UNITED STATES OF AMERICA

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

In the Matter of the Applications of:	
Atlantic Coast Pipeline, LLC	**Docket Nos. CP15-554-000**
Dominion Transmission, Inc.	**CP15-554-001**
	CP15-555-000

Filed: April 6, 2017

COMMENTS OF SHENANDOAH VALLEY NETWORK, HIGHLANDERS FOR RESPONSIBLE DEVELOPMENT, VIRGINIA WILDERNESS COMMITTEE, SHENANDOAH VALLEY BATTLEFIELDS FOUNDATION, NATURAL RESOURCES DEFENSE COUNCIL, CONCERNED CITIZENS OF TILLERY, COWPASTURE RIVER PRESERVATION ASSOCIATION, DEFENDERS OF WILDLIFE, DOMINION PIPELINE MONITORING COALITION, FRIENDS OF BUCKINGHAM, JACKSON RIVER PRESERVATION ASSOCIATION, JAMES RIVER ASSOCIATION NATIONAL PARKS CONSERVATION ASSOCIATION, PIEDMONT ENVIRONMENTAL COUNCIL, POTOMAC RIVERKEEPER NETWORK, ROCKBRIDGE AREA CONSERVATION COUNCIL, SHENANDOAH RIVERKEEPER, SOUND RIVERS, WATERKEEPERS CHESAPEAKE, THE WILDERNESS SOCIETY, AND WINYAH RIVERS FOUNDATION ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED ATLANTIC COAST PIPELINE AND SUPPLY HEADER PROJECT

Atlantic Coast Pipeline, LLC (Atlantic) proposes to build the 600-mile, 42-inch-diameter Atlantic Coast Pipeline to transport natural gas from the Marcellus shale to North Carolina and coastal Virginia. Its proposal raises serious environmental concerns that must not be cast aside without full and careful consideration by the Federal Energy Regulatory Commission (the Commission). If built, this pipeline would cause significant disruption to people living and working on more than 550 miles of private lands. It would also cause substantial harm to two of our National Forests; to vulnerable ecosystems and numerous endangered, threatened, and sensitive species; to already overburdened low-income communities, people of color, and state recognized Native American tribes; to utility ratepayers; and to the legacy left to future generations of West Virginians, Virginians, and North Carolinians.

Seemingly without prior careful planning, Atlantic has attempted to force its project through some of the steepest, most forested, and most undeveloped landscapes in the Central Appalachians. And there are serious doubts about whether this pipeline is even necessary to meet the energy demands in Virginia and North Carolina. Demand for new gas-fired power generation is flat, and alternative sources like wind and solar are rapidly gaining market share as prices drop and customers look toward a renewable future. Approving the Atlantic Coast Pipeline would unnecessarily and unwisely lock the region into reliance on fossil fuels for decades. Such a decision would be to the detriment of the public

ratepayers and the environment, and to the great financial benefit of Dominion Resources, Duke Energy, and Southern Company, the partners behind the project.

The Commission and cooperating agencies must not approve a project of this magnitude without a thorough and detailed assessment of its environmental impacts and key alternatives that would minimize those impacts, like the use of existing pipeline systems. As required by the National Environmental Policy Act (NEPA), this assessment must be made in a draft Environmental Impact Statement (EIS) that is "sufficiently detailed" to ensure sound agency decision-making and meaningful opportunity for review and comment by the public. Unfortunately, this prematurely issued draft EIS falls far short of these objectives.

As discussed at length in these comments, the draft EIS is replete with missing, inadequate, incorrect, and misleading information pertaining to the most critical aspects of the proposed project. These include the purported need for the Atlantic Coast Pipeline and the uncertain feasibility of constructing a large pipeline through this difficult, rugged terrain. Rather than providing an informed, careful identification and evaluation of adverse impacts associated with the pipeline, the draft EIS primarily serves as an untimely request by the Commission for the developer to submit crucial information. This is information the Commission should have used to identify and evaluate impacts in preparing the draft EIS. Lacking such information, the draft EIS fails to enable the agency to engage in sound decision-making and fails to provide the public with an opportunity for meaningful review and comment. The Commission's approach violates NEPA.

A quip from a spokesperson for the Commission illustrates just how broken its NEPA process is. When asked about the possibility that the Commission might issue a revised or supplemental draft EIS for the Atlantic Coast Pipeline in order to remedy the considerable deficiencies, Tamara Young-Allen flatly rejected the suggestion: "I've been here since [the year] 1492. I can't think of a supplemental EIS. That's not how it works."

The Commission must recognize that *this* is how it works: a draft EIS that falls short of the requirements imposed by NEPA must be revised. That requirement is all the more important with regard to a project as risky, uncertain, and doubtfully necessary as the Atlantic Coast Pipeline is. We respectfully request that the Commission acknowledge the deficiencies in the draft EIS, as discussed in these comments, and issue a revised draft EIS for public comment. Alternatively, the Commission must issue a supplemental draft EIS for public comment.

In response to the Commission's Notice of Availability of the Draft Environmental Impact Statement for Atlantic Coast Pipeline, Supply Header Project, and Capacity Lease Proposal issued on December 30, 2016 (eLibrary No. 20161230-3005), the Southern Environmental Law Center submits these comments on the draft EIS on behalf of the following Conservation Groups: Shenandoah Valley Network, Highlanders for Responsible Development, Virginia Wilderness Committee, Shenandoah Valley Battlefields Foundation, Natural Resources Defense Council, Concerned Citizens of Tillery, Cowpasture River Preservation Association, Defenders of Wildlife, Dominion Pipeline Monitoring

Coalition, Friends of Buckingham, Jackson River Preservation Association, James River Association, National Parks Conservation Association, Piedmont Environmental Council, Potomac Riverkeeper Network, Rockbridge Area Conservation Council, Shenandoah Riverkeeper, Sound Rivers, Waterkeepers Chesapeake, The Wilderness Society, and Winyah Rivers Foundation. In addition to their written comments, Conservation Groups incorporate as comments all of their attachments, including the attached reports of technical experts; all of their prior comments to the Commission concerning the Atlantic Coast Pipeline; all of their respective comments on the draft EIS; the comments of the Virginia Department of Environmental Quality; and the comments of the U.S. Forest Service.

The Conservation Groups respectfully ask that the Commission include these materials in the administrative record for its proceedings under the National Environmental Policy Act, the Natural Gas Act, and the agency's Certificate Policy Statement in dockets CP15-554-000, CP15-554-001, and CP15-555-000.

I. CRITICAL MISSING AND INCOMPLETE INFORMATION

A. The Commission's draft EIS for the Atlantic Coast Pipeline is based on incomplete, inadequate, and missing information.

The National Environmental Policy Act (NEPA) requires that federal agencies prepare a "detailed" environmental impact statement for every "major federal

action significantly affecting the quality of the human environment."[1] The EIS is fundamentally an information dissemination tool: it allows federal agencies and the public to understand the environmental impacts of proposed actions before they are commenced and resources are irretrievably committed.[2] Courts have described this process as one designed to bring "clarity and transparency" to federal decisions that affect the environment.[3] Its centerpiece is the involvement of the public. The Act affords interested citizens an opportunity to raise the issues that they are concerned about during the scoping process[4] and then comment again on a thorough agency analysis of the likely impacts of the proposed action in the draft EIS.[5]

In spite of these requirements, the Commission has fundamentally misapplied NEPA in its assessment of the impacts of the Atlantic Coast Pipeline. Instead of issuing a thorough agency assessment of environmental impacts and alternatives on which the public can meaningfully comment, the Commission treats its draft

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[1] 42 U.S.C. § 4332(C); *see, e.g., Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 757 (2004).

[2] *See, e.g.*, *Ariz. Cattle Growers' Ass'n v. Cartwright*, 29 F.Supp.2d 1100, 1116 (D. Ariz. 1998) (quoting *Or. Envtl. Council v. Kunzman*, 817 F.2d 484, 492 (9th Cir. 1987) (The NEPA requirement to issue an EIS serves two purposes: to "ensure[] that federal agencies have sufficiently detailed information to decide whether to proceed with an action in light of potential environmental consequences" and "to provide[] the public with information on the environmental impact of a proposed action and encourage[] public participation in the development of that information.").

[3] *N.C. Wildlife Fed'n v. N.C. Dep't of Transp.*, 677 F.3d 596, 603 (4th Cir. 2012) (citing *Pub. Citizen*, 541 U.S. at 756-57).

[4] 40 C.F.R. § 1501.7.

[5] *Id.* § 1503.4.

EIS as a data request to the developers—a mere stepping stone on the Commission's way to gathering more information and *eventually* understanding the impacts of the proposed project. This draft EIS reads like a laundry list of missing and incomplete information. But that falls far short of what NEPA requires.

A draft EIS must be as complete as possible to allow informed public comment on the proposed project.[6] The public is entitled to review, and NEPA obligates the Commission to provide, the agency's analysis of the significance of the impacts.[7] But for many potential impacts of the Atlantic Coast Pipeline, the Commission cannot and does not provide its analysis of the significance of impacts because critical information is still missing or incomplete. Thus, the draft EIS is "so inadequate as to preclude meaningful analysis," and the Commission must prepare a revised draft EIS and release it for public comment.[8] Alternatively, the Commission must issues a supplemental draft EIS that addresses the new

[6] *See id.* § 1502.9(a) ("The draft statement must fulfill and satisfy to the fullest extent possible the requirements established for final statements in section 102(2)(C) of the Act. If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion. The agency shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action.").

[7] *Id.* § 1502.16(a)-(b) (requiring agencies to discuss "[d]irect effects *and their significance*" and "[i]ndirect effects *and their significance*") (emphases added).

[8] *Id.* § 1502.9(a).

information that it received and continues to receive from Atlantic since the publication of the draft EIS.[9]

Conservation Groups have documented over 200 instances of missing or incomplete information identified in the Commission's draft EIS for the Atlantic Coast Pipeline.[10] Moreover, Conservation Groups have described other missing or incomplete information in these comments. In other words, the draft EIS is so riddled with information gaps that the Commission cannot determine the significance of the project's environmental impacts or whether such impacts can be effectively mitigated.

"[O]ne important ingredient of an EIS is the discussion of steps that can be taken to mitigate adverse environmental consequences."[11] The understanding that the EIS will discuss the extent to which adverse effects can be avoided is implicit in NEPA's demand that the agencies identify and evaluate those adverse effects.[12] The absence of a "reasonably complete" discussion of mitigation measures undermines NEPA and the ability of the agency and the public to evaluate

[9] *See* 40 C.F.R. § 1502.9(c).

[10] *See* Table of Missing and Incomplete Information in Draft EIS, included as **Attachment 1**. This chart includes only information that has been identified in the draft EIS as missing. As discussed throughout these comments, Commenters have identified additional missing or inadequate information. Together, the missing information identified in the draft EIS and by commenters pertains to some of the most significant probable impacts of the Atlantic Coast Pipeline.

[11] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351 (1989); *see id*. at n.15 (quoting 40 C.F.R. § 1508.20 (1987) (defining "mitigation")).

[12] *Id.* at 351-52 (citations omitted).

environmental impacts.[13] While there is not a substantive requirement that a complete mitigation plan be adopted, there is "a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated[.]"[14] With missing and incomplete information about impacts and mitigation, the public and other reviewing agencies are left to speculate, and the Commission has failed to meet its statutory obligation to ensure informed public engagement.

Not only is a great deal of information necessary to an assessment of impacts and mitigation missing or incomplete, but much of that information is essential to understanding the impacts of the proposed pipeline. Without this crucial information, the Commission simply cannot evaluate how the Atlantic Coast Pipeline will affect the environment or how its impacts will be mitigated. And because the agency cannot perform its assessment obligations, it has produced a draft EIS that thwarts meaningful public comment. To illustrate the deficiencies characteristic of this draft EIS, the Commission fails to provide complete analyses for the following:

- Public Necessity: The Commission does not offer its own analysis of need for the Atlantic Coast Pipeline, but instead repeats Atlantic's very general

[13] *Id*. at 352 ("More generally, omission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.").

[14] *Id*.; *see also Webster v. U.S. Dep't of Agric.*, 685 F.3d 411, 431-32 (4th Cir. 2012) (citing and discussing *Robertson*, 490 U.S. 332) ("[D]iscussions of specific, detailed mitigation measures that are responsive to specified effects" are indicative of fair evaluation of environmental consequences).

claims that the project is a public necessity.[15] In doing so, the Commission has only told one side of a complicated story and ignored other contrary and compelling information about how market demand for new gas-fired power generation is static or even dropping.[16] Without this information, the Commission cannot fairly evaluate the alternatives to Atlantic's proposal, and it misleads the public's review of its impacts.[17]

- Alternatives: Relying on the claims of need from Atlantic, the draft EIS fails to provide a meaningful analysis of the "no action" alternative or existing pipeline alternatives that would increase incremental gas delivery capacity in Virginia and North Carolina. As discussed in the following sections, recent analysis from Synapse Energy Economics indicates that existing natural gas infrastructure is sufficient to meet demand through 2030 even under a high gas demand scenario that is unlikely to occur. The Commission cannot gloss over or ignore these alternatives. In doing so in the draft EIS, its fails to meet its NEPA obligations.

- Steep Appalachian Ridges: The draft EIS does not evaluate the impacts of construction on steep slopes because Atlantic has not identified slopes that require site-specific analysis, nor has it identified the measures it would use to mitigate landslide risk.[18] Atlantic has also failed to provide the steep slope information that the Forest Service requested in October 2016 for pipeline construction on public lands.[19] According to the draft EIS, "analysis, field surveys, and final measures related to slope hazards have not yet been completed."[20] For 108 miles, the proposed route traverses

[15] *See* DEIS at 1-4.

[16] *See* J.F. Wilson, Wilson Energy Economics, Evaluating Market Need for the Atlantic Coast Pipeline 3 (2017) ("At the present time, the future need for incremental gas supply for new gas-fired electric generation is highly uncertain, due to weak or non-existent electric load growth, the uncertain pace of coal and nuclear plant retirements, and the increasing penetration of wind, solar and other renewable resources, among other factors."), included as **Attachment 2**.

[17] *See Hughes Watershed Conservancy v. Glickman*, 81 F.3d 437, 446 (4th Cir. 1996) (holding that "misleading economic assumptions can . . . defeat the second function of an EIS by skewing the public's evaluation of a project").

[18] *See* DEIS at 4-26.

[19] *See id.* at ES-5, 4-37; Letter from Clyde Thompson, Forest Supervisor, U.S. Forest Service, to Kimberly D. Bose, Secretary, FERC (Oct. 24, 2016), included as **Attachment 12**.

[20] DEIS at ES-4.

steep slopes,[21] and the impacts associated with this high-risk construction are among the most significant for the entire project.[22]

- Protected Species: Atlantic has not completed many required surveys for endangered, threatened, or other special-status species. For example, Atlantic has not completed surveys related to Virginia big-eared bats, gray bats, Indiana bats, and northern long-eared bats or identified appropriate bat conservation measures.[23] According to the draft EIS, the company will conduct surveys in 2017 for these species, as well as for protected freshwater mussels and numerous protected plants.[24] Without complete survey information, including surveys for suitable habitat, the impacts to these species were simply unknown when the Commission released the draft EIS.

- Karst Topography: Atlantic has not completed surveys for karst features in Randolph and Pocahontas Counties in West Virginia and Bath and Augusta Counties, Virginia. Atlantic has also not: (1) completed its assessment of the project's impacts on the Cochran's Cave Conservation Site, an important cave system that provides habitat for several protected bat species in Augusta County; (ii) surveyed the Dever Spring Recharge Area, in Highland County; (iii) completed surveys of the karst features in Little Valley in Bath County, an area expected to have extensive subsurface drainage conduits; or (iv) completed its survey for subsurface solution features using electrical resistivity.[25] Local governments and the public have expressed deep concern that the pipeline will interfere or damage water supplies that move through these karst systems. Without complete survey information, the Commission cannot provide its analysis of the significance of these risks, despite heightened public concern.

In apparent recognition of the inadequacy of the information considered in the draft EIS, the Commission has invited Atlantic to submit additional information after the release of the draft EIS. As of March 24, 2017, the company had filed

[21] *Id.*

[22] For an analysis of a high-hazard area that presents an array of construction challenges, see Rick Webb, *Clover Creek: High-Hazard Pipeline Construction* (2017), included as **Attachment 3**.

[23] DEIS at 4-200 to 4-202.

[24] *See id.*

[25] *See* DEIS at 4-13 to 4-15.

more than 8,000 pages of new information during this time.[26] A Commission spokesperson, Tamara Young-Allen, said recently that the agency never issues a revised or supplemental EIS: "I've been here since 1492. I can't think of a supplemental EIS. That's not how it works."[27] Ms. Young-Allen also invited commenters to review the information that Atlantic is filing, noting flippantly that "[t]he information is there, you can comment on it."[28]

This glimpse into the Commission's perspective demonstrates the degree to which the process is improperly skewed in favor of the applicant, Atlantic, and against the concerns and rights of the public. The Commission's approach cuts the public out of the process and fundamentally turns the NEPA procedures inside out. NEPA requires that the agency collect the necessary information and offer its analysis of the significance of likely impacts in the draft EIS.[29] It is precisely that expert agency analysis that the public comments on—not reams of raw, out-of-context information filed by the applicant months after the release of the draft EIS and, in some cases, fewer than two weeks before the close of the Commission's comment period.

