neither precision nor certainty is required. "An impact is 'reasonably foreseeable' if it is 'sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision.'" *City of Shoreacres v. Waterworth*, 420 F.3d 440, 453 (5th Cir. 2005) (quoting *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992)). NEPA requires "[r]easonable forecasting and speculation," and courts "must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as 'crystal ball inquiry.'" *Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n*, 481 F.2d 1079, 1092 (D.C. Cir. 1973). As explained above, every available source concludes that it is *likely* that the majority of exported gas will come from induced, additional production. Thus, if exports occur, an aggregate production increase is unarguably "reasonably foreseeable."

FERC's second error in *Sabine Pass* was to conclude that induced production was outside the scope of NEPA analysis because "the location and subsequent production activity is unknown, and too speculative to assume." 139 FERC ¶ 61,039 at \*23. Such specific, localized predictions are not required for meaningful environmental analysis, but even if they were, FERC has the resources to provide them.

As a threshold matter, analysis of the environmental impacts of induced gas production does not require knowledge of the precise sites where additional production will occur. Environmental costs (and the economic costs that accompany them) can be determined in the aggregate. The net increases in air pollution associated with the number of wells that will be induced can be quantified based on EPA's emissions inventories, for instance. The net volumes of waste can similarly be derived from industry reports and state discharge figures. And these impacts can be localized, at a minimum, by region. Indeed, for some of the environmental impacts of production, such as emissions of many air pollutants and consumption of water, the impacts are likely to be experienced at the regional level, so there may be little value in localizing them further. Even for those impacts that are more closely tied to a specific location, such as habitat fragmentation, FERC can and must acknowledge that the impact will occur, including an estimate of the severity of the impact averaged across potential locations. *See Scientists' Inst. for Pub. Info.*, 481 F.2d at 1096-97 (where there were reasonable estimates of the deployment of nuclear power plants, the amount of waste produced, and the land needed to store waste, NEPA required analysis of the impacts of such storage even though the agency could not predict *where* such storage would occur).

Even if FERC were to conclude, wrongly, that NEPA requires analysis only of induced drilling impacts that can be predicted to occur in a particular location, FERC has the tools to make that prediction, as explained in the previous section. If such local impact predictions are not yet in the record, NEPA regulations provide that FERC "shall" obtain this information, unless it demonstrates that the costs of doing so are "exorbitant." 40 C.F.R. § 1502.22.

In summary, all the available evidence indicates that DCP's proposed exports will induce additional gas production in the United States. This increase is reasonably foreseeable, and its environmental effects must be analyzed under NEPA.

### **iii. Induced Gas Production Will Cause Significant Environmental Harm.**

Natural gas production—from both conventional and unconventional sources—is a significant air pollution source, can disrupt ecosystems and watersheds, leads to industrialization of entire landscapes, and presents challenging waste disposal issues. Exporting LNG stimulate natural gas production, increasing these environmental harms. FERC's analysis, therefore, must consider these impacts.

Much of the induced production resulting from exports is likely to come from shale gas and other unconventional sources. EIA has concluded that “[o]n average, across all cases and export scenarios, the shares of the increase in total domestic production coming from shale gas, tight gas, [and] coalbed sources are 72%, 13%, [and] 8%,” respectively.<sup>136</sup> A subcommittee of the DOE's Secretary of Energy's Advisory Board recently highlighted “a real risk of serious environmental consequences” resulting from continued expansion of shale gas production.<sup>137</sup> Shale gas production (as well as coalbed and tight sands production) requires employing the controversial practice of hydraulic fracturing. As we explain below, natural gas production, in general, and hydraulic fracturing, in particular, impose a large number of environmental harms. Although some states and federal agencies are taking steps to limit these harms, these efforts are uncertain and will not eliminate the environmental harms, even if fully implemented.

***Air Pollution:*** Below, we briefly describe some of the primary air pollution problems caused by the industry. These issues include direct emissions from production equipment and indirect emissions caused by gas displacement of cleaner energy sources. EPA has moved to reduce some of these emissions with new air regulations finalized last year, but, as we later discuss, these standards do not fully address the problem. FERC therefore must consider the air pollution impacts of increased natural gas production, notwithstanding EPA's new rules.

Natural gas production operations emit methane (“CH<sub>4</sub>”), VOCs, NO<sub>x</sub>, SO<sub>2</sub>, H<sub>2</sub>S, and both PM<sub>10</sub> and PM<sub>2.5</sub>. Those operations also emit listed HAPs in significant quantities, and so contribute to cancer risks and other acute public health problems. Pollutants are emitted during all stages of natural gas development, including (1) oil and natural gas production, (2) natural gas processing, (3) natural gas transmission, and (4) natural gas distribution.<sup>138</sup> See Figure 1, below. Within these development stages, the major sources of air pollution include wells, compressors,

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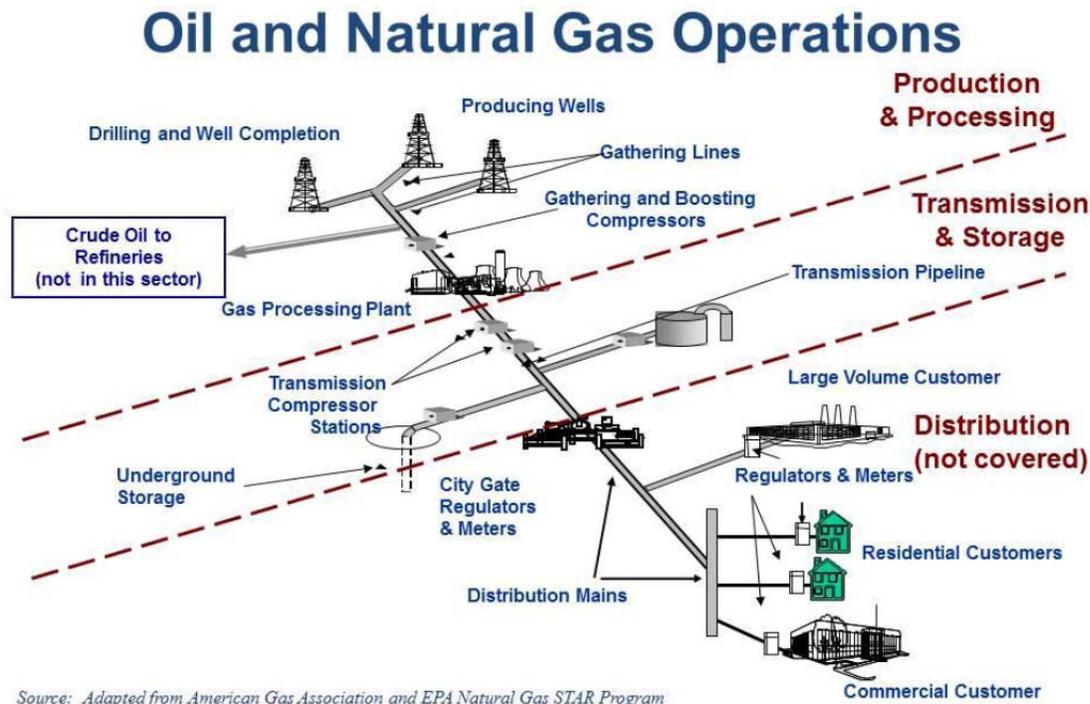
<sup>136</sup> EIA Export Study, *supra* note 114, at 11.

<sup>137</sup> DOE, Secretary of Energy's Advisory Board, Shale Gas Production Subcommittee Second 90-Day Report 10 (Nov. 18, 2011); *see also* DOE, Shale Gas Production Subcommittee, First 90-Day Report (Aug. 18, 2011) (hereinafter “First 90-Day Report”).

<sup>138</sup> EPA, Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution, Background Technical Support Document for the Proposed Rules 2-4 (July 2011) (hereinafter “TSD”).

pipelines, pneumatic devices, dehydrators, storage tanks, pits and ponds, natural gas processing plants, and trucks and construction equipment.

**Figure 1: The Oil and Natural Gas Sector**



There is strong evidence that emissions from natural gas production are higher than has been commonly understood. In particular, a recent study by a consortium of researchers led by the NOAA Earth System Research Laboratory observed pollution concentrations near gas fields and recorded levels substantially greater than EPA estimates would have predicted. That study monitored air quality around oil and gas fields.<sup>139</sup> The researchers observed high levels of CH<sub>4</sub>, propane, benzene, and other VOCs in the air around the fields. According to the study authors, their “analysis suggests that the emissions of the species we measured” — that is, the cancer-causing, smog-forming, and climate-disrupting pollutants released from these operations— “are most likely underestimated in current inventories,” perhaps by as much as a factor of two.<sup>140</sup>

These emissions have dire practical consequences. A second research team, led by the Colorado School of Public Health, measured benzene and other pollutants released from unconventional well completions.<sup>141</sup> Elevated levels of these pollutants correspond to increased cancer risks for

<sup>139</sup> G. Petron et al., *Hydrocarbon Emissions Characterization in the Colorado Front Range: A Pilot Study*, 117 *J. of Geophysical Research* 4304 (2012).

<sup>140</sup> *Id.* at 4304.

<sup>141</sup> L. McKenzie et al., *Human Health Risk Assessment of Air Emissions from Development of Unconventional Natural Gas Resources*, *Science of the Total Environment* (In Press, Mar. 22, 2012).

people living within half of a mile of a well<sup>142</sup>—a very large population which will increase as drilling expands.

We discussed the harmful effects of many of these pollutants in Section II.B.2.a, above. Below, we detail the sources of emissions within the gas production industry and provide further information regarding the serious global, regional, and local impacts these exploration and production emissions entail:

**CH<sub>4</sub>:** CH<sub>4</sub> is the dominant pollutant from activities in the oil and gas sector. Emissions occur as result of intentional venting or unintentional leaks during drilling, production, processing, transmission and storage, and distribution. For example, CH<sub>4</sub> is emitted when wells are completed and vented, as part of operation of pneumatic devices and compressors, and as a result of leaks (“fugitive emissions”) in pipelines, valves, and other equipment. EPA has identified natural gas systems as the “single largest contributor to United States anthropogenic methane emissions.”<sup>143</sup> The industry is responsible for over 40 percent of total U.S. CH<sub>4</sub> emissions.<sup>144</sup> CH<sub>4</sub> causes harm both because of its contributions to climate change and as an ozone precursor.

CH<sub>4</sub> is a potent GHG that contributes substantially to global climate change. CH<sub>4</sub> has at least 25 times the global warming potential of carbon dioxide over a 100 year time frame and at least 72 times the global warming potential of carbon dioxide over a 20-year time frame.<sup>145</sup> Because of CH<sub>4</sub>’s effects on climate, EPA has found that CH<sub>4</sub>, along with five other well-mixed GHGs, endangers public health and welfare within the meaning of the Clean Air Act.<sup>146</sup> The oil and gas production industry is a significant emitter of this dangerous pollutant; its CH<sub>4</sub> emissions amount to 5 percent of all CO<sub>2</sub>e GHG emissions in the country.<sup>147</sup>

CH<sub>4</sub> also reacts in the atmosphere to form ozone.<sup>148</sup> As we discuss elsewhere, ozone is a major public health threat, linked to a wide range of health problems. In addition to these public health harms, ozone can damage vegetation, agricultural productivity, and cultural resources. Ozone is also a GHG, meaning that CH<sub>4</sub> is doubly damaging to climate—first in its own right, and then as an ozone precursor. Although EPA recently has decreased its estimates of methane emissions from the industry, as a result of industry data on its emissions factors for certain well clean-up

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<sup>142</sup> *Id.* at 2.

<sup>143</sup> Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 76 Fed. Reg. 52,738, 52,792 (Aug. 23, 2011).

<sup>144</sup> *Id.* at 52, 791–92.

<sup>145</sup> IPCC Working Group I, *supra* note 38, at 2.10.2; IPCC, *Climate 2007: Summary for Policymakers*. We note that these global warming potential (“GWP”) figures may be revised upward in the next IPCC report. A more recent study by Shindell *et al.* estimates methane’s 100-year GWP at 33; this same source estimates CH<sub>4</sub>’s 20-year GWP at 105.

<sup>146</sup> EPA, Endangerment and Cause or Contribute Findings for Greenhouse Gases, 74 Fed. Reg. 66,496, 66,516 (Dec. 15, 2009) (hereinafter “Endangerment Finding”).

<sup>147</sup> 76 Fed. Reg. at 52,791–92.

<sup>148</sup> *Id.* at 52,791.

activities,<sup>149</sup> the sector remains the largest industrial source of methane, and the largest industrial GHG source outside of the utility industry.<sup>150</sup>

**VOCs and NO<sub>x</sub>:** The gas industry is also a major source of two other ozone precursors: VOCs and NO<sub>x</sub>.<sup>151</sup> VOCs are emitted from well drilling and completions, compressors, pneumatic devices, storage tanks, processing plants, and as fugitives from production and transmission.<sup>152</sup> The primary sources of NO<sub>x</sub> are compressor engines, turbines, and other engines used in drilling and hydraulic fracturing.<sup>153</sup> NO<sub>x</sub> also is produced when gas is flared or used for heating.<sup>154</sup>

As a result of significant VOC and NO<sub>x</sub> emissions associated with oil and gas development, numerous areas of the country with heavy concentrations of drilling now are suffering from serious ozone problems. For example, the Dallas-Fort Worth area in Texas is home to substantial oil and gas development. Within the Barnett Shale region, as of January 2012, there were more than 16,530 total gas wells and another 2,457 wells permitted.<sup>155</sup> Of the nine counties surrounding the Dallas-Fort Worth area that EPA has designated as “nonattainment” for ozone, five contain significant oil and gas development.<sup>156</sup> A 2009 study found that summertime emissions of smog-forming pollutants from these counties were roughly comparable to emissions from motor vehicles in those areas.<sup>157</sup>

Oil and gas development has also brought serious ozone pollution problems to rural areas, such as western Wyoming.<sup>158</sup> On March 12, 2009, the governor of Wyoming recommended that the state designate Wyoming’s Upper Green River Basin as an ozone nonattainment area.<sup>159</sup> The Wyoming Department of Environmental Quality conducted an extended assessment of the ozone

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<sup>149</sup> See EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013 (April 2013), at 3-63ff.

<sup>150</sup> See *id.* at ES-6.

<sup>151</sup> See, e.g., Al Armendariz, Emissions from Natural Gas Production in the Barnett Shale Area and Opportunities for Cost-Effective Improvements 24 (Jan. 26, 2009), available at [http://www.edf.org/documents/9235\\_Barnett\\_Shale\\_Report.pdf](http://www.edf.org/documents/9235_Barnett_Shale_Report.pdf) (hereinafter “Barnett Shale Report”).

<sup>152</sup> See, e.g., TSD, *supra* note 138, at 4-7, 5-6, 6-5, 7-9, 8-1; see also Barnett Shale Report, *supra* note 151, at 24.

<sup>153</sup> See, e.g., TSD, *supra* note 138, at 3-6; Barnett Shale Report, *supra* note 151, at 24; Air Quality Impact Analysis Technical Support Document for the Revised Draft Supplemental Environmental Impact Statement for the Pinedale Anticline Oil and Gas Exploration and Development Project at 11 (Table 2.1).

<sup>154</sup> TSD, *supra* note 138, at 3-6; Colorado Department of Public Health and Environment, Colorado Visibility and Regional Haze State Implementation Plan for the Twelve Mandatory Class I Federal Areas in Colorado, Appendix D at 1 (2011), available at <http://www.cdphe.state.co.us/ap/RegionalHaze/AppendixD/4-FactorHeaterTreaters07JAN2011FINAL.pdf>.

<sup>155</sup> Texas Railroad Commission, Newark, East (Barnett Shale) Field (2012), available at <http://www.rrc.state.tx.us/data/fielddata/barnettshale.pdf>.

<sup>156</sup> Barnett Shale Report, *supra* note 151, at 1, 3.

<sup>157</sup> *Id.* at 1, 25-26.

<sup>158</sup> Schnell, R.C., et al., *Rapid Photochemical Production of Ozone at High Concentrations in a Rural Site During Winter*, *Nature Geosci.* 2, 120-22 (2009).

<sup>159</sup> See Letter from Wyoming Governor Dave Freudenthal to Carol Rushin, Acting Regional Administrator, EPA Region 8 (Mar. 12, 2009), available at [http://deq.state.wy.us/out/downloads/Rushin percent20Ozone.pdf](http://deq.state.wy.us/out/downloads/Rushin%20Ozone.pdf) (hereinafter “Wyoming 8-Hour Ozone Designation Recommendations”); Wyoming Department of Environmental Quality, Technical Support Document I for Recommended 8-hour Ozone Designation of the Upper Green River Basin vi-viii, 23-26, 94-05 (Mar. 26, 2009), available at [http://deq.state.wy.us/out/downloads/Ozone percent20TSD\\_final\\_rev percent203-30-09\\_jl.pdf](http://deq.state.wy.us/out/downloads/Ozone%20TSD_final_rev%203-30-09_jl.pdf) (hereinafter “Wyoming Nonattainment Analysis”).

pollution problem and found that it was “primarily due to local emissions from oil and gas . . . development activities: drilling, production, storage, transport, and treating.”<sup>160</sup> Last winter alone, the residents of Sublette County suffered thirteen days with ozone concentrations considered “unhealthy” under EPA’s current air-quality index, including days when the ozone pollution levels exceeded the worst days of smog pollution in Los Angeles.<sup>161</sup> Residents have faced repeated warnings regarding elevated ozone levels and the resulting risks of going outside.<sup>162</sup>

Ozone problems are mounting in other Rocky Mountain states as well. Northeastern Utah recorded unprecedented ozone levels in the Uintah Basin in 2010 and 2011. In the first three months of 2010—which was the first time that winter ozone was monitored in the region—air quality monitors measured more than 68 exceedances of the federal health standard. On three of these days, the levels were almost twice the federal standard.<sup>163</sup> Between January and March 2011, there were 24 days where the NAAQS for ozone were exceeded in the area. Again, ozone pollution levels climbed to nearly twice the federal standard.<sup>164</sup> The Bureau of Land Management (“BLM”) has identified the multitude of oil and gas wells in the region as the primary cause of the ozone pollution.<sup>165</sup>

Rampant oil and gas development in Colorado and New Mexico is also leading to high levels of VOCs and NO<sub>x</sub>. In 2008, the Colorado Department of Public Health and Environment concluded that the smog-forming emissions from oil and gas operations exceeded vehicle emissions for the entire state.<sup>166</sup> Moreover, significant additional drilling has occurred since 2008. Colorado is now home to more than 46,000 wells.<sup>167</sup> There is also significant development in the San Juan Basin in southeastern Colorado and northwestern New Mexico, with approximately 35,000 wells in the Basin. As a result of this development and several coal-

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<sup>160</sup> Wyoming Nonattainment Analysis, *supra* note 159, at viii.

<sup>161</sup> EPA, Daily Ozone AQI Levels in 2011 for Sublette County, Wyoming; *see also* Wendy Koch, *Wyoming's Smog Exceeds Los Angeles' Due to Gas Drilling*, USA Today, available at <http://content.usatoday.com/communities/greenhouse/post/2011/03/wyomings-smog-exceeds-los-angeles-due-to-gas-drilling/1>.

<sup>162</sup> *See, e.g.*, 2011 DEQ Ozone Advisories, Pinedale Online! (Mar. 17, 2011), <http://www.pinedaleonline.com/news/2011/03/OzoneCalendar.htm> (documenting ten ozone advisories in February and March 2011); WY Dep’t of Env’tl. Quality, Ozone Advisory for Monday, Feb. 28, Pinedale Online! (Feb. 27, 2011), <http://www.pinedaleonline.com/news/2011/02/OzoneAdvisoryforMond.htm>.

<sup>163</sup> Scott Streater, *Air Quality Concerns May Dictate Uintah Basin's Natural Gas Drilling Future*, N.Y. TIMES, Oct. 1, 2010, available at <http://www.nytimes.com/gwire/2010/10/01/01greenwire-air-quality-concerns-may-dictate-uintah-basins-30342.html>.

<sup>164</sup> *See* EPA, AirExplorer, Query Concentrations (Ozone, Uintah County, 2011).

<sup>165</sup> BLM, GASCO Energy Inc. Uinta Basin Natural Gas Development Draft Environmental Impact Statement 3-13 (Mar. 16, 2012) available at [http://www.blm.gov/ut/st/en/fo/vernal/planning/nepa/\\_gasco\\_energy\\_eis.html](http://www.blm.gov/ut/st/en/fo/vernal/planning/nepa/_gasco_energy_eis.html) (hereinafter “GASCO DEIS”).

<sup>166</sup> Colo. Dep’t of Public Health & Env’t, Air Pollution Control Div., Oil and Gas Emission Sources, Presentation for the Air Quality Control Commission Retreat 3-4 (May 15, 2008).

<sup>167</sup> Colo. Oil & Gas Conserv. Comm’n, Colorado Weekly & Monthly Oil and Gas Statistics 12 (Nov. 7, 2011), available at <http://cogcc.state.co.us/> (library—statistics—weekly/monthly well activity).

fired power plants in the vicinity, the Basin suffers from serious ozone pollution.<sup>168</sup> This pollution is taking a toll on residents of San Juan County. The New Mexico Department of Public Health has documented increased emergency room visits associated with high ozone levels in the County.<sup>169</sup>

VOC and NO<sub>x</sub> emissions from oil and gas development also are harming air quality in national parks and wilderness areas. Researchers have determined that numerous “Class I areas” — a designation reserved for national parks, wilderness areas, and other such lands<sup>170</sup> — are likely to be impacted by increased ozone pollution as a result of oil and gas development in the Rocky Mountain region. Affected areas include Mesa Verde National Park and Weminuche Wilderness Area in Colorado and San Pedro Parks Wilderness Area, Bandelier Wilderness Area, Pecos Wilderness Area, and Wheeler Peak Wilderness Area in New Mexico.<sup>171</sup> These areas are all near concentrated oil and gas development in the San Juan Basin.<sup>172</sup>

As oil and gas development moves into new areas, particularly as a result of the boom in development of shale resources, ozone problems are likely to follow. For example, regional air quality models predict that gas development in the Haynesville shale will increase ozone pollution in northeast Texas and northwest Louisiana and may lead to violations of ozone NAAQS.<sup>173</sup>

**SO<sub>2</sub>:** Oil and gas production also emits SO<sub>2</sub>, primarily from natural gas processing plants.<sup>174</sup> SO<sub>2</sub> is released as part of the sweetening process, which removes H<sub>2</sub>S from the gas.<sup>175</sup> SO<sub>2</sub> also is created when gas containing H<sub>2</sub>S (discussed below) is combusted in boilers or heaters.<sup>176</sup>

**H<sub>2</sub>S:** Some natural gas contains H<sub>2</sub>S. Gas containing H<sub>2</sub>S above a specific threshold is classified as “sour gas.”<sup>177</sup> According to EPA, there are 14 major areas in the U.S., found in 20 different

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<sup>168</sup> See *Four Corners Air Quality Task Force Report of Mitigation Options*, at vii (Nov. 1, 2007), available at <http://www.nmenv.state.nm.us/aqb/4C/TaskForceReport.html>.

<sup>169</sup> Myers et al., *The Association Between Ambient Air Quality Ozone Levels and Medical Visits for Asthma in San Juan County* (Aug. 2007), available at <http://www.nmenv.state.nm.us/aqb/4c/Documents/SanJuanAsthmaDocBW.pdf>.

<sup>170</sup> See 42 U.S.C. § 7472(a).

<sup>171</sup> Rodriguez et al., *Regional Impacts of Oil and Gas Development on Ozone Formation in the Western United States*, 59 *Journal of the Air and Waste Management Association* 1111 (Sept. 2009), available at [http://www.wrapair.org/forums/amc/meetings/091111\\_Nox/Rodriguez\\_et\\_al\\_OandG\\_Impacts\\_JAWMA9\\_09.pdf](http://www.wrapair.org/forums/amc/meetings/091111_Nox/Rodriguez_et_al_OandG_Impacts_JAWMA9_09.pdf).

<sup>172</sup> *Id.* at 1112.

<sup>173</sup> See Kembball-Cook et al., *Ozone Impacts of Natural Gas development in the Haynesville Shale*, 44 *Environ. Sci. Technol.* 9357, 9362 (2010).

<sup>174</sup> 76 Fed. Reg. at 52,756.

<sup>175</sup> TSD, *supra* note at 138, at 3-3 to 3-5.

<sup>176</sup> 76 Fed. Reg. at 52,756.

<sup>177</sup> *Id.* at 52,756. Gas is considered “sour” if the H<sub>2</sub>S concentration is greater than 0.25 grains per 100 standard cubic feet, along with the presence of carbon dioxide. *Id.*

states, where natural gas tends to be sour.<sup>178</sup> All told, between 15 and 20 percent of the natural gas in the U.S. may contain H<sub>2</sub>S.<sup>179</sup>

Given the large amount of drilling in areas with sour gas, EPA has concluded that the potential for H<sub>2</sub>S emissions from the oil and gas industry is “significant.”<sup>180</sup> H<sub>2</sub>S may be emitted during all stages of development, including exploration, extraction, treatment and storage, transportation, and refining.<sup>181</sup> For example, H<sub>2</sub>S is emitted as a result of leaks from processing systems and from wellheads in sour gas fields.<sup>182</sup> The health problems presented by H<sub>2</sub>S have been outlined above.

Although direct monitoring of H<sub>2</sub>S around oil and gas sources is limited, there is evidence that these emissions may be substantial and have a serious impact on people’s health. For example, North Dakota reported 3,300 violations of an odor-based H<sub>2</sub>S standard around drilling wells.<sup>183</sup> People in northwest New Mexico and western Colorado living near gas wells have long complained of strong odors, including but not limited to H<sub>2</sub>S’s distinctive rotten egg smell. Residents have also experienced nose, throat and eye irritation, headaches, nose bleeds, and dizziness.<sup>184</sup> An air sample taken by a community monitor at one family’s home in western Colorado in January 2011 contained H<sub>2</sub>S concentrations 185 times higher than safe levels.<sup>185</sup>

**PM:** The oil and gas industry is a major source of PM pollution. This pollution is generated by heavy equipment used to move and level earth during well pad and road construction. Vehicles also generate fugitive dust by traveling on access roads during drilling, completion, and production activities.<sup>186</sup> Diesel engines used in drilling rigs and at compressor stations are also large sources of fine PM/diesel soot emissions. VOCs are also precursors to formation of PM<sub>2.5</sub>.<sup>187</sup>

PM emissions from the oil and gas industry are leading to significant pollution problems. For example, monitors in Uintah County and Duchesne County, Utah have repeatedly measured wintertime PM<sub>2.5</sub> concentrations above federal standards.<sup>188</sup> These elevated levels of PM<sub>2.5</sub> have been linked to oil and gas activities in the Uinta Basin.<sup>189</sup> Modeling also shows that road traffic

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<sup>178</sup> EPA Hydrogen Sulfide Report, *supra* note 42, at ii.

<sup>179</sup> Lana Skrtic, Hydrogen Sulfide, Oil and Gas, and People’s Health 6 (May 2006), *available at* [http://www.earthworksaction.org/pubs/hydrogensulfide\\_oilgas\\_health.pdf](http://www.earthworksaction.org/pubs/hydrogensulfide_oilgas_health.pdf).

<sup>180</sup> EPA Hydrogen Sulfide Report, *supra* note 42, at III-35.

<sup>181</sup> *Id.* at ii.

<sup>182</sup> TSD, *supra* note 138, at 2-3.

<sup>183</sup> EPA Hydrogen Sulfide Report, *supra* note 42, at III-35.

<sup>184</sup> See Global Community Monitor, Gassed! Citizen Investigation of Toxic Air Pollution from Natural Gas Development 11-14 (2011).

<sup>185</sup> *Id.* at 21.

<sup>186</sup> See GASCO DEIS, *supra* note 165, at Appendix J at 2.

<sup>187</sup> O&G NSPS RIA, *supra* note 22, at 4-18.

<sup>188</sup> GASCO DEIS, *supra* note 165, at 3-12.