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[26] *See* Table of Information Filed by Atlantic Coast Pipeline, LLC since Release of Draft EIS, included as **Attachment 4**.

[27] Elizabeth Ouzts, *Activists Say Pipeline Environmental Assessment 'Appallingly Incomplete'*, SOUTHEAST ENERGY NEWS, Mar. 7, 2017, http://southeastenergynews.com/2017/03/07/activists-say-pipeline-environmental-assessment-appallingly-incomplete/.

[28] *Id.*

[29] 40 C.F.R. § 1502.16(a)-(b).

The EPA raised similar concerns about post-draft EIS and post-comment information in letter to the Commission concerning the Mountain Valley Pipeline draft EIS. EPA described the Commission's draft EIS for that project as a "rolling document providing just a snapshot in time" that creates "considerable challenge for stakeholders and members of the public to follow the documentation provided, or know which material is most current."[30] EPA urged the Commission to clarify its process and to consider preparing a revised or supplemental draft EIS for public comment.[31]

To remedy the defects of its draft EIS for the Atlantic Coast Pipeline and to allow the public to meaningfully participate in this process as required by NEPA, the Commission must: (1) wait until Atlantic has provided the information requested by the Commission and the Forest Service on project impacts; (2) revise the draft EIS to include the Commission's analysis of the new information; and (3) offere the revised draft for public comment. The agency is currently in violation of NEPA's requirements. Unless the Commission takes these steps to ensure that the critical information concerning the impacts of this pipeline are analyzed and presented to the public, it cannot lawfully approve a certificate of public convenience and necessity for the Atlantic Coast Pipeline.

[30] Letter from Jeffrey D. Lapp, Assoc. Dir., EPA Region III, to Nathaniel J. Davis, Deputy Sec'y, FERC (Dec. 20, 2016), included as **Attachment 5**.

[31] *Id.*

II. PUBLIC NECESSITY AND MARKET DEMAND

A. The Commission relies on untested, incomplete, and inaccurate market information that biases the agency's evaluation of the project, misleads the public, and violates NEPA.

Commission approval of the pipeline authorizes Atlantic to recover a certain rate of return—the "recourse rate." Atlantic will then pass on the costs of that recourse rate to its shippers, who in turn pass on the cost to the end users. When the end user is a regulated utility, that utility's ratepayers bear the increases in gas prices attributable to the recourse rate. When a regulated utility's parent company also owns the pipeline, that utility has a vested interest in buying gas shipped on its pipeline, even if adequate lower-cost gas is available from a pre-existing, and lower-cost, pipeline. This structure allows the parent company to profit from the pipeline's recourse rate while passing the increased fuel costs onto captive ratepayers.

The various affiliated entities involved in building the Atlantic Coast Pipeline and then shipping gas along it have colluded to manufacture "need," in the form of precedent agreements, which they now claim justifies the pipeline. The record before the Commission to date omits several keys facts. First, expert analysis demonstrates that both Dominion Resources and Duke Energy have over-estimated future electricity demand in their territories. As such, their ratepayers likely do not need the natural gas-powered generating resources these utilities plan to build. Second, even assuming these utilities do build the power plants in their

respective IRPs, none of those new power plants needs the Atlantic Coast Pipeline for fuel supply. In fact, these companies have testified to their respective state utility commission's that adequate pipeline capacity already exists to fuel all of their planned construction projects. As such, the market does not need another pipeline, and the Commission should view with great scrutiny any application that provides only precedent agreements between affiliated companies as a pretext to construction.

The Commission's draft EIS for the Atlantic Coast Pipeline fails to analyze the market demand for the project and, instead, merely adopts on the developer's blanket, but wholly untested, inaccurate, and misleading statements that the public needs this project.[32] The Commission accepts that Atlantic's precedent agreements demonstrate that the project is needed without looking behind them to evaluate actual market demand. But these agreements are between Atlantic and affiliates. As such, they do not reflect actual competitive market needs. This is especially true where, as here, the affiliated entities are regulated utilities with captive ratepayers, which allows Atlantic to shift the market risks of building the Atlantic Coast Pipeline to those captive ratepayers while simultaneously allowing the shareholders of Dominion Resources, Duke Energy and Southern Company to reap the benefits. This structure can spur pipeline development even in the absence of market demand, yet the Commission fails to consider how this shifting of risk

[32] *See, e.g.*, DEIS at 1-2, 1-3, 3-3.

can skew the development incentives, offering only one side of the story—Atlantic's—in the draft EIS.

Under NEPA, an agency cannot base an EIS on inaccurate or incomplete information that undermines informed agency decision-making and informed public comment.[33] Courts recognize that inflated or inaccurate market information can skew agency decisions about a project and mislead the public in its evaluation of project impacts.[34] Thus, inaccurate market information can render the EIS defective when it is a barrier to "a well-informed and reasoned decision."[35]

Here, the Commission cannot fulfill its NEPA obligations without revising its draft EIS to include a thorough evaluation and discussion of the actual need for the pipeline and reissuing it for public comment. In this section, we explain the significant problems with the Commission's statements about the need for the Atlantic Coast Pipeline and how those defects undermine the agency's analysis,

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[33] *See N.C. Wildlife Fed'n v. N.C. Dep't of Transp.*, 677 F.3d 596, 603 (4th Cir. 2012); *Hughes Watershed Conservancy v. Glickman*, 81 F.3d 437, 446 (4th Cir. 1996); *Nat. Res. Def. Council v. U.S. Forest Serv.*, 421 F.3d 797, 811-12 (9th Cir. 2005).

[34] *See Hughes Watershed Conservancy*, 81 F.3d at 446 ("Misleading economic assumptions can defeat the first function of an EIS by impairing the agency's consideration of the adverse environmental effects of the proposed project. . . . Similarly, misleading economic assumptions can also defeat the second function of an EIS by skewing the public's evaluation of a project.").

[35] *Nat. Res. Def. Council v. U.S. Forest Serv.*, 421 F.3d at 812. *See also Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 235 F.Supp.2d 1143, 1157 (W.D. Wash. 2002) ("An EIS that relies on misleading economic information may violate NEPA if the errors subvert NEPA's purpose of providing an accurate assessment upon which to evaluate the proposed project."), *overruled on other grounds by Winter v. Nat. Res. Def. Council*, 555 U.S. 7 (2008).

mislead the public, and diminish the opportunity for meaningful public comment, all in violation of NEPA.

B. The Commission fails to evaluate the need for the pipeline and relies on an incomplete, inaccurate, and misleading analysis from Atlantic.

1. The Commission relies on precedent agreements between affiliates as demonstrating need for the Atlantic Coast Pipeline despite substantial risk that these contracts do not reflect actual market demand.

In the draft EIS, the Commission relies on precedent agreements as evidence of need for the pipeline despite unchecked self-dealing between affiliated companies and the substantial risk that these contracts do not reflect actual market demand. The Atlantic Coast Pipeline is a joint venture of Dominion Resources; Duke Energy; and Southern Company; these three companies own 100% of Atlantic Coast Pipeline, LLC, which is the project developer.[36] However, each is also the parent company of one or more of the pipeline's customers, *i.e.* shippers, that are either regulated utilities or, in the case of Dominion Resources' subsidiary Virginia Power Services, provide natural gas to a regulated utility. Specifically:

- Dominion Resources owns Virginia Power Services which has contracted for 300,000 dekatherms/day from Atlantic. Dominion Resources also owns Dominion Virginia Power, a regulated utility in Virginia that purchases gas from Virginia Power Services.
- Duke Energy owns Duke Energy Progress, a regulated utility in North Carolina that has contracted for 452,750 dekatherms/day from Atlantic.

[36] *See* M. Martz, *Dominion Retains Controlling Share in Pipeline Company in Restructuring After Piedmont Sale*, Richmond Times Dispatch (Oct. 3, 2016), http://www.richmond.com/business/local/dominion-retains-controlling-share-in-pipeline-company-in-restructuring-after/article_fd7bb234-0fc5-5351-8cea-b2f867fdde7a.html.

- Duke Energy also owns Duke Energy Carolinas, regulated utility in North Carolina that has contracted for 272,250 dekatherms/day from Atlantic.
- Duke Energy also owns Piedmont Natural Gas, a regulated local distribution company in North Carolina that has contracted for 160,000 dekatherms/day from Atlantic.
- Southern Company owns Virginia Natural Gas, a regulated local distribution company in Virginia that has contracted for 155,000 dekatherms/day from Atlantic.[37]

Together, these affiliates of Dominion Resources, Duke Energy, and Southern Company have entered precedent agreements with Atlantic for 93% of the pipeline's contracted capacity.[38] Moreover, affiliates of Dominion Resources and Duke Energy hold the bulk of the contracted capacity for use by power plants, and Atlantic anticipates that eventually about 79% of the pipeline's total capacity will fuel gas-fired generation.[39]

To date, public utility commissions in Virginia and North Carolina have not conducted meaningful reviews of whether ratepayers in their states need this pipeline. While the self-dealing relationships between Atlantic and its affiliates will produce millions of dollars in profits for Dominion Resources and Duke Energy, they create a substantial risk that captive utility ratepayers will foot the bill for a pipeline that is not necessary or driven by actual market demand.

[37] Atlantic Coast Pipeline, Abbreviated Application for a Certificate of Public Convenience and Necessity and Blanket Certificates at 7-8, 12 (Sept. 18, 2015) (eLibrary No. 20150918-5212).

[38] *See id.* at 12.

[39] *See* DEIS at 1-2.

More and more, experts, including former Commission Chair Norman Bay, agree that pipeline developers use precedent agreements between the developer and an affiliated regulated utility with captive ratepayers—like the contracts described above—to justify building pipeline infrastructure in the absence of actual market demand.[40] Interstate natural gas pipelines like the Atlantic Coast Pipeline are multi-billion dollar projects. When the Commission accepts precedent agreements between affiliated companies, one of which, the shipper, is a regulated utility, for a project of this scale, it allows the shipper utility to "impose long-term financial obligations on captive ratepayers."[41] Utility ratepayers bear the risk of the project while the project's financial rewards accrue to the shareholders of the utility's parent company. Or, to put it another way, the captive utility ratepayers subsidize the new pipeline construction to the benefit of the parent company's shareholders. This structure, which shifts the risk from the shareholders to the ratepayers, subverts the "price signals sent by a rational market"[42] and allows

[40] *See* J.F. Wilson, *supra* note 16, at 6-12; Separate Statement of Commissioner Bay, FERC Docket No. CP15-115 3 (Feb. 3, 2017); S. Isser, Natural Gas Pipeline Certification and Ratemaking 24 (2016), included as **Attachment 6**; *Hearing to Examine Oil and Gas Pipeline Infrastructure and the Economic, Safety, Environmental, Permitting, Construction, and Maintenance Considerations Associated with that Infrastructure: Hearing Before the S. Comm. on Energy & Nat. Res.*, 114th Cong. (June 14, 2016) (statement of N. Jonathan Peress, Envt'l Def. Fund at 5) [hereinafter Testimony of N. Jonathan Peress], included as **Attachment 7**; C. Kunkel & T. Sanzillo, Inst. for Energy Econ. & Fin. Analysis, Risks Associated with Natural Gas Pipeline Expansion in Appalachia 5-6 (2016), included as **Attachment 8**.

[41] Testimony of N. Jonathan Peress, *supra* note 40, at 5.

[42] *Id.*

companies to pursue unneeded projects "at the expense of alternative transport options."[43]

Atlantic's owners—Dominion Resources, Duke Energy, and Southern Company—are using exactly such a structure here, but the Commission ignores the risk that this arrangement may result in the approval of an unnecessary pipeline by accepting Atlantic's precedent agreements as evidence of need for the pipeline without further inquiry into actual market demand. Because the precedent agreements offered by Atlantic are between Atlantic and affiliated regulated utilities, captive ratepayers—not shareholders of Dominion Resources, Duke Energy, and Southern Company—will bear the risks associated with building the pipeline,[44] and these contracts can finance the project without market support. This structure can divorce market demand from a company's calculus when it elects to pursue a new interstate pipeline project.

In the event that the Commission determines that Atlantic's precedent agreements demonstrate market need for the pipeline, market conditions have changed since Atlantic first proposed the pipeline almost three years ago. Even if Atlantic believes market conditions justified its precedent agreements in 2014, the Commission must recognize that market conditions have altered dramatically in the intervening years. According to utility expert James Wilson:

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[43] Isser, *supra* note 40, at 24.

[44] *See* Kunkel & Sanzillo, *supra* note 40, at 18-21.

> At the present time, the future need for incremental gas supply for new gas-fired electric generation is highly uncertain, due to weak or non-existent electric load growth, the uncertain pace of coal and nuclear plant retirements, and the increasing penetration of wind, solar and other renewable resources, among other factors.[45]

For example, Dominion Virginia Power is the electric utility affiliate of Atlantic and shipper Virginia Power Services. Between 2007 and 2015, electricity demand for Dominion Virginia Power's service territory did not increase, even with the modest economic growth that followed the 2008 economic recession.[46] And, as discussed in detail in the next section, Dominion Virginia Power's load forecasting has not kept pace with significant industry changes, particularly those undertaken by PJM Interconnection (PJM).[47] Further, recent analysis from the Energy Information Administration (EIA) suggests that demand for natural gas for power generation will remain at, or below, 2015 levels until 2034.[48]

Moreover, market share for renewable technologies like wind and solar is growing rapidly. In North Carolina, solar capacity has grown to 2.4 GW as of February 2017, making the state second in the nation in installed solar capacity,[49]

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[45] *See* Wilson, *supra* note 40, at 3.

[46] *See id.* at 13-15.

[47] *See id.* at 15-16.

[48] *See Annual Energy Outlook 2017, Table: Energy Consumption by Sector and Source*, U.S. Energy Info. Admin., https://www.eia.gov/outlooks/aeo/data/browser/#/?id=2-AEO2017&cases=ref2017&sourcekey=0 (last visited Jan. 5, 2017).

[49] *Market Intelligence*, N.C. Sustainable Energy Ass'n, http://www.energync.org/?page=MarketIntelligence (last visited Mar. 27, 2017).

while the price of solar has declined by 64% over the past five years.[50] In light of these trends in energy demand and the availability of low-cost renewable resources, Atlantic's shipper agreements with its affiliates are not indicative of actual market need. In the event that electric demand remains flat as expected, and purported market demand does not materialize, captive ratepayers of affiliated utilities will likely shoulder the burden.

The Natural Gas Act establishes the Commission's primary function: "protection of the consumer."[51] To fulfill that directive, the Commission must conduct an independent and robust investigation of the actual need for the Atlantic Coast Pipeline; the Commission cannot merely substitute precedent agreements between affiliates of Dominion Resources, Duke Energy, and Southern Company accurately reflect market need.[52] If the Commission does not act, it is unlikely that state public utility commission in Virginia and North Carolina will have the capacity or opportunity to examine the economic necessity for the pipeline prior to a decision on Atlantic's certificate application. Only the utility customers suffer in a scenario where the certificate is approved and construction commences without a full analysis of actual market need.

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[50] Solar Energy Industries Ass'n, http://www.seia.org/state-solar-policy/north-carolina (last visited Mar. 27, 2017).

[51] *Cal. Gas Producers Ass'n v. Fed. Power Comm'n*, 421 F.2d 422, 428-29 (9th Cir. 1970).

[52] Testimony of N. Jonathan Peress, *supra* note 40, at 5; Isser, *supra* note 40, at 24; Wilson, *supra* note 40, at 4.

In Virginia, Dominion Virginia Power, the utility subsidiary of Dominion Resources, has not sought approval from the Virginia State Corporation Commission for its affiliate contracts to accept gas from the pipeline. In fact, it has not had to, because Dominion has injected yet a third affiliated entity into the equation: Virginia Power Services. The Virginia State Corporation Commission will not review contracts for gas purchases on the Atlantic Coast Pipeline until *after* pipeline construction concludes, at which point it is too late.

And even though the North Carolina Utilities Commission authorized Duke Energy Progress, Duke Energy Carolinas, and Piedmont Natural Gas to enter into affiliated contracts with Atlantic in 2014, it did not evaluate the necessity for the pipeline or consider whether the affiliated contracts would allow an unnecessary project to proceed.[53] Moreover, that approval occurred more two and a half years ago, and, according to Duke Energy's own analysis, the market demand for natural gas for electricity generation in North Carolina has dropped since then.[54]

Mounting expert opinion indicates that precedent agreements between affiliated companies, in which the shippers are regulated utilities with captive ratepayers, subvert market signals and spur unnecessary pipeline development. Thus, the Commission's reliance on Atlantic's precedent agreements to establish

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[53] *In the Matter of: Advance Notice by Duke Energy Carolinas, LLC, and Duke Energy Progress, Inc., of Intent to File Proposed Precedent, Service, and Negotiated Rate Agreements with Atlantic Coast Pipeline, LLC, Request for Approval to Enter into the Proposed Agreements, and Request for Waiver of Code of Conduct*, Docket Nos. E-2, Sub 1052 & E-7, Sub 1062 (N.C.U.C. Oct. 29, 2014).

[54] *See* Wilson, *supra* note 40, at 18-22.

need for the Atlantic Coast Pipeline presents an incomplete, inaccurate, and misleading picture of the true market demand for the project.

2. The draft EIS omits evidence that Dominion Virginia Power does not need gas from the Atlantic Coast Pipeline to meet electricity demand in its service territory.