<sup>189</sup> West Tavaputs FEIS, *supra* note 34, at 3-20.

associated with energy development is pushing PM<sub>10</sub> levels very close to violating NAAQS standards.<sup>190</sup>

Although EPA's recently finalized new source performance standards and standards for HAPs<sup>191</sup> do reduce some of these pollution problems, they will not solve them. The rules, first, do not even address some pollutants, including NO<sub>x</sub>, CH<sub>4</sub>, and H<sub>2</sub>S, so any reductions of these pollutants occur only as co-benefits of the VOC reductions that the rules require.<sup>192</sup> Second, the rules do not control emissions from most transmission infrastructure.<sup>193</sup> Third, existing sources of air pollution are not controlled for any pollutant, meaning that increased use of existing infrastructure will produce emissions uncontrolled by the rules. Fourth, without full enforcement, the rules will not reduce emissions completely. Fifth, the rules will not address important emissions effects of LNG in particular, including LNG exports' tendency to increase the use of coal power. Thus, FERC may not rely upon the EPA rules to avoid weighing and disclosing these impacts in an EIS.

**Project-Induced Air Emissions:** DCP proposes to export about 365 bcf/year of LNG (1 bcf/day). EIA predicts that about 63 percent of that LNG will come from new gas production. EPA conversion factors allow us to estimate the emissions impacts of this new production. EPA's current GHG inventory implies that about 1.2 percent of gross gas production leaks to the atmosphere in one way or another and last year's inventory assumes about 2.4 percent leakage.<sup>194</sup> More recent work by NOAA scientists, based on direct measurement at gas fields, again suggests that this leak rate may be as much as 4.8–9 percent, at least in some fields.<sup>195</sup> These leak rates, and EPA conversion factors between the typical volumes of CH<sub>4</sub>, VOCs, and HAPs in natural gas,<sup>196</sup> make it possible to calculate the potential impact of increasing gas production in the way that LNG export would require.

The table below uses these conversion factors to calculate the emissions associated with producing 365 bcf of gas, the volume that DCP wishes to export. We calculate for a 1.2 percent

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<sup>190</sup> See GASCO DEIS, *supra* note 165, at 4-27.

<sup>191</sup> See EPA, Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants, 77 Fed. Reg. 49,490 (Aug. 16, 2012), available at <http://www.gpo.gov/fdsys/pkg/FR-2012-08-16/pdf/2012-16806.pdf>.

<sup>192</sup> See *id.* at 49,513-14.

<sup>193</sup> See, e.g., *id.* at 49,523.

<sup>194</sup> Alvarez et al., *Greater focus needed on methane leakage from natural gas infrastructure*, Proceedings of the National Academy of Science 1 (Apr. 2012).

<sup>195</sup> See G. Petron et al., *Hydrocarbon emissions characterization in the Colorado Front Range – A pilot study*, Journal of Geophysical Research (2012); Jeff Tollefson, *Methane leaks erode green credentials of natural gas*, Nature (2013), available at <http://www.nature.com/news/methane-leaks-erode-green-credentials-of-natural-gas-1.12123>.

<sup>196</sup> See TSD, *supra* note 138, at Table 4.2. EPA calculated average composition factors for gas from well completions. These estimates, which are based on a range of national data, are robust but necessarily imprecise for particular fields and points along the line from wellhead to LNG terminal. Nonetheless, they provide a beginning point for quantitative work. EPA's conversions are: 0.0208 tons of CH<sub>4</sub> per million cubic feet ("mcf") of gas; 0.1459 lb. VOCs per lb. CH<sub>4</sub>; and 0.0106 lb. HAPs per lb. CH<sub>4</sub>.

leak rate, the former EPA estimated rate of 2.4 percent, and the higher leak rates the NOAA studies suggest, generating results for CH<sub>4</sub>, VOCs, and HAPs.<sup>197</sup>

<b>Export Volume of 740 bcf/year</b>	CH <sub>4</sub> (tons)	VOCs (tons)	HAPs (tons)
<i>1.2 percent Leak Rate</i>	57,395	8,374	608
<i>2.4 percent Leak Rate</i>	114,791	16,748	1,216
<i>4.8 percent Leak Rate</i>	229,582	33,496	2,433
<i>9 percent Leak Rate</i>	430,466	62,805	4,562

Thus, Cove Point, alone, would be responsible for tens of thousands of tons of increased air pollution. Cove Point thus would greatly increase air pollution in the regions from which it draws its gas, imperiling public health and the global climate.

***Landscapes and Habitat Disruption:*** Increased oil and gas production will transform the landscapes of regions overlying shale gas plays, bringing industrialization to previously rural landscapes and significantly affecting ecosystems, plants, and animals. These impacts are large and difficult to manage.

Land use disturbance associated with gas development impacts plants and animals through direct habitat loss, where land is cleared for gas uses, and indirect habitat loss, where land adjacent to direct losses loses some of its important characteristics. Regarding direct losses, land is lost through development of well pads, roads, pipeline corridors, corridors for seismic testing, and other infrastructure. The Nature Conservancy (“TNC”) estimated that in Pennsylvania, “[w]ell pads occupy 3.1 acres on average while the associated infrastructure (roads, water impoundments, pipelines) takes up an additional 5.7 acres, or a total of nearly 9 acres per well pad.”<sup>198</sup> New York State’s Department of Environmental Conservation reached similar estimates.<sup>199</sup> After initial drilling is completed the well pad is partially restored, but 1 to 3 acres of the well pad will remain disturbed through the life of the wells, estimated to be 20 to 40 years.<sup>200</sup> Associated infrastructure such as roads and corridors will likewise remain disturbed.

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<sup>197</sup> These figures were calculated by multiplying the volume of gas to be exported (in bcf) by 1,000,000 to convert to mcf, and then by 63 percent to generate new production volumes. The new production volumes of gas were, in turn, multiplied by the relevant EPA conversion factors to generate tonnages of the relevant pollutants. These results are approximations: Although we reported the arithmetic results of this calculation, only the first few significant figures of each value should be the focus.

<sup>198</sup> TNC, Pennsylvania Energy Impacts Assessment, Report 1: Marcellus Shale Natural Gas and Wind 10, 18 (2010) (hereinafter “Pennsylvania Energy Impacts Assessment”).

<sup>199</sup> N.Y. Dep’t of Env’tl. Conserv., Revised Draft Supplemental General Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program, 5-5 (2011) *available at* <http://www.dec.ny.gov/energy/75370.html> (hereinafter “NY RDSGEIS”).

<sup>200</sup> *Id.* at 6-13.

Because these disturbances involve clearing and grading of the land, directly disturbed land is no longer suitable as habitat.<sup>201</sup>

Indirect losses occur on land that is not directly disturbed, where habitat characteristics are affected by direct disturbances. “Adjacent lands also can be impacted, even if they are not directly cleared. This is most notable in forest settings where clearings fragment contiguous forest patches, create new edges, and change habitat conditions for sensitive wildlife and plant species that depend on “interior” forest conditions.”<sup>202</sup> “Research has shown measureable impacts often extend at least 330 feet (100 meters) into forest adjacent to an edge.”<sup>203</sup>

TNC’s study of the impacts of gas extraction in Pennsylvania—an area that DCP’s Project is very likely to impact—is particularly telling. TNC mapped projected wells across the state, considering how the wells and their associated infrastructure, including roads and pipelines, interacted with the landscape. TNC’s conclusions make for grim reading. The study concluded:

- About 60,000 new Marcellus wells are projected by 2030 in Pennsylvania with a range of 6,000 to 15,000 well pads, depending on the number of wells per pad;
- Wells are likely to be developed in at least 30 counties, with the greatest number concentrated in 15 southwestern, north central, and northeastern counties;
- Nearly two thirds of well pads are projected to be in forest areas, with forest clearing projected to range between 34,000 and 83,000 acres depending on the number of number of well pads that are developed. An additional range of 80,000 to 200,000 acres of forest interior habitat impacts are projected due to new forest edges created by well pads and associated infrastructure (roads, water impoundments);
- On a statewide basis, the projected forest clearing from well pad development would affect less than one percent of the state’s forests, but forest clearing and fragmentation could be much more pronounced in areas with intensive Marcellus development;
- Approximately one third of Pennsylvania’s largest forest patches (>5,000 acres) are projected to have a range of between 1 and 17 well pads in the medium scenario;
- Impacts on forest interior breeding bird habitats vary with the range and population densities of the species. The widely-distributed scarlet tanager would see relatively modest impacts to its statewide population while black-throated blue warblers, with a Pennsylvania range that largely overlaps with Marcellus development area, could see more significant population impacts;

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<sup>201</sup> *Id.* at 6-68.

<sup>202</sup> Pennsylvania Energy Impacts Assessment, *supra* note 198, at 10.

<sup>203</sup> NY RDSGEIS, *supra* note 199, at 6-75.

- Watersheds with healthy eastern brook trout populations substantially overlap with projected Marcellus development sites. The state’s watersheds ranked as “intact” by the Eastern Brook Trout Joint Venture are concentrated in north central Pennsylvania, where most of these small watersheds are projected to have between two and three dozen well pads;
- Nearly a third of the species tracked by the Pennsylvania Natural Heritage Program are found in areas projected to have a high probability of Marcellus well development, with 132 considered to be globally rare or critically endangered or imperiled in Pennsylvania. Several of these species have all or most of their known populations in Pennsylvania in high probability Marcellus gas development areas; and
- Marcellus gas development is projected to be extensive across Pennsylvania’s 4.5 million acres of public lands, including State Parks, State Forests, and State Game Lands. Just over 10 percent of these lands are legally protected from surface development.<sup>204</sup>

Increased gas production will exacerbate these problems, which is bad news for the state’s lands and wildlife, and the hunting, angling, tourism, and forestry industries that depend on them. Although TNC adds that impacts could be reduced with proper planning,<sup>205</sup> increased development makes mitigation more difficult. Indeed, the Pennsylvania Department of Conservation and Natural Resources recently concluded that no remaining acres of the state forests are suitable for leasing for surface disturbing activities without risking significant forests degradation.<sup>206</sup>

The National Parks Conservation Association (“NPCA”), building on additional research, has confirmed that these impacts are severe, and affect forested lands as well as rural areas. According to NPCA’s summary of recent literature, even without the additional drilling caused by the Project:

Many of the sites targeted for wells are relatively large unbroken tracts of Pennsylvania forest. In fact, more than 25 percent of existing or permitted pads in the Susquehanna River basin (the major tributary flowing into the Chesapeake Bay) are located within these core forest tracts. In addition, up to 145 miles of new roads may be built in this part of the basin, further fragmenting habitat and increasing edge effects. The likely outcome from the proliferation of edge habitat will be increases in the populations of less desirable edge species, including

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<sup>204</sup> Pennsylvania Energy Impacts Assessment, *supra* note 198, at 29.

<sup>205</sup> *See id.*

<sup>206</sup> Pa. Dep’t of Conservation and Natural Res., Impacts of Leasing Additional State Forest for Natural Gas Development (2011).

invasive weeds, as well as the loss of native plants and animals that thrive in intact ecosystems.<sup>207</sup>

Indeed, the National Park Service itself has warned of unconventional gas production's significant potential to degrade parklands in the Northeast, including along the Upper Delaware River and in Shenandoah National Park.<sup>208</sup> These and other fragile landscapes in the Northeast are particularly vulnerable to DCP's Project because it is the only export terminal which can draw directly upon them, and which will, doubtless, stimulate increased extraction pressure upon them if it moves forward.

These land disturbance effects will harm rural economies and decrease property values, as major gas infrastructure transforms and distorts the existing landscape. They also will harm endangered species in regions where production would increase in response to DCP's exports. Harm to these species and their habitat is inconsistent with the profound public interest in land and species conservation, as expressed in the Endangered Species Act and similar statutes.

**Risks to Ground and Surface Water:** As noted above, most of the increased production that would result from the Project will likely be from shale and other unconventional gas sources, and producing gas from these sources requires hydraulic fracturing.<sup>209</sup> Hydraulic fracturing involves injecting a base fluid (typically water),<sup>210</sup> sand or other proppant, and various fracturing chemicals into the gas-bearing formation at high pressures to fracture the rock and release additional gas. Each step of this process presents a risk to water resources. Withdrawal of the water may overtax the water source. Fracturing itself may contaminate groundwater with either chemicals added to the stimulation fluid or with naturally occurring chemicals mobilized by the fluids. After the well is fractured, some water will return to the surface, composed of both fracturing fluid and naturally occurring "formation" water. This water, together with drilling muds and drill cuttings, must be disposed of without further endangering water resources.

**Water Withdrawals:** Fracturing requires large quantities of water. The precise amount of water varies by the shale formation being fractured; for example, fracturing a Marcellus Shale well requires between 4 and 5 million gallons of water.<sup>211</sup> Fresh water constitutes 80 percent to 90

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<sup>207</sup> Nat'l Parks Conservation Assoc., National Parks and Hydraulic Fracturing (2013), available at [http://www.npca.org/assets/pdf/Fracking\\_Report.pdf](http://www.npca.org/assets/pdf/Fracking_Report.pdf).

<sup>208</sup> See Nat'l Park Service, National Program Resource Center, Potential Development of the Natural Gas Resources in the Marcellus Shale: New York, Pennsylvania, West Virginia, and Ohio Appendix 1 (2009).

<sup>209</sup> See DOE, Shale Gas Production Subcommittee First 90-Day Report, *supra* note 137, at 8.

<sup>210</sup> The majority of hydraulic fracturing operations are conducted with a water-based fracturing fluid. Fracturing also may be conducted with oil or synthetic-oil based fluid, with foam, or with gas.

<sup>211</sup> Pennsylvania Energy Impacts Assessment, *supra* note 198, at 5. *Accord* NY RDSGEIS, *supra* note 203, at 6-10 ("Between July 2008 and February 2011, average water usage for high-volume hydraulic fracturing within the Susquehanna River Basin in Pennsylvania was 4.2 million gallons per well, based on data for 553 wells."). Other estimates suggest that as much as 7.2 million gallons of fracturing fluid may be used in a 4,000-foot well bore. NRDC, *et al.*, Comment on NY RDSGEIS on the Oil, Gas and Solution Mining Regulatory Program (Jan. 11, 2012) (Attachment 2, Report of Tom Myers, at 10) (hereinafter "Comment on NY RDSGEIS"). Water needs in other geological formations vary. See DOE, Shale Gas Production Subcommittee First 90-Day Report, *supra* note 137, at 19 (estimating that, nationwide, fracturing an individual well requires between 1 and 5 million gallons of water).

percent of the total water used to fracture a well, even where operators recycle “flowback” water from previous fracturing for use in stimulating new wells.<sup>212</sup>

Water withdrawals can drastically impact aquatic ecosystems and human communities. Reductions in instream flow negatively affect aquatic species by changing flow depth and velocity, raising water temperature, changing oxygen content, and altering streambed morphology.<sup>213</sup> Even when flow reductions are not themselves problematic, the intake structures can harm aquatic organisms.<sup>214</sup> Where water is withdrawn from aquifers, rather than surface sources, withdrawal may cause permanent depletion of the source. This risk is even more prevalent with withdrawals for fracturing than it is for other withdrawals, because fracturing is a consumptive use. Fluid injected during the fracturing process is (barring accident) deposited below freshwater aquifers and into sealed formations.<sup>215</sup> Thus, the water withdrawn from the aquifer will be used in a way that provides no opportunity to percolate back down to the aquifer and recharge it.