Nowhere is the problem of self-dealing with the Atlantic Coast Pipeline more apparent than in the discrepancies between the electricity demand forecasts from PJM and Dominion Virginia Power. PJM is the regional transmission organization that manages the electrical transmission grid in all or parts of thirteen states, including Virginia and North Carolina, and the District of Columbia.[55] Recognizing that electricity demand growth is no longer coupled to economic growth and that demand growth has been flat since 2007, PJM implemented enhancements to its demand modeling in 2015 to account for these changes in the electric sector.[56] In 2016, and then again in 2017, PJM significantly revised its electricity demand projections downward for Dominion Virginia Power's service territory—the Dominion zone—using this more accurate model.[57] And even with its recent model enhancements, it is likely still over-projecting the electricity demand in the Dominion zone.[58]

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[55] *See id.* at 13.

[56] *See* Direct Testimony of James F. Wilson, Va. State Corp. Comm., Case No. PUE-2016-00049, at 11-17 (Aug. 17, 2016) [hereinafter Direct Testimony of James F. Wilson], included as an attachment to Wilson, *supra* note 16.

[57] *See id.*; Wilson, *supra* note 9, at 13.

[58] Direct Testimony of James F. Wilson, *supra* note 56, at 16.

Over time, these divergent load forecasts produce massive capacity differences. In fact, for 2027, PJM's 2017 forecast for the Dominion zone is substantially less—approximately 3,500 MW less—than Dominion Virginia Power's own projection from its 2016 integrated resource plan proceeding at the Virginia State Corporation Commission.[59] The utility has not adopted the enhanced methods used by PJM in its forecast modeling.[60] The 3,500 MW difference between PJM's projections and Dominion Virginia Power's projections represents the output of approximately 2.2 gas-fired power plants and accounts for a substantial share of Atlantic's claimed demand for the Atlantic Coast Pipeline in Virginia. If the dispatcher of electric plants in Dominion's territory, PJM, is indeed correct, and these plants are not needed, then gas transmission capacity on the pipeline is not needed to serve them.[61] As the entity in charge of ensuring the reliability of the electric grid in parts of thirteen states and the District of Columbia, the Commission must consider and incorporate PJM's analysis when assessing Atlantic's stated need for the pipeline for the purposes of serving additional gas-fired electric generating units.

Furthermore, both PJM's and Dominion Virginia Power's demand forecasting includes a significant amount of projected load to accommodate the growth of data

[59] *See* Wilson, *supra* note 40, at 15-17, fig.3.

[60] *See id.* at 15.

[61] *See, e.g.*, Wilson, *supra* note 40, at 16.

centers.[62] However, while demand for data centers continues to grow, these facilities have significantly improved their energy efficiency and will drive little additional growth in electricity usage.[63] Moreover, many companies that are expanding their data centers in Virginia have committed to using renewable energy and are installing solar and wind energy sources to offset their energy use. Amazon, for example, has six solar farms operating, or set to begin operating in 2017, to help achieve its corporate goal of 100% renewable energy for its Virginia data centers.[64] Remove data centers from PJM's projections, and demand for electricity drops by 1,500 MWs, approximately equal to the output of yet another gas-fired power plant.[65]

Dominion Virginia Power also does not need the Atlantic Coast Pipeline to serve its approved power plants. The utility currently operates 6,597 MW of natural-gas fired generating capacity in Virginia, with an additional 1,588 MW under construction at the Greensville combined cycle facility. Not a single one of these facilities requires gas from the Atlantic Coast Pipeline for operation. In fact, in its application to the Virginia State Corporation Commission for permission to build the Greensville facility, Dominion Virginia Power expressly stated that

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[62] *See id.* at 13-15.

[63] Direct Testimony of James F. Wilson, *supra* note 56, at 19.

[64] *See Global Infrastructure*, Amazon Web Servs., https://aws.amazon.com/about-aws/global-infrastructure/ (last visited Apr. 3, 2017); *AWS & Sustainability*, Amazon Web Servs., https://aws.amazon.com/about-aws/sustainability/ (last visited Apr. 3, 2017).

[65] *See* Wilson, *supra* note 40, at 14, fig.3.

> The Greensville County Power Station will be fueled using 250,000 Dth per day of natural gas with reliable firm transportation provided by Transcontinental Gas Pipe Line Company, LLC ("Transco") at a cost-effective rate. This arrangement will provide the Greensville County Power Station with access to *abundant* natural gas supplies from the Gulf to the Marcellus/Utica Shale regions.[66]

Of the Atlantic Coast Pipeline, Dominion merely stated that "[the] Greensville County Power Station site will also have access to another interstate pipeline, the Atlantic Coast Pipeline ("ACP"), which is scheduled to commence service in 2018 . . . ."[67]

To date, Dominion Virginia Power has not applied for or obtained approval to construct any new natural gas-fired facilities, much less any plant that will rely exclusively on the Atlantic Coast Pipeline for fuel supply. Further, in its various Virginia State Corporation Commission proceedings, the utility has not even identified—much less sought approval for—a specific, future natural gas-fired generating project that will rely solely on the Atlantic Coast Pipeline for fuel supply. The Virginia State Corporation Commission approved Dominion Virginia Power's 2016 integrated resource plan (IRP) only as a "planning document," noting that its approval

> does not in any way create the slightest presumption that resource options contained in the approved IRP will be approved in a future

[66] *Application of Virginia Electric and Power Company For Approval and certification of the proposed Greensville County Power Station electric generation and related transmission facilities under §§ 56-580 D, 56-265.2 and 56-46.1 of the Code of Virginia and for approval of a rate adjustment clause, designated Rider GV, under § 56-585.1 A 6 of the Code of Virginia*, Case No. PUE-2015-00075, at 7 (emphasis added).

[67] *Id.* at 8.

> certificate of public convenience and necessity, rate adjustment clause, fuel factor or other type of proceeding governed by different statutes.[68]

In light of Dominion Virginia Power's inflated projections of electricity demand and the lack of identification of—or approval for—any gas-fired resources that rely exclusively on the Atlantic Coast Pipeline, the Commission must carefully and thoroughly scrutinize Atlantic's claims of necessity for its project.

3. The draft EIS fails to analyze whether Duke Energy Carolinas and Duke Energy Progress need gas from the Atlantic Coast Pipeline to meet electricity demand in their service territories.

As discussed previously, Duke Energy, through its Gas Utilities and Infrastructure segment, is a 47 percent equity member of Atlantic Coast Pipeline, LLC, the entity that plans to build and own the proposed pipeline.[69] Duke Energy owns two electric utilities in the Carolinas, Duke Energy Carolinas ("DEC") and Duke Energy Progress ("DEP"). Duke justifies its decision to pursue development of the pipeline on a need that was identified back in 2014: According to recent testimony filed with the North Carolina Utilities Commission, in 2014, Duke Energy (DEC and DEP) identified a need for approximately 725,000 MMBtu/day of additional long-term natural gas transportation service.[70]

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[68] *In re: Virginia Electric and Power Company's Integrated Resource Plan filing pursuant to Va. Code § 56-597 et seq.*, Case No. PUE-2016-00049, Final Order (Dec. 14, 2016) at 2.

[69] Duke Energy, Annual Report (Form 10-K) 17 (Feb. 24, 2017), https://www.duke-energy.com/_/media/pdfs/our-company/investors/2016-duke-energy-form-10-k.pdf.

[70] Direct Testimony of Swati V. Daji, Docket No. E-100, Sub 147 (Feb. 16, 2017) at 9.

Duke's load growth projections have dropped considerably since 2014, casting doubt on whether the "need" for new natural gas transportation capacity remains—if it ever existed. In 2014, DEC projected summer peak load growth of 1.4% and winter peak load growth of 1.5%, after energy efficiency impacts.[71] By spring 2016, DEC's projected growth rate for summer peak demand had dropped to 1.2%, while winter peak demand growth dropped to 1.3%.[72] DEP's 2014 load forecast showed a similar decrease: In 2014, DEP projected summer peak load growth of 1.4% and winter peak load growth of 1.3%, after EE impacts,[73] but by 2016, DEP's projected growth rate for summer peak demand had dropped to 1.1%, while winter peak demand growth remained at 1.3%.[74]

Even these more modest 2016 load growth projections must be viewed with skepticism. For one thing, DEC and DEP each acknowledge in their most recent IRPs that "[t]he outlook for usage per customer is slightly negative to flat through much of the forecast horizon, so most of the growth is primarily due to customer increases."[75]

Historically, both DEC and DEP have over-estimated their load and energy forecasts, skewing high their assessment of future capacity and fuel needs. As

[71] Duke Energy Carolinas, Integrated Resource Plan (Annual Report) 13, NCUC Docket E-100, Sub 141 (Sept. 1, 2014), http://www.energy.sc.gov/files/view/2014DukeEnCarIRP.pdf.

[72] DEC 2014 IRP at 17.

[73] Duke Energy Progress, Integrated Resource Plan (Annual Report) 14, NCUC Docket E-100, Sub 141 (Sept. 1, 2014).

[74] DEP 2016 IRP at 17.

[75] DEC IRP at 16; DEP IRP at 16.

observed by the Public Staff of the NCUC, a review of the load forecasts for 2010-2016 in DEC's 2009 IRP, compared with actual peak loads for those years, "indicates a forecast error of 4%, resulting in an average annual estimation of 629 MW of demand."[76] DEC's 2009 energy sales forecast was somewhat more accurate, but still reflects a 2% error rate.[77] DEP's pattern of high-balling its load forecasts is even more glaring: a review of the peak load forecasts for years 2010-2016 in DEP's 2009 IRP "indicates a forecast error of 6%, resulting in an average annual overestimation of 766 MW." DEP's energy forecast from the 2009 IRP "also reflects a 6% error rate."[78] The discrepancy between projected and actual load growth raises serious questions about the 2014 load growth projections that formed the basis for Duke's assessment of its need for additional firm natural gas transportation capacity, and its resulting decision to pursue approval of the pipeline.

Additionally, DEC and DEP have declared for the first time in their 2016 IRPs that each utility's annual peak load now occurs in the winter, rather than in the summer—without fully justifying the change based on their data and analytical methodology.[79] This failure to fully justify their shift to a winter-peaking paradigm, coupled with the potential for growth of renewable energy resources

[76] Public Staff Initial Comments, NCUC Docket No. E-100, Sub 147 (Feb. 17, 2017) at 21.

[77] *Id.*

[78] Public Staff Initial Comments, NCUC Docket No. E-100, Sub 147 (Feb. 17, 2017) at 19.

[79] *See* Wilson, *supra* note 40, at 18-21.

and energy efficiency, means that the Duke utilities may be planning to build wholly unnecessary natural gas capacity. For example, as the Public Staff of the NCUC pointed out in comments on the 2016 IRPs:

> [I]n the event that DEC's estimated winter peak loads and temperatures are overstated and [its] summer peaks remain dominant, the lower growth in peak demands combined with the predicted increase in solar generation eliminates or significantly reduces the need for 435 MW of combustion turbine CT capacity planned for 2025 in DEC's IRP.[80]

Moreover, even if their questionable load growth assertions could withstand scrutiny, Duke Energy's operating utilities in the Carolinas do not need the Atlantic Coast Pipeline to supply fuel for their natural gas-fired power plants. The current targeted in-service date of the pipeline is 2019. Other than the already-approved Lee gas plant scheduled to come online in 2018, DEC is not planning to put any new gas-fired power plants into service until 2022. DEC's 2016 IRP shows that the only planned additions of new "undesignated" natural gas-fired capacity over the 15-year planning horizon are a 1,123 MW CC in 2023 and a 435 MW CT in 2025-2026.[81] Although DEP plans to build more natural gas plants than does DEC, only two would be added before 2026—a 1,123 MW CC in 2022 and a 435 MW CT in 2023—with the other plants coming online in later years of the planning horizon.[82]

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[80] Public Staff Initial Comments, NCUC Docket No. E-100, Sub 147 (Feb. 17, 2017) at 23-24.

[81] DEC 2016 IRP, Table 8-D.

[82] DEP 2016 IRP, Table 8-D.

Recent testimony filed by the Duke Energy executive responsible for natural gas procurement for DEC and DEP confirms that existing pipeline capacity is adequate to fuel its natural gas-fired power plants in the Carolinas: "Currently, Duke Energy has agreements in place that provide firm transportation to eleven current and future gas generation facilities in North and South Carolina including all of Duke Energy's current and approved CC facilities as well as several CT sites."[83] Tellingly, the DEC and DEP 2016 IRPs—despite devoting multiple pages and an entire appendix to a detailed discussion of the utilities' natural gas fuel supply and procurement strategies—do not contain a single specific mention of the proposed pipeline.[84]

4. The Commission embraces demand projections that are overly generalized and fails to consider the capacity of existing infrastructure to meet demand.

The Commission embraces demand projections that are overly generalized, and it fails to evaluate the capacity of existing infrastructure to meet demand. The Commission reports that the "consumption of natural gas grew by 12 and 49 percent, respectively in Virginia and North Carolina between 2010 and 2014" primarily as a result of the growth in gas-fired power plants.[85] But the Commission offers no information about the quantity of gas that growth represents. Furthermore, it does not analyze the impact of that growth on the capacity of

[83] Direct Testimony of Swati V. Daji, *supra* note 70 at 14.

[84] Duke Energy Carolinas 2016 IRP, Appendix E; DEP 2016 IRP, Appendix E.

[85] DEIS at 3-3.

existing pipeline infrastructure or why that growth warrants a new pipeline. Nor does the Commission explain why increased demand between 2010 and 2014 has any bearing on demand in 2018 or 2019, when this pipeline would be put into service if approved.

According to the Commission, EIA projects that natural gas consumption will continue to grow "due to population growth, industrial consumption, and electric power generation."[86] But again, the Commission offers no analysis of these blanket statements, and it does not attempt to quantify the level of demand that would bear on the need for a new interstate natural gas pipeline delivering gas in Virginia and North Carolina.

The Commission must give EIA's Energy Outlook for 2017 a more thorough evaluation than the cursory and overly generalized statements about the demand for natural gas presented in the draft EIS. The primary purpose of the Atlantic Coast Pipeline will be to fuel gas-fired power plants in Virginia and North Carolina. According to the draft EIS, 79% of its capacity, approximately 1.185 bcf/day, is committed to this purpose.[87] Duke Energy Progress, Duke Energy Carolinas, and Virginia Power Services are the subscribers that will use their pipeline capacity for gas-fired power generation. Yet, these companies are not facing the same demand for new gas-fired generation that existed in 2014.

[86] *Id.*

[87] *See id.* at 4-513.

In EIA's 2017 Energy Outlook, the reference case, *i.e.* a scenario reflecting improvements in known technologies and the views of leading economic forecasters and demographers,[88] projects that nationally the demand for natural gas for electricity generation will decrease from 2015 to 2020 and will not return to 2015 levels until approximately 2032. The national trend is also reflected in EIA's analysis for the South Atlantic census region, a portion of the East Coast that includes Virginia and North Carolina. EIA projects decreasing demand for natural gas for electricity generation from 2015 to 2020 in this region with demand returning to 2015 levels after 2034. To explain these trends, EIA notes that the near-term decline in gas demand is driven by "strong growth in renewables generation and price competition with coal."[89] The bottom line is that EIA's most recent projections of natural gas demand for electricity production, which, like PJM's projections show a decrease in demand for natural gas, do not support Atlantic's claims—new capacity is not needed until 2034 at the earliest. If demand projections continue to drop as they have in recent years, the need for new capacity may be many years distant.

Moreover, the Commission fails to consider at all how demand projections affect the capacity of the existing natural gas infrastructure system. In 2016, Synapse Energy Economics examined the implications for pipeline infrastructure

[88] U.S. Energy Info. Admin., Annual Energy Outlook 2017 5 (Jan. 5, 2017), https://www.eia.gov/outlooks/aeo/pdf/0383%282017%29.pdf.

[89] *Id.* at 62.

resulting from increased demand for natural gas in Virginia, North Carolina, and South Carolina.[90] Synapse concluded that the existing pipeline system and upgrades to that system already proposed, like the planned reversal of the Transco Mainstem, would provide enough gas to this three state region to meet demand through 2030 even under an unlikely high-gas demand scenario.[91] Synapse's results are consistent with the conclusions, discussed below, from the Commission, PJM, and others that curtailments during the 2014 polar vortex were the result of multiple factors unrelated to pipeline capacity. In other words, Virginia and North Carolina have sufficient natural gas infrastructure capacity.

5. The Commission's claim that the Atlantic Coast Pipeline will relieve capacity constraints is not supported.

The analysis that followed the polar vortex of 2013-2014 does not support the Commission's claim that the Atlantic Coast Pipeline will relieve capacity constraints. Project proponents have claimed that the cold weather during the winter of 2013-2014—the polar vortex—resulted in capacity constraints on the existing pipeline system that caused gas and electricty prices to spike.[92] However, neither the Commission nor Atlantic explain how increased capacity would

[90] Rachel Wilson et al., Synapse Energy Economics, Are the Atlantic Coast Pipeline and the Mountain Valley Pipeline Necessary? An examination of the need for additional pipeline capacity into Virginia and the Carolinas (Sept. 12, 2016), included as **Attachment 9**.

[91] *See id.* at 3-4.

[92] *See* ICF Int'l, Economic Impacts of the Atlantic Coast Pipeline6-7 (Feb. 9, 2015).

alleviate the problems encountered during the polar vortex, and the Commission has failed to provide its own analysis of that question in the draft EIS.