**Groundwater Contamination:** Fracturing poses a serious risk of groundwater contamination. Contaminants include chemicals added to the fracturing fluid and naturally occurring chemicals that are mobilized from deeper formations to groundwater via the fracking process. Contamination may occur via several pathways, including where the well casing fails or where the fractures created through drilling intersect an existing, poorly sealed well. Although information on groundwater contamination is incomplete, the available research indicates that contamination has already occurred on multiple occasions.

One category of potential contaminants includes chemicals added to the drilling mud and fracturing fluid. The fluid used for slickwater fracturing is typically comprised of more than 98 percent fresh water and sand, with chemical additives comprising 2 percent or less of the fluid.<sup>216</sup> Chemicals are added as solvents, surfactants, friction reducers, gelling agents, bactericides, and for other purposes.<sup>217</sup> New York recently identified 322 unique ingredients used in fluid additives, recognizing that this constituted a partial list.<sup>218</sup> These chemicals include petroleum distillates, aromatic hydrocarbons, glycols, glycol ethers, alcohols and aldehydes, amides, amines, organic acids, salts, esters and related chemicals, microbicides, and others. Many of these chemicals present health risks.<sup>219</sup> Of particular note is the use of diesel, which the DOE Subcommittee has singled out for its harmful effects, recommending that it be banned from use as a fracturing fluid additive.<sup>220</sup> The minority staff of the House Committee on Energy and Commerce has determined that, despite diesel’s risks, between 2005 and 2009 “oil and gas

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<sup>212</sup> NY RDSGEIS, *supra* note 199, at 6-13.

<sup>213</sup> *Id.* at 6-3 to 6-4.

<sup>214</sup> *Id.* at 6-4.

<sup>215</sup> *Id.* at 6-5; First 90-Day Report, *supra* note 137, at 19 (“[I]n some regions and localities there are significant concerns about consumptive water use for shale gas development.”).

<sup>216</sup> NY RDSGEIS, *supra* note 199, at 5-40.

<sup>217</sup> *Id.* at 5-49.

<sup>218</sup> *Id.* at 5-41.

<sup>219</sup> *Id.* at 5-75 to 5-78.

<sup>220</sup> First 90-Day Report, *supra* note 135, at 25.

service companies injected 32.2 million gallons of diesel fuel or hydraulic fracturing fluids containing diesel fuel in wells in 19 states.”<sup>221</sup>

Contamination also may result from chemicals naturally occurring in the formation. Flowback and produced water “may include brine, gases (e.g. methane, ethane), trace metals, naturally occurring radioactive elements (e.g. radium, uranium) and organic compounds.”<sup>222</sup> For example, mercury naturally occurring in the formation becomes mixed in with water-based drilling muds, resulting in up to 5 pounds of mercury in the mud per well drilled in the Marcellus region.<sup>223</sup>

There are several vectors by which these chemicals can reach groundwater supplies. Perhaps the most common or significant are inadequacies in the casing of the vertical well bore.<sup>224</sup> The well bore inevitably passes through geological strata containing groundwater, and therefore provides a conduit by which chemicals injected into the well or traveling from the target formation to the surface may reach groundwater. The well casing isolates the groundwater from intermediate strata and the target formation. This casing must be strong enough to withstand the pressures of the fracturing process—the very purpose of which is to shatter rock. Multiple layers of steel casing must be used, each pressure tested before use, then centered within the well bore. Each layer of casing must be cemented, with careful testing to ensure the integrity of the cementing.<sup>225</sup>

Aside from casing failure, contamination may occur when the zone of fractured rock intersects an abandoned and poorly-sealed well or natural conduit in the rock.<sup>226</sup> One recent study concluded, on the basis of geologic modeling, that fracturing fluid may migrate from the hydraulic fracture zone to freshwater aquifers in fewer than ten years.<sup>227</sup>

Available empirical data indicates that fracturing has resulting in groundwater contamination in at least five documented instances. One study “documented the higher concentration of methane originating in shale gas deposits . . . into wells surrounding a producing shale production site in northern Pennsylvania.”<sup>228</sup> By tracking certain isotopes of methane, this study—which the DOE Subcommittee referred to as “a recent, credible, peer-reviewed study” —determined that the methane originated in the shale deposit, rather than from a shallower source.<sup>229</sup> Two other

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<sup>221</sup> Natural Resources Defense Council, Earthjustice, and Sierra Club, Comments [to EPA] on Permitting Guidance for Oil and Gas Hydraulic Fracturing Activities Using Diesel Fuels 3, (June 29, 2011) (quoting Letter from Reps. Waxman, Markey, and DeGette to EPA Administrator Lisa Jackson 1 (Jan. 31, 2001)) (hereinafter “Comment on Diesel Guidance”).

<sup>222</sup> First 90-Day Report, *supra* note 137, at 21; *see also* Comment on NY RDSGEIS, *supra* note 211, attachment 3, Report of Glen Miller, at 2.

<sup>223</sup> Comment on NY RDSGEIS, *supra* note 211, attachment 1, Report of Susan Harvey, at 92.

<sup>224</sup> First 90-Day Report, *supra* note 137, at 20.

<sup>225</sup> Comment on Diesel Guidance, *supra* note 221, at 5-9.

<sup>226</sup> Comment on NY RDSGEIS, *supra* note 211, at attachment 3, Report of Tom Myers, at 12-15.

<sup>227</sup> Tom Myers, Potential Contaminant Pathways from Hydraulically Fractured Shale to Aquifers (Apr. 17, 2012).

<sup>228</sup> First 90-Day Report, *supra* note 137, at 20 (citing Stephen G. Osborn, Avner Vengosh, Nathaniel R. Warner, and Robert B. Jackson, Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing, *Proceedings of the National Academy of Science*, 108, 8172-8176, (2011)).

<sup>229</sup> *Id.*

reports “have documented or suggested the movement of fracking fluid from the target formation to water wells linked to fracking in wells.”<sup>230</sup>

Thyne (2008)<sup>[231]</sup> had found bromide in wells 100s of feet above the fracked zone. The EPA (1987)<sup>[232]</sup> documented fracking fluid moving into a 416-foot deep water well in West Virginia; the gas well was less than 1000 feet horizontally from the water well, but the report does not indicate the gas-bearing formation.<sup>233</sup>

More recently, EPA has investigated groundwater contamination in Pavillion, Wyoming, and Dimock, Pennsylvania. In the Pavillion investigation, EPA’s draft report concluded that “when considered together with other lines of evidence, the data indicates likely impact to ground water that can be explained by hydraulic fracturing.”<sup>234</sup> EPA tested water from wells extending to various depths within the range of local groundwater. At the deeper tested wells, EPA discovered inorganics (potassium, chloride), synthetic organics (isopropanol, glycols, and tert-butyl alcohol), and organics (benzene, xylenes, ethylbenzene, toluene, and gasoline and diesel range organics) at levels higher than expected.<sup>235</sup> At shallower levels, EPA detected “high concentrations of benzene, xylenes, gasoline range organics, diesel range organics, and total purgeable hydrocarbons.”<sup>236</sup> EPA determined that surface pits previously used for storage of drilling wastes and produced/flowback waters were a likely source of contamination for the shallower waters, and that fracturing likely explained the deeper contamination.<sup>237</sup> Although this study is a draft report in an ongoing investigation, an independent expert who reviewed the EPA Pavillion study at the request of Sierra Club and other environmental groups has supported EPA’s findings.<sup>238</sup>

EPA also is investigating groundwater contamination in Dimock, Pennsylvania.<sup>239</sup> In Dimock, EPA has determined that “a number of home wells in the Dimock area contain hazardous

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<sup>230</sup> Comment on NY RDSGEIS, *supra* note 211, at attachment 3, Report of Tom Myers, at 13.

<sup>231</sup> Dr. Myers relied on Geoffrey Thyne, *Review of Phase II Hydrogeologic Study* (2008), prepared for Garfield County, Colorado, *available at* [http://cogcc.state.co.us/Library/Presentations/Glenwood\\_Spgs\\_HearingJuly\\_2009/\(1\\_A\)\\_ReviewofPhase-II-HydrogeologicStudy.pdf](http://cogcc.state.co.us/Library/Presentations/Glenwood_Spgs_HearingJuly_2009/(1_A)_ReviewofPhase-II-HydrogeologicStudy.pdf).

<sup>232</sup> EPA, Report to Congress, Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy, vol. 1 (1987), *available at* [nepis.epa.gov/Exec/ZipURL.cgi?Dockey=20012D4P.txt](http://nepis.epa.gov/Exec/ZipURL.cgi?Dockey=20012D4P.txt).

<sup>233</sup> Comment on NY RDSGEIS, *supra* note 211, at attachment 3, Report of Tom Myers, at 13.

<sup>234</sup> EPA, Draft Investigation of Ground Water Contamination near Pavillion, Wyoming xiii (2011), *available at* [http://www.epa.gov/region8/superfund/wy/pavillion/EPA\\_ReportOnPavillion\\_Dec-8-2011.pdf](http://www.epa.gov/region8/superfund/wy/pavillion/EPA_ReportOnPavillion_Dec-8-2011.pdf).

<sup>235</sup> *Id.* at xii.

<sup>236</sup> *Id.* at xi.

<sup>237</sup> *Id.* at xi, xiii.

<sup>238</sup> Tom Myers, Review of DRAFT: Investigation of Ground Water Contamination near Pavillion Wyoming (April 30, 2012), *available at* [http://docs.nrdc.org/energy/files/ene\\_12050101a.pdf](http://docs.nrdc.org/energy/files/ene_12050101a.pdf).

<sup>239</sup> EPA Region III, Action Memorandum - Request for Funding for a Removal Action at the Dimock Residential Groundwater Site (Jan. 19, 2012), *available at* [http://www.epaos.org/sites/7555/files/Dimock\\_percent20Action\\_percent20Memo\\_percent2001-19-12.PDF](http://www.epaos.org/sites/7555/files/Dimock_percent20Action_percent20Memo_percent2001-19-12.PDF) (hereinafter “EPA Action Memorandum”).

substances, some of which are not naturally found in the environment.”<sup>240</sup> Specifically, wells are contaminated with arsenic, barium, bis(2-ethylhexyl)phthalate, glycol compounds, manganese, phenol, and sodium.<sup>241</sup> Many of these chemicals are hazardous substances as defined under the Comprehensive Environmental Response, Compensation, and Liability Act section 101(14). *See* 42 U.S.C. § 9604(a); 40 C.F.R. § 302.4. EPA’s determination is based on “Pennsylvania Department of Environmental Protection (PADEP) and Cabot Oil and Gas Corporation (Cabot) sampling information, consultation with an EPA toxicologist, the Agency for Toxic Substances and Disease Registry (ATSDR) Record of Activity (AROA), issued, 12/28/11, and [a] recent EPA well survey effort.”<sup>242</sup> The PADEP information provided reason to believe that drilling activities in the area led to contamination of these water supplies. Drilling in the area began in 2008, and was conducted using the hazardous substances that have since been discovered in well water. Shortly thereafter methane contamination was detected in private well water. The drilling also caused several surface spills. After the contamination was detected, PADEP entered into a consent agreement with Cabot, which required permanent restoration or replacement of the water supply.<sup>243</sup> Cabot has installed or is installing a “gas mitigation” system for the affected wells.<sup>244</sup>

Pursuant to the consent decree, Cabot was providing replacement water to all 18 homes covered by the consent agreement until November 30, 2011, at which point Cabot halted delivery with PADEP’s consent.<sup>245</sup> EPA has intervened because “EPA does not know what, if any, hazardous substances these ‘gas mitigation’ systems, originally designed to address methane, are removing.”<sup>246</sup> EPA sampled water from 64 home wells and found hazardous substances, specifically arsenic, barium, or manganese—all of which are also naturally occurring substances—in well water at five homes at levels that could present a health concern. In all cases the residents have now or will have their own treatment systems that can reduce concentrations of those hazardous substances to acceptable levels at the tap.”<sup>247</sup>

**Waste Management:** Fracturing produces a variety of liquid and solid wastes that must be managed and disposed of. These wastes include the drilling mud used to lubricate the drilling process, the drill cuttings removed from the well bore, the “flowback” of fracturing fluid that returns to the surface in the days after well stimulation, and produced water that is produced over the life of the well (a mixture of water naturally occurring in the shale formation and lingering fracturing fluid). Because these wastes contain the same contaminants described in the preceding section, environmental hazards can arise from their management and ultimate disposal.

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<sup>240</sup> *Id.* at 1.

<sup>241</sup> *Id.* at 3-4.

<sup>242</sup> *Id.* at 1.

<sup>243</sup> *Id.* at 1-2.

<sup>244</sup> *See* ATSDR, Record of Activity/Technical Assist 2 (Dec. 28, 2011), *available at* <http://www.epa.gov/aboutepa/states/dimock-atsdr.pdf>.

<sup>245</sup> *Id.* at 2.

<sup>246</sup> EPA Action Memorandum, *supra* note 239, at 2.

<sup>247</sup> EPA, EPA Completes Drinking Water Sampling in Dimock, Pa. (July 25, 2012), *available at* <http://yosemite.epa.gov/opa/admpress.nsf/0/1A6E49D193E1007585257A46005B61AD>.

On site, drilling mud, drill cuttings, flowback, and produced water are often stored in pits. Open pits can have harmful air emissions, can leach into shallow groundwater, and can fail and result in surface discharges. Many of these harms can be minimized by the use of sealed tanks in a “closed loop” system.<sup>248</sup> Presently, only New Mexico mandates the use of closed loop waste management systems, and pits remain in use elsewhere.