It is now well-established that curtailments and price spikes during the polar vortex were the result of multiple factors, many of which were unrelated to pipeline capacity constraints.[93] Commission staff reported that the "general consensus in the industry" is that the gas shortages and price spikes during the polar vortex were caused by the combination of: (i) "reduced hedging of natural gas" which exposed entities to volatile price fluctuations, (ii) depleted natural gas storage reserves, (iii) "market psychology," (iv) the fact that "PJM committed certain natural gas-fired generation in advance of the normal process," and (v) problems coordinating between gas providers and electric generators, including "the misalignment of the power and natural gas trading days."[94] In addition, PJM reported that 76% of outages during the polar vortex were unrelated to gas supply, including 42% caused by equipment failure.[95] Similarly, the North America Electric Reliability Corporation concluded that frozen equipment resulted in 50% of all outages during the polar vortex.[96] Yet, the Commission ignores this body of

[93] *See* FERC, Commission and Industry Actions Relevant to Winter 2013-14 Weather Events, Docket No. AD14-8 (Oct. 16, 2014) (eLibrary no. 20141016-3038).

[94] *See id.* at 10-11.

[95] PJM Interconnection, Analysis of Operational Events and Market Impacts During the January 2014 Cold Weather Events 24-26 (May 8, 2014), http://www.pjm.com/~/media/library/reports-notices/weather-related/20140509-analysis-of-operational-events-and-market-impacts-during-the-jan-2014-cold-weather-events.ashx.

[96] N. Am. Elec. Reliability Corp., Polar Vortex Review 4-5 (Sept. 2014), http://www.nerc.com/pa/rrm/January%202014%20Polar%20Vortex%20Review/Polar_Vortex_Review_29_Sept_2014_Final.pdf.

evidence into issues associated with the polar vortex, including the results of its own investigation and the steps it has already taken to remedy these problems, in the draft EIS for the Atlantic Coast Pipeline. In doing so, the Commission misleads the public about the necessity for this project.

6. The Commission ignores the rapidly dropping cost and increasing penentration of renewable energy technologies like solar, wind, and battery storage.

The Commission ignores the rapidly dropping cost and increasing penetration of renewable energy technologies like solar, wind, and battery storage in the draft EIS. These technologies are poised to transform how the United States produces and distrubutes energy. Because the Atlantic Coast Pipeline would be an investment in natural gas infrastructure that would operate for decades, the Commission cannot accurately assess the need for this project without taking into account these important energy trends.[97]

C. The Commission's reliance on untested, inaccurate, and incomplete information about the market demand for the Atlantic Coast Pipeline biases its analysis and skews public review.

The Commission's reliance on untested, inaccurate, and incomplete information about the market demand for the Atlantic Coast Pipeline permeates the draft EIS. Far from harmless, this flaw allows the agency to brush aside serious

[97] *See* Matt Cox, The Greenlink Group, *Clean Energy Has Arrived: Tapping Regional Resources to Avoid Locking in Higher Cost Natural Gas Alternatives in the Southeast* (2017), included as **Attachment 10**.

environmental impacts as insignificant.[98] For example, the Commission concludes that the effects of the project, including Atlantic's proposals to (i) cross 84 miles of steep slopes with high landslide potential,[99] (ii) build construction platforms by blasting away the ridgeline along miles of mountain ridges,[100] and (iii) level a permanent pipeline corridor through twenty-one miles of intact forestland of the George Washington and Monongahela National Forests[101] can be reduced to "less-than-significant" levels. As observed earlier, it reached this conclusion even before it had analyzed necessary information.

The Commission also relies on the untested, inaccurate, and incomplete information on market demand for the pipeline to give terse treatment to important alternatives, including the "no action" alternative and the use of available capacity in existing pipeline infrastructure.[102] Under NEPA, the alternatives analysis is the "heart of the environmental impact statement,"[103] and requires that agencies "rigorously explore and objectively evaluate" all reasonable alternatives.[104] Here, the Commission rejected the "no-action alternative," seemingly concluding that it must approve the project because the pipeline is necessary to meet growing gas

[98] *See* DEIS at ES-14.

[99] *Id.* at ES-4.

[100] *See, e.g.*, *id.* at 4-36, 4-40.

[101] *See id.* at 1-8.

[102] *See* Rachel Wilson, et al., *supra* note 90, at 3-4.

[103] 40 C.F.R. § 1502.14 (2017).

[104] *Id.* § 1502.14(a).

demand and to avoid supply constraints.[105] Yet nowhere has the Commission independently evaluated those claims of necessity from Atlantic, or even acknowledged the existence of contrary information.

The Commission's bias in accepting Atlantic's claims that its pipeline is needed also allows it to dismiss existing infrastructure system alternatives with little or no analysis. While the draft EIS lists Transco pipelines as a system alternative, it fails to mention the slated reversal of the Transco Mainstem, the largest North-South pipeline on the East Coast, or that the Commission approved the project that would complete the reversal earlier this year.[106] Moreover, the subscribers to the approved reversal, which would move 1.7 bcf/day of Marcellus gas into the Southeast, are gas producers and marketers looking for customers—in other words, this approved project would move more available Marcellus gas into the Southeast than the Atlantic Coast Pipeline.[107] And, as the draft EIS acknowledges, the Transco system can move a total of 11 bcf/day, an enormous capacity that warrants careful scrutiny as an alternative. The existing Columbia pipeline network is another important system alternative that the Commission summarily dismisses.[108] Moreover, the Commission fails to examine the pipeline system as a whole, and its compartmentalized analysis ignores opportunities to

[105] *See* DEIS at 3-3.

[106] *See* DEIS at 3-4; FERC, Order Issuing Certificate re Transcontinental Gas Pipe Line Company, LLC under CP15-138 (Feb. 3, 2017) (eLibrary No. 20170203-3047).

[107] *See id.* at 5-6.

[108] *See* DEIS at 3-5.

take advantage of available capacity on more than one system to increase incremental delivery in Virginia and North Carolina. The Commission focuses too narrowly on Atlantic's goal of moving gas from the Dominion South Hub on the schedule Atlantic is pushing for, rather than making the determination that the public interest requires: Can the existing pipeline network meet demand for natural gas in Virginia and North Carolina?

It is well-established that existing pipeline systems can move gas at lower costs than new, greenfield infrastructure, even with upgrades and modifications. Because they offer significantly lower environmental impacts than new infrastructure and because they can reduce costs for ratepayers, the Commission must thoroughly investigate and compare system alternatives to the Atlantic Coast Pipeline. As discussed earlier, Synapse Energy Economics concluded that existing infrastructure, with modifications and upgrades already proposed, could meet demand for natural gas in Virginia, North Carolina, and South Carolina, through 2030 even under a high-gas demand scenario.[109]

Finally, the Commission's reliance on Atlantic's claims of necessity misleads the public by framing the project as necessary, when, in fact, no agency—not the Commission and not the state public utilities commissions of Virginia and North Carolina—has made that finding. In doing so, the Commission deprives the public of an opportunity to understand and comment on a complete and fair analysis of the actual need for the Atlantic Coast Pipeline and a robust consideration of its

[109] *See* Rachel Wilson, et al., *supra* note 90, at 3-4.

impacts and viable alternatives to the project. The public cannot fairly weigh the need for the project against its environmental impacts because the Commission has only told one side of the story in its draft EIS. Faced with the Commission's incomplete and misleading presentation, the public is left with an unreasonable burden: It must either blindly accept these blanket statements that the project is needed or guess as to what might be the whole story. NEPA requires more.

Conservation Groups are not the only parties to recognize this critical defect in the Commission's analysis. In its comments on the proposed Mountain Valley Pipeline, which, like the Atlantic Coast Pipeline would deliver Marcellus gas to the Southeast, the Environmental Protection Agency wrote that the agency "is concerned that the deferring evaluation of need may compromise the NEPA process."[110] EPA encouraged the Commission to include analysis of project need in its EIS, to provide "transparency and disclosure" for the public, to provide an opportunity for the public to comment on the analysis, and to allow a robust assessment and comparison of alternatives.[111] It emphasized that "[e]stablishing a project need is critical to help determine alternatives that should be studied" in an EIS, a position that is well-grounded in NEPA precedent.[112]

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[110] Letter from Jeffrey D. Lapp, Assoc. Dir., EPA Region III, to Nathaniel J. Davis, Deputy Sec'y, FERC at 2 (Dec. 20, 2016) (eLibrary No. 20161229-0033), included as **Attachment 5**.

[111] *Id.*

[112] *Id.* at 2.

III. FOREST SERVICE SPECIAL USE PERMIT AND PLAN AMENDMENTS

A. The draft EIS's consideration of impacts to the George Washington and Monongahela National Forests is insufficient.

The proposed route of the Atlantic Coast Pipeline would cross 21 miles of National Forest Service (NFS) lands, including 5 miles of the Monongahela National Forest (MNF) in Pocahontas County, West Virginia, and 16 miles of the George Washington National Forest (GWNF) through Augusta, Bath, and Highland Counties in Virginia.[113] As discussed throughout these comments, this stretch of the proposed route through two national forests would cross exceptional terrain characteristic of the central Appalachians: steep slopes susceptible to landslides, pristine headwaters, and karst topography replete with caves and sinkholes.[114]

The U.S. Forest Service has expressed concerns about the feasibility of and environmental impacts surrounding the construction, operation, and maintenance of a large interstate natural gas pipeline through terrain so ill-suited to such a

[113] DEIS at 4-343.

[114] Conservation Groups incorporate by reference comments filed in response to this draft EIS by the Virginia Wilderness Committee addressing concerns about impacts on National Forest lands. Virginia Wilderness Committee, Comments on the Draft Environmental Impact Statement for the Proposed Atlantic Coast Pipeline and Supply Header Project, FERC Docket Nos. CP15-554-000, CP15-554-001, CP15-555-000 (eLibrary No. 20170331-5464) (March 31, 2017).

project.[115] We share those concerns, and the inadequate consideration of these crucial issues in the draft EIS does little to allay them.

Pursuant to the Mineral Leasing Act of 1920 and applicable federal regulations, Atlantic must receive approval for a Special Use Permit (SUP) from the Forest Service to obtain a right-of-way to construct and operate the Atlantic Coast Pipeline on NFS lands. [116] Atlantic applied for the required SUP on November 12, 2015.[117] If approved, the pipeline right-of-way would be authorized by a temporary SUP that would cover the clearing and construction phase, followed by a long-term SUP for ongoing pipeline maintenance for up to 50 years.[118] The final SUP would reflect the location of the pipeline, an associated 53.5-foot wide maintenance corridor, and any access roads on federal lands.[119]

As noted in the draft EIS, the Forest Service "will use this EIS to review the project in accordance with applicable regulations," including those pursuant to the National Forest Management Act (NFMA), as well as to decide whether to issue a SUP.[120] For the reasons discussed in this section, this draft EIS fails to provide an

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[115] Letter from Clyde Thompson, Forest Supervisor, U.S. Forest Serv., to Nicholas Tackett, FERC (Nov. 18, 2016), included as **Attachment 11**; Letter from Clyde Thompson, Forest Supervisor, U.S. Forest Serv., to Kimberly D. Bose, Secretary, FERC (Oct. 24, 2016), included as **Attachment 12** [hereinafter Forest Service High-Hazard Stabilization Measures Request].

[116] 30 U.S.C. 185(1); 36 C.F.R. 251.

[117] DEIS at 1-7.

[118] *Id.* at 1-8.

[119] *Id.* at 4-346.

[120] *Id.* at 1-8.

adequate basis for the Forest Service's decisions. Given the deficiencies throughout the draft EIS as a whole, the proper remedy is for the Commission to issue a revised draft EIS for public comment, as discussed in Section I. At a minimum, the Forest Service should release a revised supplemental draft EIS to remedy the deficiencies that hinder the Forest Service's decision-making process.

As a cooperating agency, the Forest Service may adopt the draft EIS issued by the Commission on December 30, 2016 without recirculating it if, "after an independent review of the statement," the Forest Service concludes that its comments and suggestions have been satisfied.[121] Given the dearth of essential information in the draft EIS related to impacts on the MNF and GWNF, we urge the Forest Service not to adopt this draft EIS. Instead, the Forest Service should issue a revised draft EIS for the SUP, associated plan amendments, and other impacts to the MNF and GWNF, based on complete information and an adequate assessment of the environmental impacts of the Atlantic Coast Pipeline's proposed route through the national forests. The Forest Service should provide that revised draft EIS for public review and comment.

The Forest Service clearly has the authority and the obligation to revise the National Forest analysis in this draft EIS and to issue a supplemental draft for public comment. Only then will the Forest Service have the information it needs to make a reasoned decision and the public the tools needed to comment in a

[121] 40 C.F.R. 1506.3(c).

meaningful way on the impacts on the national forests and the sufficiency of Atlantic's proposed mitigation measures.

B. The draft EIS is insufficient due to crucial missing and inadequate information provided by Atlantic.

The most significant problem in the draft EIS with respect to the proposed route through the MNF and GWNF stems not from an inadequate analysis on the part of the Forest Service, but from Atlantic's failure to timely submit critical information that would have provided the Forest Service the information it needs to adequately assess impacts to the National Forests and for the public to comment on that assessment.

A key purpose of NEPA is "to ensure that federal agencies are fully aware of the impact of their decisions on the environment."[122] In order to satisfy NEPA requirements, "[a] properly prepared EIS" must "ensure[] that federal agencies have sufficiently detailed information to decide whether to proceed with an action

[122] *See, e.g.*, 40 C.F.R. §1500.1 (NEPA ensures high-quality "environmental information is available to public officials and citizens before decisions are made…."; "Accurate scientific analysis, expert agency comments, and public scrutiny are essential…."); §1502.1 (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…."); §1502.24 ("Agencies shall ensure the professional integrity, including scientific integrity" of EISs.); *Ariz. Cattle Growers' Ass'n v. Cartwright*, 29 F.Supp.2d 1100, 1116 (D. Ariz. 1998) (The NEPA requirement to issue an EIS serves two purposes: to "ensure[] that federal agencies have sufficiently detailed information to decide whether to proceed with an action in light of potential environmental consequences" and "to provide[] the public with information on the environmental impact of a proposed action and encourage[] public participation in the development of that information." (quoting *Or. Envtl. Council v. Kunzman*, 817 F.2d 484, 492 (9th Cir. 1987)).

in light of potential environmental consequences."[123] To pass muster under NEPA, a reviewing agency must take a "hard look" at the environmental consequences of a proposed project.[124] But an agency cannot take a "hard look" if it lacks essential information on which to base its assessment of impacts. When a draft EIS "is so inadequate as to preclude meaningful analysis, [an] agency shall prepare and circulate a revised draft of the appropriate portion."[125] Further, an agency must prepare a supplemental draft EIS when there are "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."[126] Due to the inadequacy of information provided by Atlantic, the portion of the draft EIS for the Atlantic Coast Pipeline addressing issues that would affect the MNF and GWNF is so inadequate that it precludes meaningful analysis—by the Forest Service and by the public. And the thousands of pages of new information Atlantic has submitted since the draft EIS was issued—some of it crucial to the analysis of the impacts of the pipeline—must be assessed by the agencies so the public may comment meaningfully on that assessment.

We recognize that not all missing or incomplete information in a draft EIS is so crucial to the analysis that it thwarts an agency's ability to take a "hard look" at

[123] *Ariz. Cattle Growers' Ass'n*, 29 F.Supp.2d at 1116.

[124] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989).

[125] 40 C.F.R. § 1502.9(a).

[126] *Id.* § 1502.9(c).

the environmental impacts of a proposed project. Courts have consistently held that a deficiency in an EIS that may be characterized as a "fly speck," or minor deficiency, is not sufficient to support a finding that an EIS is inadequate.[127] Indeed, principles of efficiency and reason would counsel against a requirement that would force agencies to issue a revised or supplemental draft EIS every time a small amount of non-essential information were omitted from a draft EIS. But here, there is no doubt that the Forest Service lacked the sufficiently detailed information it needed to inform a "hard look" at the time the draft EIS was issued. The nature of the missing and insufficient information in this draft EIS constitutes far more than a mere "fly speck."[128] Rather, it is precisely the crucial information the Forest Service needs to make an informed decision whether to grant or deny Atlantic's application for a special use permit and whether to amend the MNF and GWNF forest plans. Far from being a "fly speck," missing information like the feasibility of drilling under the Blue Ridge or constructing a 42-inch pipeline across very steep slopes susceptible to landslides is absolutely indispensable to the Forest Service's decisions. For these reasons, the draft EIS is legally inadequate under NEPA and must be revised or supplemented.[129]

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[127] *Churchill Cty. V. Norton*, 276 F.3d 1060, 1071 (9th Cir. 2001) (citing *Alaska Envtl. Ctr. v. Lujan*, 961 F.2d 886, 889 (9th Cir. 1992)).

[128] *Id.*

[129] *See League of Wilderness Defs./Blue Mountain Biodiversity Project v. Connaughton*, No. 3:12-CF-02271-HZ, 2014 WL 6977611, at *19 (D. Or. Dec. 9, 2014) (holding that while the court was "sensitive to the parties' concerns about the efficiency of the administrative decision-making process . . . the need for administrative efficiency does

As discussed below, the Forest Service itself recognizes the crucial nature of the missing and inadequate information in the draft EIS, noting that "[t]he direct, indirect, and cumulative effects related to" several proposed and potential forest plan amendments could not be determined because Atlantic had failed to provide sufficient information.[130] We urge the Forest Service to decline to adopt the December 30, 2016 draft EIS and to issue a revised draft EIS assessing the impacts of a SUP and amendments to the forest plans based on complete information from Atlantic.

This is the only proper course available, as neither the Forest Service nor the Commission could accept and rely upon this draft EIS to meet the agencies' legal obligations. This draft EIS, which on its own face expressly acknowledges that it is incomplete and inadequate on highly relevant, material issues, cannot satisfy NEPA requirements to provide meaningful opportunities for public comment and to inform decision-makers *before* decisions are made. Any attempts to issue a final EIS and decisions without first providing a revised draft EIS with complete information and analysis *and* offering that revised draft for public comments would clearly put the cart before the horse, in violation of basic NEPA principles.

In addition to concluding in the draft EIS itself that it had insufficient information on which to base an assessment of environmental impacts of the

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not relieve the Forest Service of its obligation to provide the public with a meaningful opportunity for comment" on a proposed project).

[130] DEIS at 4-357, 4-361.

proposed route through the national forests, the Forest Service has also recognized the insufficiency of information in a November 28, 2016, letter to the Commission.[131] The letter notified the Commission that the Forest Service does not concur with the draft permitting timetable setting the final completion date for consideration of the SUP application as September 28, 2017.[132] In addition to detailing its own required administrative review process that would extend the Forest Service's decision process past the prospective timeframe set forth by the Commission, the Forest Service noted that its ability to adhere to any timetable is contingent on receipt of adequate data and analysis from the Commission and Atlantic.[133]

As an example of the type of missing information in question, in its November 2016 letter, the Forest Service cited to perhaps the most troublesome deficiency—a lack of information regarding Atlantic's plans to construct the pipeline on steep and very steep slopes on both national forests. The Forest Service warned in its letter that this "lack of essential information hinders the Forest Service's ability to provide a definitive completion date for the decision."[134] It also limited the Forest Service's ability to complete an adequate analysis in the draft EIS.

This lack of sufficient information persists despite the Forest Service's efforts to obtain the information from Atlantic. On October 24, 2016, the Forest Service

[131] Letter from Clyde Thompson to Nicholas Tackett, *supra* note 115.

[132] *Id.*

[133] *Id.*

[134] *Id.*

submitted an information request to Atlantic for site-specific design of stabilization measures in high-hazard portions of the proposed route on or in close proximity to the MNF and GWNF.[135] Citing the "very challenging terrain" of the central Appalachians, the Forest Service expressed concern about precisely how Atlantic will handle and mitigate impacts arising from steep slopes, the presence of headwater streams, geologic formations with high slippage (landslide) potential, highly erodible soils, and the presence of high-value natural resources downslope of high hazard areas.[136] The Forest Service also noted that such concerns were compounded by high annual rates of precipitation and the potential for extreme precipitation events.[137] Further, the Forest Service pointed out that similar hazards on smaller pipelines in the central Appalachians have led to slope failures, erosion and sediment incidents, and damage to aquatic resources. Since these consequences attended even smaller pipelines, the Forest Service expressed the inevitable concern that the Atlantic Coast Pipeline could present a high risk of failure leading to damage to forest lands and waters.

In its October 2016 request, the Forest Service noted that while Atlantic had initially claimed it would implement "best in class" slope stabilization and erosion/sedimentation control measures, all Atlantic had provided to date was

[135] Forest Service High-Hazard Stabilization Measures Request, *supra* note 115.

[136] *Id.*

[137] *Id.*

"general descriptions and conceptual drawings."[138] In this request and in other formal and information communications, the Forest Service has asked Atlantic to provide more than general schematics: Atlantic must file documentation of the *effectiveness* of these purportedly "best in class" techniques.[139] The Forest Service provided Atlantic a list of specific requested information, including anticipated hazards, how Atlantic plans to minimize those hazards, specific design plans, short-term and long-term measures, and disclosure of potential natural resource impacts in the event of a failure.[140]

The Forest Service's request for more specific mitigation measures is supported by the relevant case law. An EIS must contain a "reasonably complete discussion of possible mitigation measures," and such a discussion cannot rely on an applicant's general assurance of the implementation of "best management practices" or, in this case, "best in class" methods.[141] Atlantic would have the Forest Service rely on just such general assurances, but the Forest Service has rightly demanded that Atlantic provide evidence not only that it will implement "best in class" methods, but that those methods will actually work.

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[138] *Id.*

[139] *Id.*

[140] *Id.*

[141] *See, e.g.*, *Wilderness Soc'y v. Bosworth*, 118 F.Supp.2d 1082, 1107 (D. Mont. 2000) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351 (1989)) (holding that summarily relying on BMPs to mitigate a high risk of landslides, when those measures have not been specifically assessed for effectiveness against landslides, inadequate under NEPA).

As of the issuance of the draft EIS in late December 2016, Atlantic had failed to provide the requested information to the Forest Service, despite being given ample time in which to do so. On February 22, 2017, James Thompson, a third-party reviewer for the Atlantic Coast Pipeline under contract with the MNF wrote a letter to Clyde Thompson, the MNF Forest Supervisor, detailing his deep concern about Atlantic's failure to respond to the Forest Service's crucial information requests.[142] Citing Atlantic's "lack of transparency and responsiveness," Thompson emphasized that despite "repeated requests" between November 2016 and February 2017—after the Forest Service requested the high hazard site-specific information—Atlantic has failed to provide information that is "necessary to adequately assess the environmental effects" of the Atlantic Coast Pipeline.[143]

The Forest Service and Thompson have both described the missing information as "essential" and "necessary." Without it, the Forest Service cannot adequately assess the impacts of permitting Atlantic to construct the Atlantic Coast Pipeline across NFS lands. The draft EIS is therefore incomplete with respect to the information needed to inform the Forest Service's decision whether to grant a SUP, and a new draft EIS must be issued once the Forest Service has complete information and has conducted the assessment required by NEPA.

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[142] Letter from James A. Thompson, Ph.D., Professor of Pedology and Land Use, W. Va. Univ., to Clyde Thompson, Forest Supervisor, U.S. Forest Serv. (Feb. 22, 2017), included as **Attachment 13**.

[143] *Id.*

Not only does the inadequate draft EIS fail to inform agency decisionmaking, it thwarts meaningful public participation in the process. We are aware, as discussed in Section I, that Atlantic has continued to submit large volumes of information months after the draft EIS was published. Given the quantity and technical detail of much of this miscellaneous, out-of-context, raw data, the public is of course unable to perform even a cursory, let alone meaningful, review of this material.[144] Our brief review of some of this supplemental documentation indicates that Atlantic has recently submitted responses to the Forest Service's request with respect to two of the ten sites. But the fundamental principle behind NEPA is that the public must be afforded an opportunity to comment—on the underlying data if it wishes, but especially on an environmental statement's synthesis of this data and on the Forest Service's expert agency analysis of that information. This information, which the Forest Service requested in October, is indispensable to an adequate analysis to determine whether the Atlantic Coast Pipeline should be permitted on National Forest lands. A revised draft EIS must include the Forest Service's analysis of any essential information submitted after the draft EIS was published, including that related to high hazard sites.

Further, the Forest Service should wait to issue a revised draft EIS until Atlantic has responded to all ten high hazard requests, which themselves represent

[144] *See* Table of Information Filed by Atlantic Coast Pipeline, LLC since Release of Draft EIS, included as **Attachment 4**.

only a sampling of the difficult sites across the MNF and GWNF. These sites were selected by the Forest Service to serve as "merely representative sites" to demonstrate whether stability can in fact be maintained for the purpose of making a preliminary determination of Forest Plan consistency.[145] Atlantic must submit the requested information and the public must be given the opportunity to comment on the Forest Service's consideration of that information. Without that information, the portion of the draft EIS addressing the SUP request and proposed and potential forest plan amendments is necessarily incomplete, the Forest Service lacks the necessary information on which to base a decision, and the public's opportunity to comment meaningfully is thwarted.

In addition to the general inadequacy of the draft EIS under NEPA, the fact that the draft EIS lacks essential information pervades these comments and implicates at least three broad concerns related to issuance of a SUP. First, approval of Atlantic's request would require the Forest Service to approve both plan- and project-specific amendments to the Monongahela and George Washington National Forests forest plans. The analysis presented in the draft EIS does not justify any of the proposed or potential amendments because the analysis is based on inadequate information and therefore would violate NEPA and prevent the Forest Service from assessing its obligations under the NFMA, if not revised and improved. Second, in order to qualify for a SUP, Atlantic needs to demonstrate technical feasibility of the proposed Atlantic Coast Pipeline. Because

[145] Forest Service High-Hazard Stabilization Measures Request, *supra* note 115.

Atlantic has failed to respond to the Forest Service's requests for site-specific design stabilization measures in high-hazard locations along the proposed route, the Forest Service is unable to make a determination of technical feasibility. Finally, the Forest Service must reject any proposal that is not in the public interest. Atlantic has failed to demonstrate that the Atlantic Coast Pipeline is in the public interest as interpreted by Forest Service regulations.

While Atlantic has developed a draft Construction, Operations, and Maintenance (COM) Plan that describes how Atlantic would operate on Forest Service lands to avoid and minimize impacts, only a draft of that plan was available at the time the draft EIS was issued.[146] The MNF and GWNF are still reviewing the Plan, which contains gaps regarding access roads on the National Forests and construction plans during migratory bird season,[147] as well as gaps relating to crucial questions regarding the feasibility of drilling through the Blue Ridge (discussed *supra* Section VII) and constructing on steep and very steep slopes (discussed *supra* Section XVI). Atlantic must file a revised COM Plan that addresses these deficiencies, but as discussed in these comments, the crucial missing information identified in the draft EIS should have been incorporated into the draft EIS so as to provide a basis for meaningful public comment. Once

[146] DEIS at G-1.

[147] *Id.* at 4-346 (discussing the Forest Service's concerns with construction of an access road through the Browns Pond SBA and requesting a revised COM Plan that reflects updates to access roads on NFS lands); 5-34 (requesting a revised COM Plan that identifies where Atlantic will construct during migratory bird season).

Atlantic submits a revised COM Plan as required, a revised draft EIS must also be issued to allow the public adequate opportunity for comment.

Finally, the draft EIS is insufficient with respect to other specific concerns, including impacts to the Browns Pond Special Biological Area and impacts to the proposed Shenandoah Mountain National Scenic Area.

C. The draft EIS does not contain a sufficient analysis of the impacts of proposed and potential amendments to the MNF and GWNF forest plans.

Land and Resource Management Plans (LRMPs or forest plans), including the LRMPs for the GWNF and MNF, are devised to meet the Forest Service's obligations under the National Forest Management Act (NFMA) of 1976.[148] The LRMP for the Monongahela National Forest was revised in 2006, and the LRMP for the George Washington National Forest in 2014.

To qualify for a SUP, Forest Service regulations provide that a proposed use must either be consistent with the applicable LRMP for the affected Forest or be made consistent with the Plan.[149] When a proposed project would be inconsistent with the applicable LRMP, the Forest Service can respond in one of four ways: i) modify the proposed project to make it consistent with the Plan; ii) reject the proposal; iii) amend the plan so that the project will be consistent with the Plan as amended; or iv) amend the plan contemporaneously with the approval of the

[148] 16 U.S.C. §§ 1600-1687.

[149] 36 C.F.R. § 251.54(e)(1)(ii).

project or activity so the project will be consistent with the plan as amended.[150] The latter option can be limited to apply only to the proposed project.[151]

Here, the Forest Service has determined that before it could grant Atlantic's SUP, it would need to amend the LRMPs for both the MNF and the GWNF.[152] The process for amending a forest plan includes preliminary identification of the need to change the plan, development of a proposed amendment, consideration of the environmental effects of the proposal, *providing an opportunity to comment on the proposed amendment*, providing an opportunity to object before the proposal is approved, and approval of the plan amendment.[153] The draft EIS for the Atlantic Coast Pipeline must provide the public an opportunity to comment on the proposed amendments, but the lack of information provided by Atlantic and consequent lack of analysis in the draft EIS renders it impossible for the public to comment meaningfully during the planning phase as required by federal regulations[154] implementing the NFMA and by NEPA.

Because the draft EIS is inadequate due to its failure to provide the Forest Service with sufficiently detailed information on which to base an assessment of impacts and a decision, the draft EIS also fails to provide an adequate basis for

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[150] *Id.* § 219.15(c)(1)-(4).

[151] *Id.*

[152] DEIS at 4-356 to 4-357.

[153] 36 C.F.R. § 219.5(a)(2)(i).

[154] *Id.*

public comment—the other fundamental purpose of NEPA.[155] Due to the lack of adequate assessment of environmental impacts, the public is unable to comment effectively on much of the Forest Service's analysis of the impacts of proposed and potential amendments to the LRMPs for the MNF and GWNF.

When deciding whether to amend a forest plan, the Forest Service must also ensure that any amendments comport with the agency's substantive statutory obligations under the NFMA.[156] Because forest plan components implement the agency's substantive obligations under the NFMA and its regulations, the agency must ensure that it can still meet its NFMA obligations if the plan is changed or an activity is exempt from certain plan requirements. Not only does Atlantic's failure to provide critical requested information render it impossible for the Forest Service to assess environmental impacts as required under NEPA, it also prevents the Forest Service from determining whether the agency has met its NFMA obligations.

The Forest Service must also address certain requirements of the 2012 rules for forest planning and management. In 2012, for the first time since 1982, the Forest Service issued an updated forest planning rule (the 2012 Planning Rule).[157] The 2012 Planning Rule includes the substantive requirements that must be met by

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[155] *See Ariz. Cattle Growers' Ass'n v. Cartwright*, 29 F.Supp.2d 1100, 1116 (D. Ariz. 1998).

[156] 16 U.S.C. §§ 1600-1687; *see* 36 C.F.R. 219.8-219.11.

[157] 36 C.F.R. § 219.

forest plans developed or revised under the 2012 Rule.[158] These substantive requirements cover sustainability, diversity of plant and animal communities, multiple uses, and timber requirements based on the NFMA.[159] In 2016, the Forest Service amended the 2012 Rule, in part to clarify how the 2012 Rule's substantive requirements apply when existing forest plans, developed under the prior 1982 rules, are being amended.[160] While the 2012 Rule gives the responsible official discretion "to tailor the scope and scale of an amendment to reflect the need to change the plan," that discretion is "not unbounded."[161] Rather, the responsible official must determine which of the 2012 Rule's substantive requirements are "directly related" to the plan direction being amended and tailor the amendment to meet those requirements.[162] There is no indication in the draft EIS that the Forest Service has assessed whether and how the 2012 Rule requirements apply to the proposed plan amendments or informed the public. The Forest Service will be unable to do so without sufficient information from Atlantic.

If the Forest Service ultimately decides to amend the MNF and GWNF LRMPs, it must determine that the amendments and activities those amendments allow still comply with the fundamental, underlying substantive requirements

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[158] *Id.* §§ 219.8-219.11.

[159] *Id.*

[160] U.S. Dep't of Agric., U.S. Forest Serv., Final rule on National Forest System Land Management Planning, 81 Fed. Reg. 90,723 (Dec. 15, 2016) (to be codified at 36 C.F.R. pt. 19).

[161] *Id.*

[162] *Id.*

established by the NFMA and its regulations. In light of the insufficient information available to the Forest Service when the draft EIS was issued, the Forest Service lacks adequate information to make and to support any such determination. The draft EIS is therefore legally insufficient, insofar as it does not provide a sufficient basis on which the Forest Service can determine compliance with the substantive requirements of the NFMA and its regulations.

1. The potential amendment to the Monongahela National Forest LRMP allowing exceedance of soil and water standards is not justified by the draft EIS.

Construction of the Atlantic Coast Pipeline through the MNF would potentially require one "project-specific amendment" that would not apply to or authorize other projects. While the MNF does not have an LRMP direction requiring a plan amendment to reallocate prescriptions as does the GWNF LRMP,[163] the potential amendment would allow Atlantic to exceed two forest-wide standards for soils and water during the construction phase. The first standard, SW06, requires severe rutting from management activities to be confined to less than 5 percent of an activity area.[164] The second standard, SW07, limits the use of wheeled or tracked motorized equipment on steep slopes (40 to 50 percent), very steep slopes (more than 50 percent), soils susceptible to landslides, soils that are either commonly wet

[163] DEIS at 4-357.

[164] *Id.* at 4-358.

at or near the surface during a considerable part of the year, and soils highly susceptible to compaction.[165]

The relaxation of these forest-wide standards would affect three management prescriptions:

- MNF Management Rx 3.0 – Vegetation Diversity Emphasis: Covers a diversity of landforms and ecosystems across the forest. These areas are managed to provide age class diversity and sustainable timber production; a variety of forest scenery; habitat for a variety of wildlife species; and a primarily motorized recreation environment. Pipeline (utility corridor) and road construction are not prohibited in this Rx area.