Flowback and produced water ultimately must be disposed of offsite. Some of these fluids may be recycled and used in further fracturing operations, but even where a fluid recycling program is used, recycling leaves concentrated contaminants that must be disposed of. The most common methods of disposal are injection in underground wells or through water treatment facilities leading to eventual surface discharge.

Underground injection wells present risks of groundwater contamination similar to those identified above for fracturing itself. Gas production wastes are not categorized as hazardous under the Safe Drinking Water Act, 42 U.S.C. § 300f *et seq.*, and may be disposed of in Class II injection wells. Class II wells are brine wells, and the standards and safeguards in place for these wells were not designed with the contaminants found in fracturing wastes in mind.<sup>249</sup>

Additionally, underground injection of fracturing wastes appears to have induced earthquakes in several regions. For example, underground injection of fracturing waste in Ohio has been correlated with earthquakes as high as 4.0 on the Richter scale.<sup>250</sup> Underground injection may cause earthquakes by precipitating movement on existing fault lines: “Once fluid enters a preexisting fault, it can pressurize the rocks enough to move; the more stress placed on the rock formation, the more powerful the earthquake.”<sup>251</sup> Underground injection is more likely than fracturing to trigger large earthquakes “because more fluid is usually being pumped underground at a site for longer periods.”<sup>252</sup> Similar associations between earthquakes and injection have occurred in Arkansas, Texas, Oklahoma, and the United Kingdom.<sup>253</sup> In light of these effects, Ohio and Arkansas have placed moratoriums on injection in the affected areas.<sup>254</sup> The recently released abstract of a forthcoming USGS study affirms the connection between disposal wells and earthquakes.<sup>255</sup>

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<sup>248</sup> See, e.g., NY RDSGEIS, *supra* note 199, at 1-12.

<sup>249</sup> See NRDC *et al.*, Petition for Rulemaking Pursuant to Section 6974(a) of the Resource Conservation and Recovery Act Concerning the Regulation of Wastes Associated with the Exploration, Development, or Production of Crude Oil or Natural Gas or Geothermal Energy (Sept. 8, 2010).

<sup>250</sup> Columbia University, Lamont-Doherty Earth Observatory, Ohio Quakes Probably Triggered by Waste Disposal Well, Say Seismologists (Jan. 6, 2012), *available at* <http://www.ldeo.columbia.edu/news-events/seismologists-link-ohio-earthquakes-waste-disposal-wells>.

<sup>251</sup> *Id.*

<sup>252</sup> *Id.*

<sup>253</sup> *Id.*; see also Alexis Flynn, Study Ties Fracking to Quakes in England, Wall Street Journal (Nov. 3, 2011), *available at* <http://online.wsj.com/article/SB10001424052970203804204577013771109580352.html>.

<sup>254</sup> Lamont-Doherty Earth Observatory; Arkansas Oil and Gas Commission, Class II Commercial Disposal Well or Class II Disposal Well Moratorium (Aug. 2, 2011), *available at* <http://www.aogc.state.ar.us/Hearingpercent20Orders/2011/July/180A-2-2011-07.pdf>.

<sup>255</sup> Ellsworth, W. L., et al., Are Seismicity Rate Changes in the Midcontinent Natural or Manmade?, Seismological Society of America, (April 2012), *available at* [http://www2.seismosoc.org/FMPro?-db=Abstract\\_Submission\\_12&-](http://www2.seismosoc.org/FMPro?-db=Abstract_Submission_12&-)

As an alternative to underground injection, flowback and produced water also is sent to water treatment facilities, leading to eventual surface discharge. This disposal method presents a separate set of environmental hazards, because these facilities (particularly publicly owned treatment works) are not designed to handle the nontraditional pollutants found in fracturing wastes. For example:

One serious problem with the proposed discharge (dilution) of fracture treatment wastewater via a municipal or privately owned treatment plant is the observed increases in trihalomethane (THM) concentrations in drinking water reported in the public media (Frazier and Murray, 2011), due to the presence of increased bromide concentrations. Bromide is more reactive than chloride in formation of trihalomethanes, and even though bromide concentrations are generally lower than chloride concentrations, the increased reactivity of bromide generates increased amounts of bromodichloromethane and dibromochloromethane (Chowdhury, et al., 2010). Continued violations of an 80 micrograms/L THM standard may ultimately require a drinking water treatment plant to convert from a standard and cost effective chlorination disinfection treatment to a more expensive chloramines process for water treatment. Although there are many factors affecting THM production in a specific water, simple (and cheap) dilution of fracture treatment water in a stream can result in a more expensive treatment for disinfection of drinking water. This transfer of costs to the public should not be permitted.<sup>256</sup>

Similarly, municipal treatment works typically do not treat for radioactivity, even though produced water can have high levels of naturally occurring radioactive materials. In one examination of three samples of produced water, radioactivity (measured as gross alpha radiation) were found ranging from 18,000 picocuries (“pCi”)/L to 123,000 pCi/L, whereas the safe drinking water standard is 15 pCi/L.<sup>257</sup> All of the significant environmental effects of gas development induced by the Project must be evaluated in an EIS.

### **3. FERC Must Consider the Cumulative Effect of All Pending Export Proposals, and It Should Do So Using a Programmatic EIS.**

The Project is only one of many export applications pending before DOE/FE and FERC. Because the effects of these projects are cumulative, and because each approval alters the price and production effects of exports, FERC must consider the cumulative impacts of the Project together with the impacts of the other proposals pending before DOE/FE and FERC.

As is explained earlier, FERC is required to analyze the cumulative impacts of DCP’s proposal. 40 C.F.R. §§ 1502.16, 1508.7, 1508.8. Under NEPA, agencies must analyze the impacts of a

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<sup>256</sup> Comment on NY RDSGEIS, *supra* note 211, at attachment 3, Report of Glen Miller, at 13.

<sup>257</sup> *Id.* at 4.

proposed project together with other past, present, and reasonably foreseeable future projects, even when they are geographically distinct and operated by different entities. *See, e.g., NRDC v. Hodel*, 865 F.2d 288, 297-300 (D.C. Cir. 1988) (holding that an EIS for offshore oil and gas leasing activity improperly failed to consider the cumulative impacts of oil and gas development across the Pacific and Alaskan regions on migratory species). Agencies may not limit cumulative impacts analysis to “those plans for actions which are funded or for which other NEPA analysis is being prepared.”<sup>258</sup>

An EIS must be prepared “if it is reasonable to anticipate a cumulatively significant impact on the environment.” *Id.* at § 1508.27(b)(7). Thus, even if a project by itself does not have significant environmental effects, an agency is not relieved from its obligation to conduct a cumulative impact analysis. *The Mountaineers*, 445 F. Supp. at 1247 (stating that the court was “[n]ot persuaded by defendants’ argument that because the [agency] has declared its actions to be environmentally insignificant, the agency is then spared the task of fully examining their cumulative impacts”); *see also Soc. Hill Towers Owners’ Ass’n v. Rendell*, 210 F.3d 168, 180 (3rd Cir. 2000) (“Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”).

In this case, rather than analyzing the Project in isolation, FERC is required to analyze the impacts of all reasonably foreseeable LNG export proposals together. DCP may argue that it cannot be assumed: (1) that all proposed projects will be approved, or (2) that all approved projects actually will be built, but these uncertainties do not justify excluding pending proposals from cumulative impacts review. First, FERC’s obligation is to understand the impacts of proposed projects and decide whether to approve them all in light of these impacts. Analyzing the proposals’ cumulative impacts does not require FERC to assume that all proposed projects will be approved; instead, it informs FERC of potential consequences so that it can decide *whether* to approve all proposals or only a subset. A number of courts have held that agencies must consider the cumulative impacts of proposed projects together with other pending proposals. *See NRDC v. Callaway*, 524 F.2d 79, 87 (2d Cir. 1975) (holding that the cumulative impacts analysis for a proposed dredge spoil dumping project should have included another dredge spoil project that was still “subject to approval and funding by Congress”); *People ex rel. Van de Kamp v. Marsh*, 687 F. Supp. 495, 500 (N.D. Cal. 1988) (stating that, in cumulative impacts analysis, “[t]he agency must consider other proposals” and even “contemplated actions that are not yet formalized proposals”); *see also Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976) (holding, in a related context, that “when several *proposals* for . . . related actions that will have cumulative or synergistic environmental impact . . . are pending concurrently before an agency, their environmental consequences must be considered together”) (emphasis added).

Second, even though it is not certain that every export terminal FERC approves will be built, this sort of uncertainty does not automatically justify refusal to analyze pending projects’ cumulative impacts. If it did, agencies could avoid analysis of future projects in almost every case, by

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<sup>258</sup> CEQ, *Considering Cumulative Effects Under the National Environmental Policy Act*, Ch. 2, Scoping for Cumulative Effects 19 (1997) (stating that such an approach “does not meet the letter or spirit of CEQ’s regulations”) (hereinafter “CEQ Considering Cumulative Effects”).

reasoning that market factors out of their control could prevent them from being constructed. Here, every good faith export applicant believes that its proposed project is feasible. FERC therefore must analyze the cumulative impact of all proposals together.<sup>259</sup>

Finally, we note that, in three LNG export proceedings, EPA has requested that FERC consider export proposals together with other pending proposals.<sup>260</sup> FERC can best analyze those proposals' cumulative impacts by preparing a programmatic EIS.<sup>261</sup> See 40 C.F.R. § 1508.18(b)(3) (noting that “a group of concerted actions to implement a specific policy or plan” or a group of “systematic and connected agency decisions” constitutes a single federal action for purposes of NEPA review). Such a programmatic EIS would allow FERC, DOE/FE, and the public to understand these proposals' relationship and their cumulative environmental and economic impacts, thus improving the agencies' ability to make informed decisions on export applications and to identify prudent alternatives serving the public interest and minimizing environmental impacts. In acting on the many pending LNG export applications, FERC and DOE/FE are making what is functionally a programmatic decision radically to alter the U.S. natural gas market by allowing for large-scale LNG export. FERC should prepare an EIS that is adequate to inform this programmatic decision, rather than conducting piecemeal, application-by-application analysis.

### **III. FERC Must Consider Reasonable Alternatives to the Project.**

NEPA requires that federal agencies “[s]tudy, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” 42 U.S.C. § 4332(1)(E). CEQ regulations mandate that an environmental review include a discussion of the need of the proposal, of alternatives, and of the environmental impacts of the proposed actions and alternatives. 40 C.F.R. § 1508.9(b). FERC's environmental analysis of the Project therefore must contain a discussion of the no-action alternative and the environmental impacts of other reasonable alternatives to the Project, including alternatives that would avoid or mitigate the environmental impacts of the Project.

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<sup>259</sup> Even if FERC were to decline, wrongly, to analyze the cumulative impacts of all proposed projects, at a bare minimum, it still would have to analyze the cumulative impacts of DCP's project and other projects ahead of it in the agencies' approval pipeline, according to the “order of precedence” list prepared by DOE. See U.S. Dep't of Energy, Pending Long-Term Applications to Export LNG to Non-FTA Countries - Listed in Order DOE Will Commence Processing (Jan. 8, 2013), *available at*

[http://www.fossil.energy.gov/programs/gasregulation/publications/export\\_applications\\_order\\_of\\_precedence.pdf](http://www.fossil.energy.gov/programs/gasregulation/publications/export_applications_order_of_precedence.pdf).

<sup>260</sup> EPA, Scoping Comments – The Jordan Cove Energy Project LP, FERC Dkts. PF12-7 and PF12-17, at 3 (Oct. 29, 2012) (“[W]e recommend discussing the proposed project in the context of the larger energy market, including existing export capacity and export capacity under application to the Department of Energy, and clearly describe how the need for the proposed action has been determined.”); EPA, Scoping Comments – Cove Point Liquefaction Project, FERC Dkt. PF12-16-000, at 2 (Nov. 15, 2012) (“We recommend discussing the proposed project in the context of the broader energy market, including existing and proposed LNG export capacity.”); EPA, Scoping Comments – The Oregon LNG Export Project and Washington Expansion Project, FERC Dkts. PF12-18 and PF12-20, at 3 (Dec. 26, 2012) (same).

<sup>261</sup> See CEQ Considering Cumulative Effects, *supra* note 258, at 19 (“Including future actions in the study is much easier if an agency has already developed a planning document that identifies proposed future actions and has communicated those plans to other federal agencies and governmental bodies in the region.”).

## **A. The No-Action Alternative**

Consideration of the no-action alternative is particularly appropriate in this case because of the significant environmental harms that the Project may cause and because DCP has failed to demonstrate that there is a domestic need for the proposed LNG export facility. The fact that DCP's foreign customers would be unable to obtain LNG from DCP's proposed facility if the no-action alternative were adopted should not by itself rule out this alternative. The EIS instead should focus on the domestic consequences of adopting the no-action alternative, compared with the significant environmental harms that may result from the Project.

### **1. DCP's Analysis of the Project's Economic Benefits Is Insufficient.**

DCP's analysis of the purported benefits of the Project is insufficient to defeat the no-action alternative. The regional and local socioeconomic benefits that DCP claims will result from the Project are likely to be offset by the significant damage the Project would cause to the Chesapeake Bay, undermining the estimated \$1 trillion in annual economic benefits that the Bay provides the state of Maryland.<sup>262</sup> DCP's additional claim that its export facility would improve the U.S. balance of trade ignores the negative impacts that exporting natural gas would have on the U.S. economy. The EIA has concluded that exporting natural gas likely will cause domestic prices to rise.<sup>263</sup> As is discussed in a report by Synapse Energy Economics and in more detail below in Section IV.A., rising costs of natural gas could accelerate the decline of manufacturing and productivity throughout the country, which would have a negative effect on the balance of trade.<sup>264</sup>

### **2. DCP's Analysis of the Project's Environmental Benefits Is Unsound.**

DCP's contention that the Project will create environmental benefits similarly fails to provide a complete analysis of the true impacts of the Project. Although burning natural gas may by itself produce lower GHG emissions than burning oil or coal, the leakage of methane gas during the production and transportation of natural gas is likely to counteract the GHG emission gains natural gas has to offer. The rate of methane leakage by natural gas producers has been reported at 4 percent and "because methane is some 25 times more efficient than carbon dioxide at trapping heat in the atmosphere, releases of that magnitude could effectively offset the environmental edge that natural gas is said to enjoy over other fossil fuels."<sup>265</sup>

In addition, DCP offers no evidence that the LNG that will be exported from its facility would be used to reduce or replace the burning of other fossil fuels. Rather, the International Energy Agency ("IEA") predicts that the lower international natural gas prices that will result from international trade in LNG will, at least in some cases, lead importing countries to substitute

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<sup>262</sup> See MDE, Maryland's Plan to Reduce Greenhouse Gas Emissions 339 (Dec. 31, 2011).