- MNF Management Rx 4.1 – Spruce and Spruce-Hardwood Ecosystem Management: Spruce and Spruce-Hardwood Ecosystem Management areas focus on restoration and management of disjunctive red spruce and spruce-hardwood communities of the central Appalachians. This community has been greatly reduced and altered from its former extent, composition, and structure, primarily due to exploitative management that occurred prior to the establishment of the MNF. The forest now contains most of the remaining acreage of central Appalachian spruce and spruce-hardwood forest, as well as most of the acreage upon which it formerly occurred. Therefore, the forest bears primary responsibility for the restoration and management of this unique community. These areas emphasize restoration of the spruce and spruce-hardwood communities, and the recovery of the threatened and endangered species and other species of concern associated with them.

- MNF Management Rx 6.1 – Wildlife Habitat Emphasis: Areas where vegetation management is used to enhance a variety of wildlife habitat. These areas are managed to provide a sustainable production of mast and other plant species that benefit wildlife, restore pine-oak and oak-hickory communities, restrict motorized access and provide a network of security areas [to] reduce disturbance to wildlife, provide a primarily non-motorized

[165] *Id.*

> recreational setting, and provide a mix of forest products. Road construction and utility corridors are allowed in the Rx area with parameters.[166]

Forest plans and their standards are designed to implement the requirements of the NFMA. The applicable NFMA regulations require every plan to contain certain components, including standards. A standard is defined in the regulations as "a mandatory constraint on project and activity decisionmaking, established to help achieve or maintain the desired conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements."[167]

These soil and water standards were developed to implement the underlying requirement that the national forest management protects watershed functions and does not impair the productivity of the land."[168] Because these standards implement the NFMA, the Forest Service does not have the authority to simply waive the standards by amending the forest plan without determining which substantive requirements apply and without adhering to the substantive

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[166] *Id.* at 4-353 to 4-354.

[167] 36 C.F.R. 219.7(e)(1)(iii).

[168] 16 U.S.C. § 1604(g)(3)(A) and (C) (provide for watershed and fish; management shall not substantially and permanently impair the productivity of the land). Courts have explained that the Forest Service must "maintain" and "ensure" soil productivity. *See Ecology Ctr. v. Austin*, 430 F.3d 1057, 1062 (9th Cir. 2005) (Among the "substantive requirements" of NFMA, "the Forest Service must maintain soil productivity. 16 U.S.C. § 1604(g)(3)(C)."), *cert. denied sub. nom. Mineral County v. Ecology Ctr., Inc.*, 549 U.S. 1111 (2007), *overruled on other grounds by Lands Council v. McNair*, 537 F.3d 981 (9th Cir. 2008); *Friends of the Columbia Gorge, Inc. v. Elicker*, 598 F. Supp. 2d 1136, 1155 (D. Or. 2007) ("NFMA also requires USFS to ensure . . . the productivity of the soil.").

requirements imposed by the NFMA and applicable regulations.[169] Rather, the Forest Service must determine whether Atlantic can exceed existing standards still while still satisfying the substantive requirements of the NFMA and ensuring that the Forest Service meets its fundamental obligations to protect soil and water resources. The information provided in the draft EIS is not sufficient to allow the Forest Service to make such a determination.

Nor is the information contained in the draft EIS sufficient to allow the Forest Service, or the public, to assess the environmental impacts of allowing Atlantic to exceed these two forest-wide standards. As of the publication of the draft EIS, "[t]he direct, indirect, and cumulative effects related to MNF Potential Amendment 1" could not be determined because Atlantic had failed to provide sufficient information.[170] The draft EIS notes that impacts of the potential amendment could not be determined until Atlantic revised its COM Plan and an effects analysis was completed related to sedimentation, impacts on riparian areas, and other resources.[171] The high hazard site-specific location requested by the Forest Service in October 2016 is particularly relevant to the question whether Atlantic should be permitted to exceed SW07. Four of the ten sites selected by the Forest Service are on or in close proximity to the MNF, and all four sites feature

[169] *See* 36 C.F.R. 219.8-219.11.

[170] DEIS at 4-357.

[171] *Id.*

"very steep" slopes[172]—defined by the MNF LRMP as more than 50 percent.[173] In fact, the slopes selected by the Forest Service for analysis all range from 60 percent to more than 100 percent.[174] SW07 prohibits the use of wheeled or tracked motorized equipment on very steep slopes such as these without recommendations from an interdisciplinary team review and line officer approval.[175]

In addition, as discussed above, Atlantic's promises to use "best in class" methodology are not sufficient to overcome these deficiencies: Atlantic must demonstrate the effectiveness of their proposed mitigation methods.[176] As of the publication of the draft EIS, Atlantic had failed to do so. Without that information, the Forest Service cannot waive these standards. Without critical information pertaining to Atlantic's plans for construction in high hazard locations, the Forest Service is unable to determine the impacts associated with exceedances of SW06 or SW07. As assessment of environmental impacts is of course indispensable to a

[172] Forest Service High-Hazard Stabilization Measures Request, *supra* note 115.

[173] MNF LRMP at II-10.

[174] Forest Service High-Hazard Stabilization Measures Request, *supra* note 115.

[175] MNF LRMP at II-10.

[176] *See Wilderness Soc'y v. Bosworth*, 118 F. Supp. 2d 1082, 1107 (D. Mont. 2000) (holding summarily relying on BMPs to mitigate a high risk of landslides, when those measures have not been specifically assessed for effectiveness against landslides, inadequate under NEPA); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989) (finding incomplete discussion of mitigation measures violates NEPA); *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998), *overruled on other grounds by Lands Council v. McNair*, 537 F.3d 981 (9th Cir. 2008) ("Without analytical data to support the proposed mitigation measures, we are not persuaded that they amount to anything more than a 'mere listing' of good management practices.").

valid NEPA analysis an assessment of obligations under the NFMA, providing additional support for the issuance of a revised draft EIS.

2. The proposed and potential amendments to the George Washington National Forest LRMP are not justified by the draft EIS.

Construction through the GWNF would require both project-specific and plan-level amendments. The proposed plan-level amendment would reallocate 104.2 acres of national forest land to the Management Prescription 5C—Designated Utility Corridors.[177] The land affected would include 7 acres converted from Prescription 7E1—Dispersed Recreation Areas and 96 acres from Prescription 13—Mosaics of Habitat.[178]

The proposed and potential project-specific amendments would allow Atlantic to exceed soil conditions and riparian conditions during construction, cross the Appalachian National Scenic Trail, remove old growth trees in the construction corridor, construct an access road through an Eligible Recreation River Corridor for the Cowpasture River and the Browns Pond Special Biological Area, and temporarily violate Scenic Integrity Objectives.

[177] DEIS at 4-358.

[178] *Id.*

a. Proposed amendment 1 to the GWNF LRMP is not justified by the draft EIS because a newly designated 5C corridor could not support future utility development.

Atlantic seeks a plan-level amendment that would reallocate 104.2 acres to Rx 5C—Designated Utility Corridors. 96 of those acres are currently designated as Rx 13—Mosaics of Habitat, and the remaining 4 acres as designated as Rx 7E1—Dispersed Recreation Areas. Under the GWNF Plan, designated utility corridors "serve a public benefit by providing a reliable supply of electricity, natural gas, or water essential to local, regional, and national economies." [179] Several concerns arise with respect to this proposed amendment.

First, the same lack of crucial information discussed above renders it impossible for the Forest Service to adequately assess the environmental impacts of converting these 104.2 acres to Rx 5C or to assure that doing so does not violate Forest Service obligations under the NFMA. As noted in the draft EIS, the purpose of Designated Utility Corridors is, in part, "to minimize the negative environmental, social, and visual impacts that can be associated with long, linear corridors."[180] Without an adequate basis for determining the environmental impacts of constructing, operating, and maintaining the Atlantic Coast Pipeline in difficult terrain, the Forest Service cannot know whether reallocating these 104.2 acres will minimize environmental impacts.

[179] GWNF LRMP at 4-76.

[180] DEIS at 4-359.

Further, the draft EIS recognizes that FW-243 emphasizes the Forest Service's intent to "[d]evelop and use existing corridors and sites to their greatest potential in order to reduce the need for additional commitment of lands for these uses," and provides that "[w]hen feasible, expansion of existing corridors and sites is preferable to designating new sites.[181] The draft EIS does not adequately consider alternatives to the proposed new corridor and new pipeline, particularly the alternatives of using already-existing natural gas pipelines to meet the alleged demand for natural gas (as discussed further in Section II of these comments) or siting the proposed new pipeline within existing utility corridors.

Moreover, if Proposed Amendment 1 is approved and 104.2 acres are reallocated to a 5C designation, it is unlikely that the new corridor would be used to site infrastructure in the future.

The draft EIS for the Mountain Valley Pipeline (MVP) considered a "two pipelines–one route" alternative that would have collocated the Atlantic Coast and Mountain Valley Pipelines along the current proposed Atlantic Coast Pipeline route.[182] However, that alternative was rejected on the basis that "there is insufficient space along the narrow ridgelines to accommodate two parallel 42-inch-diameter parallel pipelines."[183] As noted in the draft EIS for the pipeline, 82 percent of the pipeline corridor in the MNF and GWNF would be located on

[181] GWNF LRMP at 4-24.

[182] MVP DEIS at 3-25.

[183] *Id.* at 3-28.

ridgetops.[184] And while the draft EIS for the Mountain Valley Pipeline does not specify which portions of the 191 miles of potential collocation would present the greatest technical feasibility obstacles, the draft EIS identifies "many areas such as . . . Augusta and Nelson Counties, Virginia" as being particularly problematic."[185] Since the proposed route crosses a significant amount of national forest land in Augusta County, it is very likely that the topography in the GWNF would make it difficult or impossible to site future infrastructure in the newly created 5C prescription.

Converting forest land to Rx 5C when that land is unsuitable for future infrastructure development undermines the very purpose of the utility corridor designation and increases the likelihood that future development would have to be sited elsewhere in the GWNF. The purpose of designating utility corridors on National Forest lands is to avoid scattering utility projects widely across forest lands by concentrating them as much as possible, thus conserving natural forests and habitats and avoiding cumulative forest fragmentation and adverse impacts to soil and water resources. Creating a "corridor" along one project's desired route without consideration of future infrastructure amounts to an exception for that project—not the establishment of an actual utility corridor.

Re-designating the Atlantic Coast Pipeline corridor as 5C in spite of its unsuitability for future projects sets a bad precedent for future development and

[184] DEIS at 4-37.

[185] *Id.*

sends the wrong message to future permit applicants that single projects can qualify for management prescription changes to 5C or other similar forest plan designations. This approach would provide no incentive to utility companies to conserve land by siting utilities in existing corridors in the future or avoiding National Forest lands altogether. The result could be numerous 5C utility corridors scattered across National Forest and adjacent lands with only one project occupying each, thus completely undermining the purpose of the forest plan, adversely affecting National Forest lands, and likely having a greater impact on adjacent lands as well.

b. Proposed project-specific amendments to the GWNF are not justified by the draft EIS.

In addition to the proposed plan-level amendment, the Forest Service has identified two proposed and three potential project-specific plan amendments on the GWNF.

i. Proposed Amendment 2: Allowing Atlantic to exceed restrictions on soil and riparian corridor conditions is not justified by the draft EIS.

Proposed Amendment 2 would, like the Potential Amendment 1 to the MNF LRMP discussed above, allow Atlantic to exceed the following four forest-wide and one riparian corridor-specific restriction on soil conditions and riparian corridor conditions:

- Standard FW-5: On all soils dedicated to growing vegetation, the organic layers, topsoil and root mat will be left in place over at least 85% of the activity area and revegetation is accomplished within 5 years.

- Standard FW-15: Motorized vehicles are restricted in the channeled ephemeral zone to designated crossings. Motorized vehicles may only be allowed on a case-by-case basis, after site-specific analysis, in the channeled ephemeral zone outside of designated crossings.

- Standard FW-16: Management activities expose no more than 10% mineral soil in the channeled ephemeral zone.

- Standard FW-17: Up to 50% of the basal area may be removed, down to a minimum basal area of 50 square feet per acre. Removal of additional basal area is allowed on a case-by-case basis when needed to benefit riparian-dependent resources.

- Standard 11-019 (Riparian Corridors): Tree removals from the core of the riparian corridor may only take place if needed to: enhance the recovery of the diversity and complexity of vegetation native to the site; rehabilitate both natural and human-caused disturbances; provide habitat improvements for aquatic or riparian species, or threatened, endangered, sensitive, and locally rare species; reduce fuel buildup; provide for public safety; for approved facility construction/renovation; or as allowed in standards 11-015 or 11-024.

As discussed above with respect to Potential Amendment 1 for the MNF, the lack of essential information from Atlantic prevents the Forest Service from satisfying the requirements of NEPA and the NMFA. The Forest Service finds that, as of the publication of the draft EIS, the "direct, indirect, and cumulative effects related to Proposed Amendment 2 cannot be determined," and that the impacts cannot be determined "until the COM Plan has been revised and effects

analysis completed related to sedimentation, impacts to riparian areas, and other resources."[186] Here again, Atlantic's failure to provide critically important information has prevented the Forest Service from conducting an assessment of the impacts of the proposed amendment—an assessment required by NEPA and the NFMA—thereby resulting in an inadequate draft EIS. A complete assessment of the environmental impacts associated with permitting exceedance of these forest-wide and riparian corridor restrictions should be included in a supplemental draft EIS once Atlantic submits the required information.

ii. Proposed Amendment 3: Atlantic's proposed crossing of the Appalachian National Scenic Trail is not justified by the draft EIS.

Proposed Amendment 3 would permit the Atlantic Coast Pipeline to cross the Appalachian National Scenic Trail (AT) in Augusta County, Virginia. The greatest concern with respect to the crossing of the AT is the questionable feasibility of Atlantic's plan to use the Horizontal Directional Drill (HDD) method or contingency Direct Pipe Installation (DPI) method[187] to install 4,639 feet of pipeline beneath the AT.[188] The potential impacts associated with both methods are discussed at length in Section VII of these comments. While both methods are used to install pipelines under flat terrain, neither method is commonly employed in steep terrain like that of the Blue Ridge. Atlantic's proposal for drilling under

[186] DEIS at 4-361.

[187] *Id.* at 3-21 to 3-23.

[188] *Id.* at 3-21.

the Blue Ridge approaches the limits of both HDD and DPI methods. Given the problematic and uncertain topography and geology, both methods involve substantial risks of failure and consequent environmental damage.

Despite these serious concerns, the draft EIS fails to adequately assess the risk of failure and detrimental environmental impacts associated with either method. Because the draft EIS contains insufficient information to allow the Forest Service to assess the impacts of either installation method, the draft EIS violates the requirements of NEPA and must be revised once Atlantic provides the necessary information.

Specifically, the draft EIS requests that Atlantic file "an evaluation of the feasibility of using the bore or HDD crossing method for all trails and roads on the GWNF," as well as a site-specific plan that would detail what Atlantic would do in the event HDD isn't feasible.[189] The draft EIS also requests that Atlantic file "a final site-specific HDD crossing plan and an alternative direct pipe crossing plan for the ANST and BPR [Blue Ridge Parkway]," as well as documentation that the plans were reviewed and approved by the Forest Service.[190] Atlantic's failure to provide this crucially important information in time for the Forest Service to assess it in the draft EIS constitutes another NEPA violation that must be remedied with a supplemental draft EIS for public comment.

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[189] *Id.* at 4-369.

[190] *Id.* at 4-371.

In addition to the draft EIS's inadequate assessment of the impacts of the HDD and contingency DPI methods, the draft EIS also fails to adequately consider other impacts that may arise from crossing the AT. The draft EIS finds that there are "no direct effects evidenced by ground disturbance associated with the pipeline crossing the ANST," but that "there could be indirect effects associated with issuance of a special use permit that involves the ANST," including "impacts from future maintenance needs."[191] A more substantive analysis is required given the importance of the conservation and scenic values protected by the AT. For instance, although there will be significant visual impacts on the AT, important visual impacts analyses were not submitted in time for the issuance of the draft EIS in December 2016. A supplemental draft EIS must fully address the impacts of the construction, operation, and maintenance of the Atlantic Coast Pipeline on the AT's unique visual resources.

ii. Potential Amendments 3, 4, 5, and 6 are not justified by the draft EIS.

The draft EIS notes that the Forest Service "intends to also adopt this EIS in its assessment of potential amendments to the LRMPs that could then make the Atlantic Coast Pipeline a conforming use of the LRMPs."[192] As discussed above, as a cooperating agency, the Forest Service may adopt this draft EIS without recirculating it if, "after an independent review of the statement," the Forest

[191] *Id.* at 4-361.

[192] *Id.* at 1-9.

Service concludes that its comments and suggestions have been satisfied.[193] But with respect to Potential Amendments 4, 5, and 6 in the GWNF, the draft EIS contains no analysis at all of environmental impacts, noting only that the potential impacts are contingent on the completion of old growth surveys, the final location of access roads, and the completion of visual analyses.[194] The draft EIS notes that while project-specific plan amendments are needed to temporarily deviate from the "precise" wording of forest plan standards, the "intent" of the LRMP components may be met "through a combination of design criteria, mitigation measures and or/monitoring activities."[195] But with respect to these three potential amendments, the draft EIS does not address these aspects—design criteria, mitigation measures, or monitoring activities—again, largely due to Atlantic's failure to provide the requisite information. As explained above, because plan components implement the substantive requirements of the NFMA and its regulations, the agency must consider these aspects and determine whether changes or exceptions to the plan would still comply with its underlying substantive obligations.

Given the lack of information as of the publication of the draft EIS, the Forest Service should not adopt this draft EIS for potential forest plan amendments. Rather, as discussed throughout this section, the Forest Service should issue a

[193] 40 C.F.R. 1506.3(c).