<sup>263</sup> EIA, Effect of Increased Natural Gas Exports on Domestic Energy Markets 6 (Jan. 2012).

<sup>264</sup> See Synapse Energy Economics, Will LNG Exports Benefit the United States Economy? (Jan. 23, 2013), available at <http://www.synapse-energy.com/Downloads/SynapseReport.2013-01.SC.LNG-Exports-Benefits.13-009.pdf>.

<sup>265</sup> Jeff Tollefson, *Air Sampling Reveals High Emissions from Gas Field: Methane Leaks During Production May Offset Climate Benefits of Natural Gas*, Nature (Feb. 7, 2012).

natural gas for renewables, such as wind and solar.<sup>266</sup> DCP also fails to account for the huge GHG impacts of energy required to pump the gas to the LNG facility, liquefy it, ship it overseas, regasify it, and pipe it to market. Conservative estimates found that those operations drastically increase the lifecycle GHG emissions of burning natural gas, adding between 13.85 and 51.7 pounds of CO<sub>2</sub>e per million metric British thermal units (“MMBtu”).<sup>267</sup> These estimates may be understated because they were calculated prior to the shale gas boom, may not sufficiently account for the rate of leakage associated with unconventional gas extraction, and do not include the increased gas production that would result from LNG exports. Nevertheless, even a modest increase of 24 pounds of life-cycle GHG emissions from LNG will result in a 12 percent to 16 percent increase in total emissions from the use of natural gas as a fuel for generating electricity.<sup>268</sup> This increase substantially erodes any climate advantage LNG-fired electricity generation may have over coal-fired generation.

Even assuming that natural gas exports would produce reductions of GHG emissions abroad, those gains easily could be offset by a resurgence of coal as the dominant fuel in U.S. electricity generation. The EIA estimates that increasing the domestic price of natural gas will favor continued and increased use of coal power.<sup>269</sup> Specifically, EIA predicts that 72 percent of the decrease in gas-fired electricity production from LNG export-induced higher prices will be replaced by coal-fired production, with increased liquid fuel consumption, increased renewable generation, and decreases in total consumption making up the remainder (8, 9, and 11 percent, respectively).<sup>270</sup> This shift to coal will produce additional emissions of GHGs and traditional air pollutants, such as NO<sub>x</sub> and SO<sub>2</sub>.<sup>271</sup> The EIS should analyze the real environmental costs and benefits of LNG exports, including a lifecycle analysis of energy requirements and GHG emissions of LNG, natural gas, and coal in electricity generation.

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<sup>266</sup> IEA, *Golden Rules for a Golden Age of Gas*, Ch. 2 p. 91 (2012), *available at*

[http://www.iea.org/publications/freepublications/publication/WEO2012\\_GoldenRulesReport.pdf](http://www.iea.org/publications/freepublications/publication/WEO2012_GoldenRulesReport.pdf).

<sup>267</sup> Paulina Jaramillo et al., *Comparative Life-Cycle Air Emissions of Coal, Domestic Natural Gas, LNG, and SNG for Electricity Generation*, 41 *Environ. Sci. Technol.* 6,290 (2007), *available at*

[http://www.ce.cmu.edu/~gdrg/readings/2007/09/13/Jaramillo\\_ComparativeLCACoalNG.pdf](http://www.ce.cmu.edu/~gdrg/readings/2007/09/13/Jaramillo_ComparativeLCACoalNG.pdf). The cited estimate for the GHG emissions of liquefaction, transport, and regasification were derived by adding figures for these phases, recorded in Figure 6S, on page 9 of the supporting information for this article, which is available at

[http://pubs.acs.org/doi/suppl/10.1021/es063031o/suppl\\_file/es063031osi20070516\\_042542.pdf](http://pubs.acs.org/doi/suppl/10.1021/es063031o/suppl_file/es063031osi20070516_042542.pdf) (hereinafter “Jaramillo Supporting Information”). An earlier, related report with some additional information is Paulina

Jaramillo, W. Michael Griffin, H. Scott Matthews, *Comparative Life Cycle Carbon Emissions of LNG Versus Coal and Gas for Electricity Generation* (2005), *available at*

[http://www.ce.cmu.edu/~gdrg/readings/2005/10/12/Jaramillo\\_LifeCycleCarbonEmissionsFromLNG.pdf](http://www.ce.cmu.edu/~gdrg/readings/2005/10/12/Jaramillo_LifeCycleCarbonEmissionsFromLNG.pdf).

<sup>268</sup> Jaramillo Supporting Information, *supra* note 267 at 8.

<sup>269</sup> See EIA, *Annual Energy Outlook 2013*, *available at* [http://www.eia.gov/forecasts/aeo/IF\\_all.cfm#coal\\_gas](http://www.eia.gov/forecasts/aeo/IF_all.cfm#coal_gas). The IEA also predicts that the gas boom will result in a 10 percent reduction in renewables in the United States. IEA, *supra* note 266, at 80.

<sup>270</sup> EIA Export Study, *supra* note 114, at 18.

<sup>271</sup> See EPA, *Air Emissions*, <http://www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html> (last visited Apr. 26, 2013).

### **3. DCP's Dismissal of Energy Conservation and Energy Alternatives Is Unsupported.**

DCP's discussions of the use of energy conservation and energy alternatives also are insufficient to rule out the no-action alternative. DCP's conclusory statements about the inability of energy conservation methods to offset future foreseeable demand are not relevant to the question of whether this particular LNG export facility should be permitted to move forward. The analysis should be focused on whether energy conservation measures could offset the need for this particular project. Moreover, DCP's cursory discussion of alternatives does not rise to the level of a "hard-look" analysis that would carefully consider whether a mix of energy conservation and alternative energy sources could eliminate the need for this facility and produce fewer environmental harms.

The EIS therefore must provide a more substantial analysis of the no-action alternative that considers the true costs of allowing exports of LNG from this facility. Pursuing the Project risks causing significant direct, indirect, and cumulative environmental harms in the Chesapeake Bay area, mid-Atlantic states, and throughout the shale gas regions of the Northeast. The no-action alternative would avoid all of these impacts with potentially little sacrifice, given the dubious need for the Project.

#### **B. Relocation of the Project**

As is discussed above, the Chesapeake Bay area is a particularly sensitive ecological region that is of paramount importance to the State of Maryland. The EIS should give careful consideration to relocating the liquefaction facility to an area with a less fragile ecosystem. Careful attention also should be paid to the wisdom of building additional infrastructure at a location that is extremely vulnerable to the impacts of future climate change.

In addition, the EIS should analyze alternative locations and configurations for Offsite Areas A and B. Offsite Area A will require clear-cutting of 95 acres of forest located within close proximity to important and rare ecological areas, such as a rare Canadian hemlock preserve. Clear-cutting this much forest may cause a range of environmental impacts, including increased run-off into streams and habitat fragmentation. Offsite Area B is similarly located in a sensitive ecological area on the shores of the Patuxent River. The EIS should evaluate potential alternative sites, as well as potential alternative construction plans, that would require the clearing of less forest and would allow use of smaller parcels of less sensitive land for off-site staging areas.

#### **C. Use of Other LNG Export Facilities**

The EIS should more closely evaluate the use of existing or proposed LNG export terminals as an alternative to DCP's facility. Throughout its Application, DCP claims that it does not know where its customers will source the natural gas that will be sent to its liquefaction facility and that its "customers may source their supply from anywhere in the gas market." *See, e.g.*, Resource Report 1 at 1-7. When discussing alternatives, however, DCP admits to "a number of the presumed supply sources," the locations of which favor the construction of the DCP's LNG facility. Resource Report 10 at 10-5. DCP cannot have it both ways. If the natural gas supply sources are known to DCP, then there is no reason why an evaluation of their environmental

impacts should not be included in the EIS. If it is reasonable to anticipate that the natural gas might come from anywhere in the gas market, then alternative locations such as the Sabine Pass facility in Louisiana might be less environmentally damaging alternatives. The EIS should include an assessment of the likely sources of natural gas that will be sent to DCP's LNG facility and analyze whether using other LNG export sites would be better alternatives.

FERC also should examine where the LNG product is being shipped, when determining the suitability of alternative LNG export facilities. Shipping LNG long distances has a wide variety of environmental consequences that might be offset by using a facility that is closer to the final export destination. Thus, for example, even though the gas might have to travel a longer distance via pipeline from the Marcellus Shale fields to LNG export facilities on the Gulf of Mexico, if the LNG is ultimately being shipped to Japan or India, using DCP's LNG facility may not be the best alternative. The EIS should compare the environmental impacts of these scenarios as part of the analysis of reasonable alternatives.

#### **IV. The Project Is Not in the Public Interest; Nor Is It or Will It Be Required By the Present or Future Public Convenience and Necessity.**

The NGA, and subsequent DOE delegation orders and regulations, charge FERC with determining whether or not the construction and operation of a particular gas export facility is in the public interest. *See, e.g.*, 15 U.S.C. § 717b(a). Likewise, FERC must decide whether the Section 7 facilities DCP wishes to build are required by public convenience and necessity. *See* 15 U.S.C. § 717f(c). In assessing whether the Project will be in the public convenience and necessity, FERC balances the stated public benefits from the Project against its adverse impacts. *See Certificate Policy*, 88 FERC ¶ 61,227, 61,748 (1999). “Vague assertions of public benefits will not be sufficient,” and the stated interests must outweigh the adverse effects caused by the Project for FERC to grant a Certificate. *See id.* at 61,748, 61,750; *see also Millennium Pipeline Co.*, 141 FERC ¶ 61,198, 2012 WL 60607320, at \*4 (2012). “The more interests adversely affected or the more adverse impact a project would have on a particular economic interest, the greater the showing of public benefits from the project required to balance the adverse impact.” *Id.* at \*5.

FERC must make these determinations based on the record before it. This means that, regardless of any applicable presumptions, FERC has a duty to make its *own* determination. *See Panhandle Producers and Royalty Owners Ass'n v. Econ. Regulatory Admin.*, 822 F.2d 1105, 1110-11 (D.C. Cir. 1987). Simply put, “the agency must examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made.” *Motor Vehicle Mfrs. Ass'n of the U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). The record here does not support the finding that the Project either is in the public interest or is required by the public convenience and necessity.

We already have demonstrated that DCP's Project will have significant negative environmental impacts—sufficient to warrant a full EIS. Those impacts alone demonstrate that the Project does not meet NGA standards. In addition, DCP's claimed economic benefits from the Project are either overstated or illusory. The Project actually has the potential to cause significant economic harms. Along with other proposed terminals, the Project will add billions of dollars in costs to consumers. The economic benefits, if any, associated with expanded gas production actually

may do long-term damage to the U.S. economy by plunging large regions of the country into a boom-and-bust extractive cycle. Further, LNG exports will exacerbate dependence on fossil fuels, worsening the dire climate crisis. FERC cannot rationally approve the Application on the record before it.

### **A. The Project Would Cause Significant Harm to the U.S. Economy**

DCP's Application does not dispute the broadly accepted proposition that natural gas exports will increase domestic gas prices. It does, however, refer to and summarize a faulty and inadequate price impacts analysis commissioned for its application to DOE/FE for export authorization. That study significantly underestimates the extent to which the LNG exports from the Project would increase domestic prices. In reality, the Project not only will cause significant increases in natural gas prices but also will have significant negative impacts on the U.S. economy.

#### **1. DCP's Analysis of the Economic Impacts of Increased Domestic Natural Gas Prices Is Flawed.**

DCP's analysis of the economic impacts of increasing natural gas prices is flawed for three reasons. First, DCP fails to acknowledge that its proposal, on its own, would significantly increase natural gas prices. Second, DCP asserts that FERC can evaluate price impacts by looking only at the Project or the Project and two similar facilities, and fails to acknowledge that FERC must consider the cumulative price effects of all pending export proposals. Third, the price forecasts DCP commissioned for its 2011 DOE export application—which it references in its FERC application—are outdated.

##### **a. The Project, On Its Own, Would Significantly Increase Gas Prices.**

DCP is incorrect in asserting that “no significant change” in price would result from its proposed exports.<sup>272</sup> In fact, even the flawed Navigant Consulting price report attached to DCP's own export application to DOE/FE shows that natural gas prices increase 6 percent, from \$4.98 to \$5.27 per MMBtu, when DCP's Cove Point exports are added to a “reference” model.<sup>273</sup> That increase likely would be greater in reality because Navigant's “reference” model includes two LNG export facilities, Sabine Pass and Kitimat, that are being reviewed by regulators.<sup>274</sup> As is explained in the Sierra Club's comments to DOE on DCP's export application, a comparison of the Navigant Cove Point case to an appropriate, no-exports baseline (the EIA's Annual Energy

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<sup>272</sup> Dominion Cove Point LNG, LP, *Application for Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Countries*, DOE/FE Dkt. No. 11-128-LNG, Appendix 5A at 14 (Oct. 3, 2011) (hereinafter “Sage Report”).

<sup>273</sup> The Navigant report uses four cases, ranging from a “reference” case that already includes some exports, to a Cove Point export case that also includes these exports, and in which the facility begins export in 2016, to an aggregate export case that assumes 7.1 bcf/d in additional cumulative exports, to an extreme demand case that assumes 7.1 bcf/d in exports plus gas demand increasing significantly in both the transportation and electric sectors. Dominion Cove Point LNG, LP, *Application for Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Countries*, DOE/FE Dkt. No. 11-128-LNG, Appendix B (Oct. 3, 2011).

<sup>274</sup> *Id.* at 4.

Outlook 2012) shows price increases just under 10 percent in 2020.<sup>275</sup> Price increases at this level have the potential to adversely impact employment in manufacturing and energy-intensive industries, as the macroeconomic export study prepared by NERA Economic Consulting for DOE/FE indicates.<sup>276</sup>

**b. FERC Must Analyze the Cumulative Price Impacts of All Pending Export Proposals, Which Are Significant.**

Contrary to DCP's assertions, FERC must consider the cumulative effects of all pending proposals, rather than looking solely at the impact attributable to DCP's proposed exports or to the impacts of only a few export projects. The public will not experience each proposed terminal as an individual project; instead, it will experience the proposed projects cumulatively, through the gas and electricity prices that they will raise and the environmental damage that they will cause.

Here, DCP's Navigant report does not consider cases in which exports exceed 7.1 bcf/day, and thus fails to account accurately for the cumulative price impacts imposed by all pending export proposals in the aggregate. Considering export proposals cumulatively dramatically increases their price effects because prices increase non-linearly with exports. That is, an increase from 4 to 6 bcf/day in exports impacts domestic prices more than going from 0 to 2 bcf/day.<sup>277</sup>

As explained above, FERC is legally required to consider the cumulative impacts, including price impacts, of all pending export proposals together.<sup>278</sup> Currently, proposals for 29.93 bcf/day

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<sup>275</sup> Sierra Club's Mot. Intervene, Protest, & Cmts., DOE/FE Dkt. No. 11-128-LNG (Feb. 6, 2012), at 17-18, available at

[http://www.fossil.energy.gov/programs/gasregulation/authorizations/2011\\_applications/Dominion\\_Cove\\_Point\\_LNG\\_LP\\_11-128-LNG.html](http://www.fossil.energy.gov/programs/gasregulation/authorizations/2011_applications/Dominion_Cove_Point_LNG_LP_11-128-LNG.html).

<sup>276</sup> NERA Economic Consulting, *Macroeconomic Impacts of LNG Export from the United States* (Dec. 3, 2012), available at [http://fossil.energy.gov/programs/gasregulation/reports/nera\\_lng\\_report.pdf](http://fossil.energy.gov/programs/gasregulation/reports/nera_lng_report.pdf) 60-62, Figs. 38 & 39 (showing losses in sectoral output and wage income for these sectors under even the low-export scenarios, which, as shown in Figure 165 of the NERA study, cause price increases around 10-15 percent around 2020) (hereinafter "NERA Study").

<sup>277</sup> Robert Brooks, *Using GPCM to Model LNG Exports from the US Gulf Coast* 5 (2012), available at [http://www.rbac.com/press/LNG\\_percent20Exports\\_percent20from\\_percent20the\\_percent20US.pdf](http://www.rbac.com/press/LNG_percent20Exports_percent20from_percent20the_percent20US.pdf). One reason for this is that domestic gas consumers differ in their ability to reduce gas consumption. *Id.* at 7. As export volumes increase, increasing numbers of inflexible domestic consumers are forced to compete with exports, further driving up prices. When export volumes are lower, by contrast, even small price increases will lead price-sensitive domestic consumers to reduce their consumption, freeing gas supplies for exports and limiting price impacts. *Id.* at 5, 7.

<sup>278</sup> FERC should not decide to exclude some pending proposals from the requisite cumulative impacts analysis based on previous studies' flawed assumption that only a portion of proposed exports are likely to occur. For example, NERA erroneously assumed that only the optimal number of export terminals will be built, and incorporated the capital costs of these terminals into its predictions of the per-MMbtu price of providing liquefaction services. NERA Study, *supra* note 276, at 57, 85. Thus, NERA ignored the possibility that excess domestic liquefaction capacity will be built. NERA also ignored the alternative possibility that long-term contracts at export terminals will lock in exports, regardless of subsequent domestic price increases. Under the "take or pay" liquefaction services arrangements that many LNG export terminals, including DCP's, Application at 3, will likely adopt, would-be exporters will be required to pay a fee to reserve terminal capacity, regardless of whether that capacity is actually used to liquefy and export gas. *See Sabine Pass* DOE Order No. 2961, at 4 (May 20, 2011); Cheniere Energy April

of exports are pending before DOE/FE or have already been approved.<sup>279</sup> For perspective, 29.93 bcf/d is over 35 percent of domestic gas production.<sup>280</sup> The study DCP submits considers only a fraction of these proposals. The EIA Export Study used by DOE in the first phase of its review of the economic consequences of exporting LNG also considers less than half of the total volume of proposed export, considering scenarios in which 6 or 12 bcf/day of gas are exported, with exports phased in either slowly or quickly.<sup>281</sup> Similarly, although the recent NERA report commissioned by DOE considered higher volumes of exports in certain limited scenarios,<sup>282</sup> that report did not consider the effect of the full volume of proposed exports, and as is explained below, NERA's unwarranted assumptions about the cost of liquefying and transporting natural gas led it to understate the possibility of exports in low production scenarios. Adjusting these reports to account for the full volume of export proposals will significantly increase the predicted price impact.

In short, to determine whether the Project is consistent with the public interest, FERC must consider not only the price effect of the Project, but the effect of the Project in conjunction with all LNG export proposals so far approved and all reasonably foreseeable future proposals. Moreover, this analysis must examine the possibility that all proposals that receive approval will export to the fully authorized extent. Obviously, the most efficient way to consider this question is through programmatic study, including a programmatic EIS, as we recommend above. Before FERC approves any of the pending flood of export proposals, the Commission must develop a clear picture of what the ultimate price impacts may be and provide a justification as to why, given both the economic and environmental harms (described below) associated with price impacts, approval is nonetheless in the public interest.

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2011 Marketing Materials, *available at* <http://tinyurl.com/cqpp2h8>, 14 (last visited Jan. 13, 2013). This arrangement may cause exporters to continue to export U.S. gas even if prices increase, because the required liquefaction services charges will discourage them from switching to alternative energy sources. Similarly, NERA potentially overstates the transportation cost associated with export of U.S. gas by assuming that all U.S. gas will be exported from the Gulf Coast. Applications Received by DOE/FE to Export Domestically Produced LNG from the Lower-48 States (as of Apr. 2, 2013), *available at* [http://fossil.energy.gov/programs/gasregulation/reports/summary\\_lng\\_applications.pdf](http://fossil.energy.gov/programs/gasregulation/reports/summary_lng_applications.pdf). Exports from the Gulf Coast to Asia have high transportation costs, raising prices paid by the importer and thus disincentivizing exports. Several export terminals are proposed for the West Coast, however, and these terminals will have lower transportation costs to Asia. Accordingly, completion of these terminals may lead to higher volumes of exports than NERA predicts.

<sup>279</sup> Applications Received by DOE/FE to Export Domestically Produced LNG from the Lower-48 States (as of Apr. 2, 2013), *available at*

[http://fossil.energy.gov/programs/gasregulation/reports/summary\\_lng\\_applications.pdf](http://fossil.energy.gov/programs/gasregulation/reports/summary_lng_applications.pdf).

<sup>280</sup> Specifically, it is over 35 percent of domestic production for the highest month in the past year, November 2012, when monthly production was 83.19 bcf/day. EIA, Monthly Natural Gas Gross Production Report (Mar. 29, 2013), *available at* [http://www.eia.gov/oil\\_gas/natural\\_gas/data\\_publications/eia914/eia914.html](http://www.eia.gov/oil_gas/natural_gas/data_publications/eia914/eia914.html). Over the entire year, annual production is lower, and this percentage is greater.

<sup>281</sup> EIA Export Study, *supra* note 114, at 1.

<sup>282</sup> NERA Study, *supra* note 276, at 40. Aside from considering different volumes of exports, NERA's predictions of price impacts are designed to track EIA's. *Id.* at 200.

**c. FERC Must Base Its Assessment of Price Impacts on the Most Updated Data**

The third problem with DCP's assessment of price impacts is that the studies DCP submits, such as the NERA study, are based on outdated projections of domestic supply and demand. EIA has recently drastically reduced its estimates of total gas supplies, and it also has revised its projections for gas production. The Navigant reports DCP submitted to DOE/FE also rely on 2011 projections of natural gas supply, including the 2011 EIA Annual Energy Outlook ("AEO"), which assumed total technically recoverable domestic shale gas reserves of 827 trillion cubic feet ("tcf").<sup>283</sup> The more recent 2012 AEO cuts the estimates of shale gas reserves by over 40 percent, to 482 tcf.<sup>284</sup> Both AEO 2012 and 2013 also revised their production forecasts, which are highly important to calculating total available supply. Since gas price projections are highly sensitive to changes in supply forecasts, FERC should not rely on the outdated analysis available from DCP and DOE's NERA study and instead should base its review of the environmental consequences of the Project on the most recent data regarding natural gas supply.

**2. DCP Overstates the Project's Economic Benefit and Ignores Evidence That the Project Would Harm U.S. Workers and the U.S. Economy.**

Domestic gas price increases that would result from DCP's proposed LNG exports would have far-reaching effects on the U.S. economy, raising gas prices for consumers, decreasing employment in manufacturing and other sectors, and transferring wealth from working Americans to wealthy corporations. Although exports would create some jobs, both locally and in the gasfields that would supply natural gas for jobs in gas production, DCP overstates this effect and fails to offset it against job losses in other industries. Properly accounting for these offsetting effects reveals that exports merely would transfer wealth from wage earners to gas company shareholders, a regressive redistribution of wealth contrary to the public interest.

DCP contends that the Project would result in "the creation of thousands of new jobs, providing a huge economic stimulus locally, statewide, and nationally." Application at 40. The Sage Policy Group report that DCP submitted to support that assertion in no way demonstrates, however, that the Project would *create* any jobs. Instead, the Sage Report reveals the number of jobs associated with, or "supported" by, the Project. Sage Report at 5-16. In fact, the Sage report cannot show how many jobs DCP's Project would create, because it rests on a flawed "input-output" method of assessing economic impacts. Input-output models, such as the IMPLAN model that Sage employed, use accounting tables to generate a rough guess as to how a given expenditure will flow through the economy, but they do not allow the user to compare the

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<sup>283</sup> Dominion Cove Point Application for Long-Term Authorization to Export LNG to Non-Free-Trade Agreement Countries, DOE/FE Dkt. No. 11-128, Appendix A, Navigant Supply Report, at 2; Appendix B, Navigant Price Report.

<sup>284</sup> EIA, Annual Energy Outlook 2012, 9, 13 (June 2012) (discussing this change).

impact of a project against a baseline or “no project” scenario, and thus cannot predict whether jobs are actually attributable to or caused by the Project.<sup>285</sup>

This type of modeling also suffers from numerous well-documented limits that lead it to drastically overstate economic benefits. The more sophisticated modeling recently completed by NERA in its macroeconomic study of exports addresses some of these limits and concludes that exports will harm wage-earners almost as much as it will benefit gas company shareholders. Even the NERA study, however, is based on input-output modeling (IMPLAN) and fails to overcome some of the limitations inherent in this technique.<sup>286</sup> Because of these limits, the Sage Report, like the NERA study, fails to acknowledge many of the drawbacks of exports.

The Sage Report has five additional significant flaws that result in its unsupported conclusion that the Project will create jobs and benefit the U.S. economy. First, as a major Project benefit, the Sage Report attributes jobs to DCP that would be *supported* by the Project, without analyzing whether those or comparable jobs would have been available without the Project.<sup>287</sup> The Sage Report merely maps the consequences of particular expenditures, rather than asking how the economy might grow, if investors and regulators were to make different choices. As a study by two researchers at Ohio State University explains, studies like DCP’s “do not include various displacement effects and do not reflect the true counterfactual of comparing what would have happened *without*” the activity in question.<sup>288</sup> These omitted counterfactual conditions include:

Higher local wages and land costs, *which reduce employment that would have occurred elsewhere in the economy*. Likewise, the environmental effects may reduce activity in the tourism sector and other residents may not want to live near such degrading activity.<sup>289</sup>

When counterfactuals are considered, claims of job creation falter. For example, NERA concluded that exports, by raising gas prices, would eliminate jobs in manufacturing and other

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<sup>285</sup> To use an input-output model, the user inputs a description of expenditures in a given set of economic sectors, and the model responds by tracing this spending through the economy. Specifically, the model uses accounting tables to track how the initial expenditure will flow through various industrial sectors and then uses local multipliers to estimate how this allocation will alter employment decisions.

<sup>286</sup> These limitations are discussed in depth in Amanda Weinstein and Mark D. Partridge, *The Economic Value of Shale Natural Gas in Ohio*, Ohio State University, Swank Program in Rural-Urban Policy Summary and Report (Dec. 2010) (“Ohio Study”). Further limitations are discussed by David Kay, *The Economic Impacts of Marcellus Shale Gas Drilling: What Have We Learned? What are the Limitations?* (Apr. 2011).

<sup>287</sup> The Sage report considers only Calvert County and Maryland jobs supported by the proposed project and does not detail jobs supported elsewhere in the economy, including in the gas-producing states whose production would increase in response to new demand from DCP’s Project. DCP does, however, plainly believe that its project will lead to an increase in gasfield jobs, as shown by its application to FERC and by the materials it submitted to DOE in its application for export authorization. Application at 40; *see also* Dominion DOE Application, DOE/FE Dkt. No. 11-128, 35-40, Appendix C. Again, if DCP plans to claim the benefits of increased drilling in the gas fields, it must also submit to examination of the many severe environmental harms this drilling will cause.

<sup>288</sup> Ohio Study, *supra* note 286, at 11 (emphasis in original).

<sup>289</sup> *Id.*

industries in numbers that offset jobs created by induced gas production.<sup>290</sup> On this basis, NERA concluded that exports will not raise U.S. employment. But even NERA’s counterfactual considers only part of the picture. Induced production resulting from export will impact other industries in ways unrelated to gas prices.<sup>291</sup> Gas production harms tourism, for example, by clogging roads, impacting infrastructure, and diminishing the scenic value of rural areas. Threats to tourism are of particular concern in many parts of the Marcellus region, including New York’s Southern Tier, where tourism is a major source of income and employment. In the Southern Tier, according to one recent study, the tourism industry directly accounts for \$66 million in direct labor income, and 4.7 percent of all jobs, and supports 6.7 percent of the region’s employment.<sup>292</sup> It appears that NERA did not consider this sort of effect in its counterfactual scenario. Adding lost tourism jobs into the counterfactual further demonstrates that exports will not provide an engine for net job creation.