[194] DEIS at 4-360 to 4-361.

[195] *Id.* at 4-356.

revised draft EIS that includes an assessment of the environmental impacts of these potential amendments based on the information Atlantic failed to submit in time for consideration in this draft EIS.

(a) Potential Amendment 4: Removal of old growth trees within the proposed construction corridor is not justified by the draft EIS.

The draft EIS includes no discussion of the effects of Potential Amendment 4, which would allow the removal of old growth trees within the 125-foot construction corridor.[196] The draft EIS notes only that the potential amendment is contingent on the completion of old growth surveys.[197]

Old growth communities are extremely rare in the southern Appalachians, perhaps occupying only about one half of one percent (0.5%) of the total forest acreage. Any existing old growth therefore merits protection. This is particularly the case in the GWNF, which has no forest-wide, field-verified existing old growth inventory and therefore relies on project-by-project surveys to identify existing old growth. The Forest Service highlighted the importance of old growth in its 1997 *Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region*, which the Forest

[196] The draft EIS notes that Atlantic is currently identifying areas of ecologically sensitive areas crossed by the proposed AP-1 mainline within the MNF and GWNF where the construction right-of-way can be narrowed from 125 feet to 75 feet. This information should have been included in the draft EIS.

[197] DEIS at 4-360.

Service relied on when formulating LRMPs for both the MNF and GWNF.[198] For instance, because old-growth communities serve as optimal habitat for some species associates, the Forest Service has taken a "coarse filter" approach to maintaining old growth communities that provide a "biological safety net."

Construction of the Atlantic Coast Pipeline through old growth forest would chip away at what remains of old growth communities in the GWNF, thus weakening that important safety net. Old growth communities also provide essential opportunities for research by serving as a baseline against which to evaluate other forest types, as well as recreational, education, and cultural values. Any amendment that would result in the destruction of old growth forest must therefore not be approved lightly—and certainly not without an opportunity for public comment.

Once again, a lack of essential information with respect to old growth thwarts meaningful public comment. As noted in Section 4.7.3, the portion of the draft EIS discussing U.S. Forest Service Managed Species, as of the publication of the draft EIS the Forest Service was unable to provide a determination of effects on Regional Forester Sensitive Species (RFSS) because the preliminary draft Biological Evaluation (BE) was incomplete.[199] One of the missing pieces of information the Forest Service requests that Atlantic provide by the end of the draft EIS comment period is the start and end milepost and acreage of impacts on

[198] MNF LRMP at B-9; GWNF LRMP at 4-9.

[199] DEIS at 4-253; s*ee supra* Section V.

old growth forests according to the MNF and GWNF old growth definitions.[200] The Forest Service has requested that Atlantic file a revised BE because the Forest Service is "unable to provide determination of effects" for the majority of these species due to, among several other deficiencies, "incomplete quantification of habitat impacts (i.e., old growth, karst features)."[201] Until Atlantic supplies that information, the Forest Service can determine neither the extent of removal of old growth nor the impacts of that removal for the purposes of amending the forest plan, thus preventing the Forest Service from complying with NEPA or assessing its obligations under the NFMA.

(b) Potential Amendment 5: Major reconstruction of a forest road within an eligible recreation river corridor is not justified by the draft EIS.

The draft EIS also omits any discussion of the impacts of Potential Amendment 5, which would allow for major reconstruction of existing Forest Road 281 within management prescription 2C3, an Eligible Recreation River Corridor associated with the Cowpasture River. This proposed access road would be part of the same road that would cross the southern boundary of the Browns Pond Special Biological Area, discussed below. This prescription means that the Cowpasture River, as well as the one-quarter-mile-wide corridors on either side of

[200] *Id.* at 4-253.

[201] *Id.* at 5-15. More broadly, without an adequate BE, the EIS cannot adequately disclose and consider the project's effects on rare species and their viability, as required by NEPA and by the diversity provisions of the NFMA and the related species viability provisions of the 1982 and 2012 NFMA regulations.

the river, is eligible to be part of the National Wild and Scenic Rivers System and is managed to protect "outstandingly remarkable values" pursuant to the requirements of the Wild and Scenic Rivers Act of 1968."[202] The Cowpasture River is also designated by the Forest Service as a Priority Watershed,[203] and the federally endangered James spinymussel inhabits the portion of the river associated with the 2C3 corridor through which the access road would pass.[204]

In addition to its eligibility for the federal National Wild and Scenic Rivers System, the Virginia Department of Environmental Quality (DEQ) once nominated the segment of the Cowpasture River that includes the corridor that would be affected by the Atlantic Coast Pipeline for an Exceptional State Waters Designation, also known as a Tier III designation. DEQ's staff site visit summary for the Cowpasture River concluded that the nominated segment satisfies the criteria for an exceptional state waters designation, noting that it is "extremely rare to find such a large stream with so little anthropogenic stress in Virginia" and that the Cowpasture River is "literally exceptional."[205]

The LRMP permits road construction or reconstruction through this prescription only for specific enumerated purposes: to improve recreational access, improve soil and water, to salvage timber, or to protect property or public

[202] GWNF LRMP at 4-38.

[203] *Id.* at D-1.

[204] DEIS at 4-239.

[205] Va. Dep't of Envtl. Quality, Staff Site Visit Summary for the Cowpasture River and Simpson Creek and Tributaries, Nov. 12, 2003 and March 10-11, 2004 (2004), included as **Attachment 14**.

safety.[206] The Atlantic Coast Pipeline serves none of these specific purposes, and the LRMP should not be amended to permit construction of an access road in the Cowpasture River corridor. Despite the extraordinary qualities of the Cowpasture and the likelihood of degradation from construction of an access road, the draft EIS does no more than mention this proposed access road. A revised draft EIS should thoroughly discuss the potential impacts to the Cowpasture River.

(c) Potential Amendment 6: Allowing Atlantic Coast Pipeline to not immediately meet SIOs is not justified by the draft EIS.

Finally, the draft EIS does not assess the impacts of Potential Amendment 6, which would allow the Atlantic Coast Pipeline to temporarily violate Scenic Integrity Objectives (SIOs). The amendment is contingent on completion of visual analyses that were, again, incomplete at the time the draft EIS was published. Presumably due to Atlantic's failure to complete the visual analyses before the publication of the draft EIS, there is virtually no information about this potential amendment in the draft EIS. The draft EIS acknowledges that at the time it was published, additional key observation points (KOPs) were still being analyzed and that "the visual impacts associated with other project-related features" were still pending.[207] Atlantic should file additional documentation of the conclusions and effect determinations for the Visual Impact Assessment and secure the Forest

[206] GWNF LRMP at 4-40.

[207] DEIS at 4-376 to 4-377.

Service's concurrence with this documentation as requested in the draft EIS.[208] These assessments should have been done by the publication of the draft EIS in order to provide the public with an opportunity to comment on them.

D. Atlantic has not sufficiently demonstrated technical feasibility of the pipeline as required by Forest Service regulations.

In addition to the requirement that a SUP either be consistent or be made consistent with the relevant LRMPs, the special use permit regulations require the Forest Service to consider the technical feasibility of a proposed project. Under the regulations for the second-level screening of a proposed special use, the Forest Service must reject any proposal for which the applicant "does not or cannot demonstrate technical or economic feasibility of the proposed use."[209]

It is by no means a given that Atlantic will satisfy this requirement. As discussed in this section and in greater depth in Section VII, the Forest Service has requested site-specific information from Atlantic regarding the feasibility of constructing the Atlantic Coast Pipeline across the difficult terrain of the MNF and GWNF. Specifically, the Forest Service has repeatedly asked for design specifications for construction on steep and very steep slopes within NFS lands.[210] To date, Atlantic has failed to provide this crucially important information. Not

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[208] *Id.* at 4-377.

[209] 36 C.F.R. § 251.54(e)(5)(iv).

[210] Forest Service High-Hazard Stabilization Measures Request, *supra* note 115; Letter from Clyde Thompson to Nicholas Tackett, *supra* note 115.

only has that failure made it impossible for the Forest Service to adequately assess the effects the pipeline will have on the forests, but it also prevents the Forest Service from determining whether the project is technologically feasible as required by the applicable regulations.

Atlantic must provide the Forest Service with the requested site-specific design of stabilization measures, as well as a final site-specific HDD crossing plan and an alternative direct pipe crossing plan for the Appalachian National Scenic Trail and Blue Ridge Parkway as requested in the draft EIS.[211] Until Atlantic provides this information and the Forest Service subsequently determines that Atlantic's designs constitute "technical feasibility," the Forest Service must not grant Atlantic's SUP request. There are genuine concerns about whether Atlantic can safely construct the Atlantic Coast Pipeline through the steep, difficult terrain on the MNF and GWNF, and Atlantic's reticence to supply necessary information must not be overlooked. Based on the information contained in this draft EIS, the Forest Service should not conclude that Atlantic has met its burden of demonstrating that it has, or will have by the time of construction, the technical capability to construct the Atlantic Coast Pipeline through the proposed route.

[211] DEIS at 4-369.

E. Atlantic has not demonstrated that the pipeline is in the public interest as required by Forest Service regulations.

The federal regulations governing special uses on NFS lands also provide that the Forest Service "shall reject any proposal" if the Forest Service determines that "[t]he proposed use would not be in the public interest."[212] The Forest Service Manual provides guidance on the interpretation of the public interest analysis. The Manual provides for authorization of special uses on NFS lands *only if* "[t]he proposed use is consistent with the mission of the Forest Service to manage National Forest System lands and resources in a manner that will best meet the present and future needs of the American people" and "[t]he proposed use cannot reasonably be accommodated on non-National Forest System lands."[213]

For reasons discussed at length in Section II, there is serious doubt as to whether the Atlantic Coast Pipeline is in the public interest. It is undisputed that the pipeline would adversely affect national forest lands and resources. Therefore, the Forest Service would not be acting in the public interest if it allowed those adverse impacts to occur unnecessarily. Permitting a harmful, unnecessary pipeline installation would not be consistent with the Forest Service's mission to manage these lands and resources to "best meet the present and future needs of the American people…" Thus, it is consistent with the Forest Service's mission—and

[212] 36 C.F.R. § 251.54(e)(5)(ii).

[213] U.S. Forest Serv., Forest Service Manual Chapter 2703.2: Use of National Forest System Lands (2011).

is required by the public interest criterion in the special use permit rules—for the Forest Service to ensure that an independent, objective, thorough analysis of the need for the Atlantic Coast Pipeline is conducted and is provided to the agency and the public.

While the Forest Service may believe conducting such an assessment is outside its own expertise, we strongly urge the agency to ensure that such an assessment is conducted as part of the larger, multi-agency review process for this project, because the Forest Service must have this information to complete its own reviews and meet its own requirements. As it stands, the draft EIS cannot support such a determination due to its lack of essential information. Until the Forest Service receives sufficient information to disclose and consider environmental effects under NEPA and to determine that construction of the Atlantic Coast Pipeline on National Forest lands will not require the Forest Service to violate its obligations under the NFMA, it cannot conclude that this project is in the public interest as required by federal regulations. Moreover, the draft EIS entirely lacks any detailed, independent assessment of whether the pipeline is needed to meet the public's realistic demand for natural gas, a fundamental question to which the Forest Service and the public are entitled to a straight answer and supporting evidence.

F. The draft EIS inadequately addresses other important environmental impacts.

In addition to concerns related to proposed and potential LRMP amendments and a lack of information demonstrating technical feasibility of the project or accordance with public interest, there are additional specific deficiencies in the draft EIS that should be remedied in a revised draft EIS.

1. The draft EIS does not justify construction of an access road through Browns Pond Special Biological Area.

The Forest Service has expressed particular concern about the expansion of Forest Road 281 into access road 36-016AR1 along the southern boundary of the Browns Pond Special Biological Area (Management Prescription 4D) and within the Cowpasture River Priority Watershed.[214] The access road by Browns Pond SBA is part of the same access road that would cross through the Eligible Recreation River Corridor for the Cowpasture River, discussed above. SBAs like Browns Pond "serve as core areas for conservation of the most significant and rarer elements of biological diversity identified to date on the Forest."[215]

Road construction in these areas is only permitted "after full consideration of effects on the rare community and associated species and if there are no adverse impacts on threatened or endangered species." As such, SBAs are "unsuitable" for new utility corridors or rights-of-way.[216] Located on Tower Hill Mountain,

[214] DEIS at 4-346.

[215] GWNF LRMP at 4-53.

[216] *Id.* at 4-57.

Browns Pond is a montane depression wetland in karst topography. Montane depression wetlands are rare natural wetlands, and Browns Pond features rare plants, multiple sinkholes, and a cave that provides habitat for special cave fauna. Construction of the proposed access road across the southern boundary of Browns Pond SBA would put the pond and associated sinkholes and caves in the SBA at high risk. Further, one section of the access road would drain toward Browns Pond, jeopardizing the flora and fauna found there.

The draft EIS concludes that as of the time of issuance, "Atlantic ha[d] not provided sufficient justification to the GWNF to support constructing and maintaining a new permanent road at this location."[217] The draft EIS therefore includes a request that Atlantic submit to the Commission and the GWNF "further justification" for the proposed access road, including a detailed explanation as to why existing roads cannot be used to support construction and operation of the pipeline.[218] As with other important missing information discussed in these comments, the Commission's request that Atlantic submit this information "prior to the close of the draft EIS comment period" does not allow for public comment.[219] A revised draft EIS should include the Forest Service's assessment of the necessity of constructing a road at Browns Pond and the impacts to the area. Without that information, the Forest Service cannot make an informed decision

[217] DEIS at 4-346.

[218] *Id*.

[219] *Id.*

and the public cannot meaningfully comment on impacts to this rare and important Special Biological Area. Moreover, any attempt to permit the road crossing without this information and the determination required by the forest plan would be inconsistent with the plan, in violation of the NFMA's consistency provision, 16 U.S.C. § 1604(i).

2. The draft EIS does not assess visual impacts on the proposed Shenandoah Mountain National Scenic Area.

Another area of particular concern that is effectively ignored by the draft EIS is the proposed Shenandoah Mountain National Scenic Area (SMNSA), a 90,000-acre area recommended for designation as a National Scenic Area congressional designation in the 2014 GWNF LRMP.[220] The area has been identified as a candidate for this designation because of its extraordinary qualities. Shenandoah Mountain contains mostly unfragmented forest, has the largest concentration of Inventoried Roadless Areas on national forest land east of the Mississippi, and is rich in biodiversity. The proposed SMNSA also serves as an important water resource for municipal water for Staunton and Harrisonburg, as well as for aquatic life, including providing habitat for wild brook trout.

While the proposed Atlantic Coast Pipeline route lies outside the boundaries of the proposed SMNSA, construction and maintenance of the corridor would have a serious impact on the scenic qualities, natural characteristics, and recreational experiences of the Scenic Area users. The AP-1 mainline would cross Route 250

[220] GWNF LRMP at 4-70 to 4-72.

(Hankey Mountain Highway) east of the proposed SMNSA. According to the draft EIS, Atlantic initially considered establishing a key observation point at the highest point of the scenic area, but determined it did not need to do so because a band of trees along the northwest side of Route 250 would block any views of the pipeline corridor from the proposed scenic area.[221] The draft EIS therefore concludes that based on Atlantic's determination and other unspecified "further reviews and discussions with the GWNF," views of the Atlantic Coast Pipeline corridor from the proposed SMNSA were unlikely.

The draft EIS's summary dismissal of concerns about views from the proposed SMNSA is unwarranted and fails to acknowledge and assess the scenic integrity impacts to the SMNSA. The draft EIS's contention that views of the pipeline corridor would be unlikely due to trees and the topography is unsupported and incorrect. The proposed route would be clearly visible from several popular trails in the proposed SMNSA, including the Wild Oak National Recreation Trail on Hankey Mountain and Bald Ridge Trail in Ramsey's Draft Wilderness.

G. Conclusion

The portion of the draft EIS addressing impacts to the MNF and GWNF is woefully inadequate, almost entirely due to Atlantic's failure to provide the Forest Service with the information it needs to make crucial determinations. Not only is there a great deal of information missing, but more importantly, the most crucial

[221] DEIS at 4-340.

information is missing—despite the Forest Service's repeated requests. Construction of the Atlantic Coast Pipeline through the central Appalachians will prove a formidable challenge, if it is to be done at all, and the risks to this unique, fragile landscape must not be ignored or given short shrift. Atlantic must provide the Forest Service with detailed information—not vague, general promises of the use of "best in class" methods. And the Forest Service must use that information to produce a thorough assessment of impacts and proposed mitigation, so as to ensure compliance with the NFMA and with NEPA obligations to disclose and consider environmental impacts and alternatives and to allow the public to comment meaningfully on a substantive analysis before decisions are made. As it stands, the draft EIS cannot and does not provide the public with this opportunity, and a revised draft EIS should be issued once all essential information has been gathered and considered.

To this end, we appreciate and support the Forest Service's commitment to its own timeline, which does not comport with the expedited timeline proposed by the Commission.[222] We urge the Forest Service to continue to adhere to the agency's high standards and issue a revised draft EIS that will address the concerns discussed in these comments.

[222] *See* Letter from Clyde Thompson to Nicholas Tackett, *supra* note 115; 36 C.F.R. § 218 (requiring a 45-day objection period); 36 C.F.R. § 219 (requiring a 90-day objection period).