A second defect of input-output studies, which afflicts both the Sage Report and NERA Study, is that they do not reflect the quality or continuity of jobs, instead providing only a series of static snapshots.<sup>293</sup> This failing is particularly relevant in the oil and gas context, because the manufacturing and other jobs LNG exports will eliminate are typically high-quality, stable jobs,<sup>294</sup> whereas the gas production jobs created by induced gas production typically do not provide sustainable, well-paying local employment. This result obtains in part because the industry’s employment patterns are uneven. For example, in Pennsylvania, “*the drilling phase accounted for over 98 percent of the natural gas industry workforce engaged at the drilling site,*” and data from Wyoming also showed employment figures dropping off after this stage.<sup>295</sup> The remaining, small, percentage of production-phase and office jobs are far more predictable, but they must be filled with reasonably experienced workers. Although job training at the local level can help residents compete, the initial employment burst usually reflects out-of-region workers moving in and out of job sites; indeed, “[t]he gas industry consistently battles one of the highest employee turnover problems of any industrial sector.”<sup>296</sup> As such, even if, as NERA suggests, exports will not drastically change the number of people with jobs in any given year, exports will nonetheless lead to a decline in the overall quality and stability of American jobs.

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<sup>290</sup> NERA Study, *supra* note 276, at 2. Unlike DCP’s Sage Report, the NERA Study (despite being input-output based) attempts to consider a counterfactual scenario in which exports do not occur and other industries benefit from lower gas prices.

<sup>291</sup> See, e.g., C.J. Randall, *Hammer Down: A Guide to Protecting Local Roads Impacted by Shale Gas Drilling* (Dec. 2010); Susan Riha & Brian G. Rahm, *Framework for Assessing Water Resource Impacts from Shale Gas Drilling* (Dec. 2010).

<sup>292</sup> Andrew Rumbach, *Natural Gas Drilling in the Marcellus Shale: Potential Impacts on the Tourism Economy of the Southern Tier* (2011).

<sup>293</sup> The studies measure “job-years,” but not jobs held year to year. As the Ohio Study explains, “impact studies do not produce continuous employment numbers. If an impact study says there are 200,000 jobs, this does not mean 200,000 workers are continuously employed on a permanent basis. . . . [W]hile the public is likely more interested in continuous ongoing employment effects, impact studies are producing total numbers of supported jobs that occur in a more piecemeal fashion.” Ohio Study, *supra* note 286.

<sup>294</sup> NERA Study, *supra* note 276, at 62.

<sup>295</sup> See Jeffrey Jacquet, *Workforce Development Challenges in the Natural Gas Industry 4* (Feb. 2011) (emphasis in original).

<sup>296</sup> *Id.* at 13.

A third flaw common to the Sage Report and all input-output-based studies is that they may not reflect actual spending patterns, as the Ohio study explains.<sup>297</sup> For example, landowners given gas production leases may choose to save their money, rather than to spend it.<sup>298</sup> Input-output models—which assume that all dollars exchanged continue to flow through the economy—fail to account for such behavior.

Fourth, the Sage Report ignores the distributional inequity that is created by exports. As is noted above, exports will cause many wage-earners to lose their jobs or suffer decreased wage income as a result of increases in gas prices. Even employees whose jobs are not directly affected will suffer decreased “real wage growth” as gas prices and household gas expenditures increase relative to nominal wages.<sup>299</sup> All consumers of natural gas—residential, commercial, industrial, and electricity generating users—will suffer higher gas bills even if they reduce their gas consumption.<sup>300</sup> The NERA DOE study concludes that losses to “[h]ouseholds with income solely from wages or transfers” will be slightly smaller than gains experienced by owners of gas resources and shareholders in gas companies,<sup>301</sup> but its conclusion that aggregate “welfare” is therefore marginally improved ignores the fact that ownership of gas company shares is not distributed evenly and that shares may be foreign-owned.<sup>302</sup> An extensive body of economic and philosophical literature demonstrates that the marginal utility of money declines with income—an extra \$100 matters less the more money a person has.<sup>303</sup> Accordingly, the Obama Administration has repeatedly emphasized the need to avoid regressive policies that transfer wealth from the middle classes to the wealthy.<sup>304</sup>

Finally, both the Sage Report and the NERA Study fail to account for the disruption of communities that will be caused by exports and induced gas production. For example, the boom-bust cycle inherent in gas extraction can leave some regions worse off, if they are unable to convert the temporary boom into permanent growth. According to research done by Cornell University’s Department of City and Regional Planning on the economic impacts of the gas boom on Pennsylvania and New York:

The extraction of non-renewable natural resources such as natural gas is characterized by a “boom-bust” cycle in which a rapid increase in economic activity is followed by a rapid decrease. The rapid increase occurs when drilling crews and other gas-related businesses move into a region to extract the resource.

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<sup>297</sup> Ohio Study, *supra* note 286, at 14-15.

<sup>298</sup> *Id.*

<sup>299</sup> NERA Study, *supra* note 276, at 9.

<sup>300</sup> EIA Export Study, *supra* note 114, at 11, 15. These increases are very large in absolute terms. At a minimum, in the EIA’s low/slow scenario, gas and electricity bills increase by \$9 billion per year, and this increase grows to \$20 billion per year in other scenarios. *Id.* at 14.

<sup>301</sup> NERA Study, *supra* note 276, at 9, 2.

<sup>302</sup> *Id.* at 55 n.22.

<sup>303</sup> See, e.g., Matthew D. Adler, *Risk Equity: A New Proposal*, 32 Harv. Envtl. L. Rev. 1 (2008).

<sup>304</sup> See, e.g., State of the Union Address (Jan. 24, 2012), available at <http://www.whitehouse.gov/the-press-office/2012/01/24/remarks-president-state-union-address>.

During this period, the local population grows and jobs in construction, retail and services increase, though because the natural gas extraction industry is capital rather than labor intensive, drilling activity itself will produce relatively few jobs for locals. Costs to communities also rise significantly, for everything from road maintenance and public safety to schools. When drilling ceases because the commercially recoverable resource is depleted, there is an economic “bust” — population and jobs depart the region, and fewer people are left to support the boomtown infrastructure.<sup>305</sup>

This boom-bust cycle is exacerbated by the purportedly vast resources of the recently discovered shale gas play, because regional impacts will persist long after local benefits have dissipated and may be destructive, if communities are not able to plan for, and capture, the benefits of industrialization:

[T]he experience of many economies based on extractive industries warns us that short-term gains frequently fail to translate into lasting, community-wide economic development. *Most alarmingly, a growing body of credible research evidence in recent decades shows that resource dependent communities can and often do end up worse than they would have been without exploiting their extractive reserves.* When the economic waters recede, the flotsam left behind can look more like the aftermath of a flood than of a rising tide.<sup>306</sup>

These broader, more complex effects on communities are not captured by input-output models, such as those used by DCP’s consultants and NERA. Input-output models struggle, particularly, to map distributional effects, where some prosper while others suffer, and, more generally, are not designed to chart the long-term effects of such major dislocations.<sup>307</sup>

The public interest and public convenience and necessity determinations require FERC to determine whether the country would be better off with DCP’s proposal than without it. Although input-output-based analyses cannot answer this question, DCP offers no other analysis. DCP’s Application thus provides no basis for concluding that the country would be better off economically with the Project’s exports than without them. Moreover, both DCP and the studies it relies on fail to consider the economic costs LNG exports will impose on the country, including the distributional effects. When those costs are factored into the analysis, the Project likely will produce net economic costs rather than benefits. Coupled with the effects of the increased price of natural gas on the economy, these costs argue strongly in favor of concluding that the Project is not in the public interest, convenience, or necessity.

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<sup>305</sup> Susan Christopherson, CaRDI Reports, *The Economic Consequences of Marcellus Shale Gas Extraction: Key Issues 4* (2011) (“Cornell Study”) (Sept. 2011).

<sup>306</sup> *Id.* at 6.

<sup>307</sup> Kay, *supra* note 286, at 5-6, 22-30.

## **B. DCP Overstates the Project's Benefits and Ignores Evidence That the Project Would Create Environmental Harms**

DCP also claims that the Project will benefit the environment by causing fewer GHG emissions, claiming that importing countries will be induced to switch from dirtier fossil fuels to natural gas for electricity generation. As is discussed above in Section III.A., DCP's claim that LNG exports will result in a net GHG benefit is erroneous. Importing countries are unlikely to switch from coal to gas; rather, U.S. exports of LNG will depress the development of renewables in foreign countries.<sup>308</sup> The lifecycle GHG emissions from LNG also likely will offset any GHG gains that could be made by switches from coal to natural gas. In light of these impacts, studies conclude that, under a scenario of increased use of natural gas, CO<sub>2</sub> emissions "do not begin to transition to a trajectory that many scientists believe is necessary to avoid dangerous impacts from climate change."<sup>309</sup>

In addition, as is noted in Section III.A, DCP completely ignores the likely negative effect that LNG exports will have on domestic air pollution from energy generation. The EIA predicts that the higher cost of natural gas will result in Americans making additional investments in coal-fired electricity generation and fewer investments in renewables.<sup>310</sup> Coal combustion releases roughly twice the CO<sub>2</sub> of gas combustion, and gas-fired power plants generate less than a third of the NO<sub>2</sub> and less than one percent of the SO<sub>2</sub> that coal-fired plants generate.<sup>311</sup> EIA has concluded that exporting between 6 to 12 bcf/day of LNG, whether phased in quickly or slowly, would result in significant increases in domestic GHG emissions.<sup>312</sup> Thus permitting the export of LNG would interfere with national efforts to shift away from coal-fired power generation and control global warming, which endangers public health and welfare.<sup>313</sup>

There is no environmental benefit that would result from the Project. LNG export will result in the use of more coal and fewer renewables for energy generation. Burning greater amounts of coal will produce more GHG emissions and more air pollutants, both in the United States and abroad. The Project therefore is not in the public interest or required in the public convenience and necessity.

## **C. DCP Has Failed to Establish Sufficient Need for the Project.**

DCP also has failed to establish a need for this specific LNG facility that would be sufficient to justify the granting of a Certificate. In the face of the adverse impacts identified above, DCP should be required to make a heightened demonstration of the need for the Project, based on its

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<sup>308</sup> See IEA, *supra* note 266, at 91.

<sup>309</sup> Jeffrey Logan et al., Joint Inst. for Strategic Analysis, Natural Gas and the Transformation of the U.S. Energy Sector (2012), available at <http://www.nrel.gov/docs/fy13osti/55538.pdf> (hereinafter "JISEA Report").

<sup>310</sup> EIA Export Study, *supra* note 114, at 6; *see also id.* at 17 ("[H]igher natural gas prices lead electric generators to burn more coal and less natural gas.").

<sup>311</sup> EPA, Air Emissions, <http://www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html> (last visited Apr. 26, 2013).

<sup>312</sup> EIA Export Study, *supra* note 114, at 19.

<sup>313</sup> See Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009).

actual benefits. *See Turtle Bayou Gas Storage Co.*, 135 FERC ¶ 61,233, 62,301 (2011) (requiring additional showing of need “in the face of identified adverse impacts.”).

As is discussed in the preceding sections, the benefits that DCP claims will accrue as a result of the Project are grossly overstated or nonexistent. All that DCP has left on the benefit side of the balancing test is its business interest and the demand for LNG exports from two foreign-owned corporations. Both of the foreign parent companies, Sumitomo Corporation and GAIL (India) Limited, are based in countries that are not free-trade partners of the United States and, therefore, currently are not eligible to receive LNG exports. The benefits of exporting are thus somewhat speculative.

Even if DCP already had received authorization to export to non-free trade countries, the Commission should demand a heightened showing of need, beyond DCP’s ability to earn revenue from the Project. The Project threatens the well-being of the nation’s economy, including the health of critical manufacturing sectors; risks inducing new pollution from upstream gas development and shifting the U.S. power mix to coal; and creates significant environmental impacts to the air, water, and local wildlife, threatening the health of a critical ecological resource like the Chesapeake Bay. Because DCP cannot demonstrate actual benefits that outweigh the extensive adverse impacts Project, FERC should conclude that the Project is not in the public interest and is not required by the public convenience and necessity.

#### **V. If the Project Is Approved, FERC Must Impose Rigorous Monitoring Conditions.**

If FERC nevertheless approves DCP’s application, the Commission must recognize its continuing duty to protect the public interest, a duty explained in DOE/FE’s recent *Sabine Pass* decision. This duty is of crucial importance in the context of LNG export, where circumstances are rapidly changing. In light of these obligations, DOE/FE announced its intention to monitor environmental, economic, and other relevant considerations in the *Sabine Pass* proceeding. *Sabine Pass*, DOE/FE Order No. 2961 (May 20, 2011), at 31-33. If FERC approves DCP’s application, it would be appropriate to add similar but substantially expanded monitoring conditions.

Specifically, although *Sabine Pass* announced an intention to monitor many different considerations, it most clearly states that the agency will intervene if there is a “reduction in the supply of natural gas needed to meet essential domestic needs.” *Id.* at 32. That contingency is undoubtedly of great importance, but it is not the only way in which changing circumstances could imperil the public interest.

On the contrary, as we have demonstrated at length in these comments, there is strong evidence that the public interest will be impaired by LNG exports. The harm includes: (1) regional and national economic dislocations and disruptions caused by natural gas extraction, including by the industry’s boom-and-bust cycle; (2) national increases in gas and electricity prices and resulting shifts to more polluting fuels; and (3) environmental impacts of many sorts. FERC therefore must state that it will monitor each of these areas, providing specific monitoring terms and thresholds that will trigger agency responses of various types, ranging from further study through reductions in export volume or changes in timing to a revocation of FERC’s approval.

If FERC fails to include such provisions in any final approval, it will fail to fulfill its “continuing duty to protect the public interest.” *Id.* at 31.

## **VI. Conclusion**

For the reasons set forth above, we ask FERC to deny the Project approvals sought by DCP. At the very least, we urge the Commission to conduct a comprehensive and thorough analysis of the Project, including preparation of a full EIS, in compliance with NEPA. We appreciate the opportunity to submit these comments and look forward to further participation in this proceeding.

Respectfully submitted,



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### **Also on behalf of the following organizations:**

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CROTON WATERSHED CLEAN WATER COALITION

Barbara Arrindell, Director  
DAMASCUS CITIZENS FOR SUSTAINABILITY

Maya K. van Rossum, Delaware Riverkeeper  
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