IV. FOREST FRAGMENTATION

A. The Commission's analysis of the adverse impacts of forest fragmentation is incomplete.

The draft EIS acknowledges that the Atlantic Coast Pipeline will contribute to forest fragmentation.[223] However, the Commission has failed to fully account for the impacts of the forest fragmentation that will be caused by the construction and operation of the pipeline, in terms of (1) the amount of forest impacted and (2) the impacts to individual species and to habitat. For this reason, the portion of the draft EIS addressing forest fragmentation and impacts to wildlife and habitat is inadequate.

The Atlantic Coast Pipeline will have a large footprint on the forested landscape along its proposed route. The clearing of the pipeline construction corridor and associated access roads will impact forests in several interrelated ways. First, the newly cleared pipeline corridor and any newly-constructed or widened access roads cause the direct loss of thousands of acres of forest habitat. Second, fragmentation will convert thousands of acres of interior forest habitat to edge habitat. Edge effects[224] extend hundreds of feet from the forest edge into the forest interior. Notably, even forest loss at the edge of a forest patch has indirect

[223] DEIS at ES-10.

[224] *See* DEIS at 4-164; Todd Lookingbill, Ph.D., Analysis of Potential Fragmentation Impacts of the Atlantic Coast Pipeline Proposed Route 13 (2017) [hereinafter "Lookingbill Report"], included as **Attachments 15A and 15B**. Literature cited by Dr. Lookingbill, included as **Attachments 15C, 15D, and 15E**.

effects on the forest interior.[225] When a linear disturbance crosses through interior forest within a patch, it fragments the patch and converts substantial amounts of interior forest to edge habitat.[226] Third, fragmentation, especially in the form of long-linear disturbances, results in increased isolation of species populations, and decreased habitat and population connectivity.[227] Because forest fragmentation is one of the most significant and irreversible consequences of the proposed pipeline, the Commission must fully account for these impacts in its analysis.

1. The Commission has failed to account for the uniqueness and vulnerability of the landscape and biological communities through which the Atlantic Coast Pipeline will be constructed.

Atlantic has chosen to route its pipeline project through an area of Virginia and West Virginia which contains some of the largest, most intact forests remaining in the East. The forest-dominated landscape of the central Appalachians provides valuable intact, connected forest and forest interior habitat for vulnerable species, in decline because of widespread and extensive fragmentation of forests, low forest connectivity, and vanishing interior forest. These comments focus on the impacts of forest fragmentation associated with the Atlantic Coast Pipeline, primarily within Randolph and Pocahontas Counties in West Virginia, and Bath, Highland, Nelson, Augusta, and Buckingham Counties in Virginia, but forest

[225] Lookingbill Report, *supra* note 224, at 13.

[226] *Id.*

[227] *Id.* at 16.

fragmentation is a significant consequence of the pipeline wherever the corridor intersects forests along its route from West Virginia to North Carolina.

a. The Commission fails to acknowledge the unique characteristics of the forested landscape along the route.

The fundamental character of Bath, Pocahontas, and Randolph Counties is one of intact forests. These forests are exceptionally intact, standing out in comparison with other counties in Virginia and in comparison with the entire ecoregion of which they are a part. They provide valuable habitat for species and biological communities that depend on large, unfragmented forests, and that are declining elsewhere. The fragmentation impacts are extremely difficult to mitigate, as these are some of the last intact tracts of core forest in the region, due to extensive human development elsewhere in the eastern United States. These intact forests and their ecological functions are uniquely conserved in western Virginia and West Virginia and cannot be replicated elsewhere.

In Bath County, Virginia, the forest landscape is remarkably intact in comparison with the rest of the Commonwealth – it has the highest percentage of intact natural forests of any county in Virginia. In Bath County and in Pocahontas and Randolph Counties in West Virginia, the forest landscape is intact as compared to the broader Central Appalachian Broadleaf Forest – Coniferous Forest Ecoregion. These counties would experience the greatest losses of forest and forest interior. The intact nature of the forests in these counties means that any loss of forest will also create the maximum amount of edge.

In Bath County, 98% of the landscape is dominated by forest.[228] Pocahontas and Randolph Counties closely follow with 97% and 95% of their area being forest-dominated, respectively. In Virginia overall, only 52.6% of the landscape is dominated by forest; in the Central Appalachian Broadleaf Forest ecoregion, only 73.9% of the landscape is dominated by forest. Defining core forest as forest 300 feet from an edge, 70.5% of the land in Bath County is core forest – the highest percentage of core forest in the Commonwealth.[229] Figure IV(a), below, depicts the forest-dominated landscape of northern Bath County, Virginia, and the pipeline route. In Bath County, 59% of the land is considered interior forest,[230] and in both Pocahontas and Randolph Counties, 68% of the land is interior forest. In stark contrast, only 11.3% of the land in the Commonwealth of Virginia is interior forest, and in the ecoregion only 30.3%.

Despite the unique characteristics of these forests, the Commission fails to acknowledge that the forests that would be fragmented by the Atlantic Coast Pipeline are substantially different from forests elsewhere. The draft EIS is silent about the uniqueness of the integrity of the forested landscape in Bath, Pocahontas, and Randolph Counties. The impacts of the pipeline to these forests

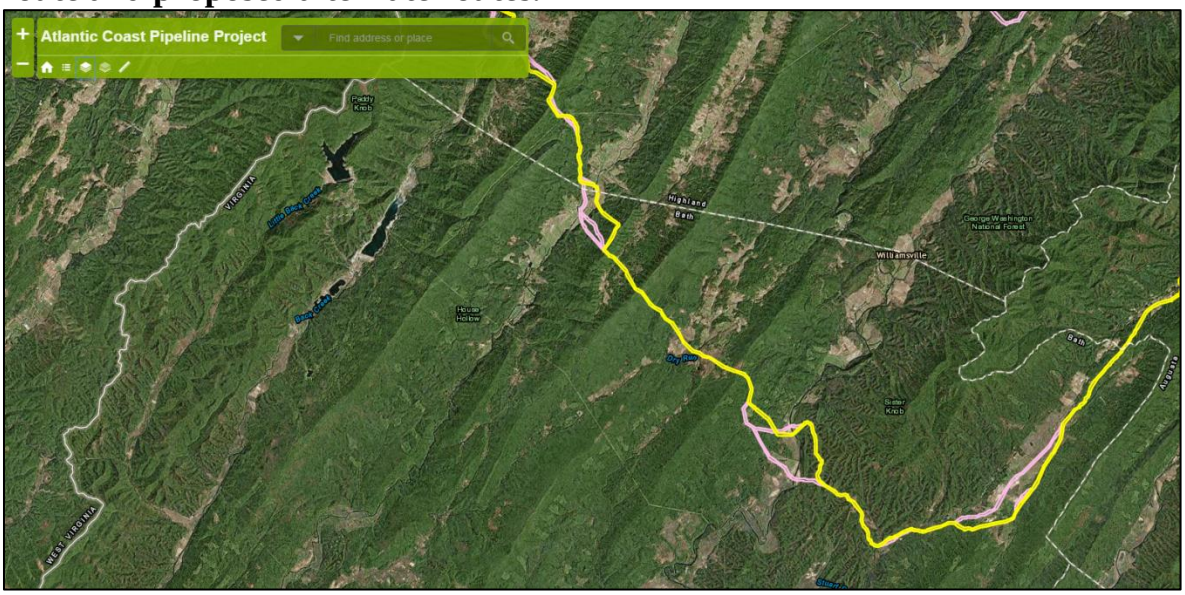
[228] A given National Land Cover Database pixel is defined as "dominated by forest" if a 1,460-acre window surrounding the pixel is at least 60% forest. *See id.* at 8.

[229] *See id.* at 9-10.

[230] A given National Land Cover Database pixel is considered interior forest if a 1,460-acre window surrounding the pixel is at least 90% forest. *See id.* at 8.

must be assessed in more detail, and taking into account their unique standing in the East.

Figure IV(a): Northern Bath County intact forest landscape with pipeline route and proposed alternate routes.[231]



b. The Commission fails to recognize that forests in Nelson and Highland Counties are on the cusp of losing forest connectivity if the pipeline is built.

Nelson and Highland Counties in Virginia are near threshold fragmentation levels (60-80% forest cover),[232] beyond which forest connectivity will rapidly

[231] Imagery obtained from *Atlantic Coast Pipeline Project*, Dominion Resources, https://dom.maps.arcgis.com/apps/Viewer/index.html?appid=ccfd1990e87649d79e7c94fd5e73c2b7 (last visited Mar. 17, 2017, 3:34 P.M.)

[232] *See* Lookingbill Report, *supra* note 224, at 8 ("[I]n a study of 130 watersheds of the Mid-Atlantic, Wickham et al. (1999) found threshold type decreases in forest patch size when anthropogenic cover increased above 20%. Gardner et al. (1987) demonstrated percolation thresholds whereby forest connectivity decreases drastically once the amount of forest on the landscape falls below approximately 60%. Thus, we can reasonably bound these thresholds of forest cover between 60% and 80%. *If connectivity of forest interior (not just total forest) were the goal, we might imagine threshold responses to forest change at the higher end of this range.*") (emphasis added).

decrease. For this reason, forests in Nelson and Highland Counties are highly vulnerable to any additional fragmentation. Further fragmentation of these forest landscapes by the Atlantic Coast Pipeline will contribute to this devolution in habitat connectivity and functionality. Though Nelson and Highland Counties are less forest-dominated and have less interior forest than Bath, Pocahontas, and Randolph Counties, their forests are still at risk from the pipeline, precisely because the further fragmentation that will occur as a result of the project will push these counties closer to or below the threshold fragmentation level.

Table IV(a): Dominant, interior, and intact forests in study region, Virginia, and ecoregion.[233]

	1,460-acre window		37.6-acre window
	Percent of land dominated by forest (window surrounding the pixel is 60% forest)	Percent of land considered interior forest (window surrounding the pixel is 90% forest)	Percent of land considered intact forest (window surrounding the pixel is 100% forest)
Augusta County	48%	34%	30%
Buckingham County	77%	1%	11%
Nelson County	82%	28%	35%
Highland County	84%	39%	45%
Bath County	98%	59%	57%
Pocahontas County	97%	68%	58%
Randolph County	95%	68%	54%
Virginia Statewide	52.6%	11.3%	16.7%
M221 Ecoregion	73.9%	30.3%	32.0%

The draft EIS contains no consideration of the "percolation" impacts of pushing these counties' levels of forest cover closer to or below the fragmentation

[233] Lookingbill Report, *supra* note 224, at 8 tbl. 2.

threshold of 60-80% forest cover. Beyond merely acknowledging that fragmentation impacts connectivity, the document fails to analyze the forest habitat connectivity impacts of construction of the pipeline.

c. The Commission ignores other ecologically significant features of this forested landscape.

The central Appalachian region is a key conservation area for forest songbirds. In western Virginia and West Virginia, the Atlantic Coast Pipeline will cross through, and fragment the forests of, three Important Bird Areas (IBAs) of global significance, as designated by the Audubon Society: the Allegheny Mountains Forest Block Complex, the Allegheny Highlands, and the Upper Blue Ridge Mountains. The intact forests of the region are the breeding habitat for many neotropical migrants – including a number of federal bird species of conservation concern.[234] These include Cerulean Warbler (*Cetophaga cerulea*), Red Crossbill (*Loxia curvirostra*), Swainson's Warbler (*Limnothlypis swainsonii*), Kentucky Warbler (*Geothlypis formosa*), and Swainson's Thrush (*Catharus ustulatus*), among others. Many of these species require large, intact blocks of suitable habitat in order to survive. For instance, the Kentucky Warbler requires patches of habitat of at least 500 hectares (about 1,235 acres) for successful breeding; the Cerulean Warbler requires at least 700 hectares (about 1,730 acres) in the mid-Atlantic

[234] Laura S. Farwell, Potential Impacts of the Atlantic Coast Pipeline and Supply Header Project on Forest Interior Migratory Birds 2 (2017) [hereinafter "Farwell Report"], included as **Attachment 16**. Literature cited by Ms. Farwell included as **Attachment 16A** (to be submitted via mailed DVD due to size).

region.[235] Outside of the seven-county study region examined by Dr. Lookingbill, the Supply Header Project would fragment the largest remaining patch of contiguous forest at Lewis Wetzel Wildlife Management Area in Wetzel County, West Virginia. This protected area is an IBA of global significance for Cerulean Warblers and has already experienced significant fragmentation by shale gas infrastructure and accompanying declines in Cerulean Warbler populations.[236]

The likely impacts from the pipeline to these species and to the bird communities inhabiting interior forest will be discussed in more detail below. Relatively small changes to forested landscapes in the region (as little as 4% loss of forest) "can alter bird communities and reduce the abundance of forest birds."[237] Without a complete and thorough assessment of forest fragmentation impacts, as well as the potential for cumulative impacts from additional pipeline projects, the scope and likely severity of the consequences for forest interior birds of conservation concern remain unexplored.

[235] *Id.* at 7, 13, 16.

[236] *Id.* at 4.

[237] *Id.*

2. The draft EIS fails to adequately account for adverse environmental impacts of forest fragmentation.

a. The Commission's analysis of forest fragmentation is incomplete.

Notably, the draft EIS does not include a detailed analysis of fragmentation impacts, such as a quantification of forest loss and edge effects in the context of the impacted forest cores and the spatial context of fragmentation, and an assessment of the likely impacts. Instead, it only sets forth the (underestimated, as explained below) acreage of forested habitat which would be "permanently converted" by pipeline construction and operation.[238] The Commission then requests that Atlantic and DTI file a fragmentation analysis utilizing a 35-acre minimum interior forest patch size and identifying specific forest tracts impacted and edge habitat created, based on a 300-foot forested buffer from the corridor.[239] The Commission requests that this analysis be filed "[p]rior to the close of the draft EIS comment period[.]"[240]

The Commission requests that this analysis include a discussion of "how the creation of forest edge or fragmentation would affect habitat and wildlife," including potential impacts on listed species and migratory birds, and that it describe "measures that Atlantic and DTI would implement to avoid, minimize, or

[238] DEIS at 4-163.

[239] DEIS at 4-165.

[240] *Id.*

mitigate impacts on interior/core forest habitat."[241] The Commission has failed to include in the draft EIS both a detailed forest fragmentation impacts analysis and a plan to mitigate those impacts. The request that Atlantic and DTI file both the analysis and the mitigation discussion before the close of the draft EIS comment period is wholly insufficient to allow the public to review and comment on this critical information, which should be part of the draft EIS out for public comment.

The draft EIS does set out many of the deleterious impacts of fragmentation in general, but other than this general list and an estimate of acres of forest cleared, the draft EIS offers no actual analysis of the specific impacts of this project. The analysis the Commission requests is flawed in that it does not address the spatial context or pattern of forest loss, including the diminishment of forest quality through decreased patch size and reduced habitat connectivity. This is different from the mere amount of forest loss. The pattern of the distribution of forest disturbance will determine impacts to the ecosystem.[242] "Fragmentation of the few remaining core interior forests has a larger impact than the fragmentation of smaller forest remnants."[243] The draft EIS' focus on quantifying interior forest loss means that the draft EIS does not address the full scope of fragmentation effects,

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[241] *Id.*

[242] *See* Lookingbill Report, *supra* note 224, at 15-16 ("The spatial pattern of forest loss, not just the total amount of loss, is important to consider because the same amount of forest disturbance can be arrayed in many different arrangements with differing impacts to the ecosystem." (citation omitted)).

[243] Lesley Bulluck, Comments on the Atlantic Coast Pipeline Draft Environmental Impact Statement (DEIS) 1 [hereinafter "Bulluck Report"], included as **Attachment 17**). Literature cited by Dr. Bulluck, included as **Attachment 17A**.

because these effects are not restricted solely to interior forest nor to outright loss of forest to clearing.

The draft EIS mostly ignores connectivity effects, and does not address reduced patch size beyond stating the fact that fragmenting forest tracts into smaller patches creates edge effects.[244] Again, the draft EIS presents a generalized list of possible impacts expected be associated with fragmentation, and provides no information about the specific impacts of this pipeline on the forests it will cross. The missing fragmentation analysis which the Commission requests from Atlantic and DTI does not address these impacts, either. Notably, the supplemental filing made by Atlantic and DTI on January 10, 2017, titled "Appendix H: Forest Fragmentation Analysis," consists of a tabulated inventory of forest cores through which the pipeline will pass, with acreage directly (clearing) and indirectly (edge effects) affected, but contains no discussion at all of fragmentation impacts or mitigation measures.

b. The Commission underestimates the extent of direct impacts to forests.

The Commission significantly underestimates the amount of forest that will be permanently impacted by clearing to construct the pipeline and associated access roads. Loss of forest cover, besides the direct elimination of habitat, can lead to

[244] DEIS at 4-164.

invasion by exotic or invasive species, soil substrate vulnerability, and the spread of disease, and can impact water quality in streams and rivers.[245]

The Commission notes that "operational impact calculations for AP-1 are based on a 75-foot-wide permanent right-of-way," and recommends that Atlantic maintain only a 50-foot-wide right-of-way.[246] Impact calculations should instead be based on the 125-foot-wide construction corridor, which will be cleared. The use of the 75-foot-wide right-of-way to calculate operational impacts elides the true scope of the permanent impacts of pipeline construction and operation. The Commission further states that, since it has recommended the use of only a 50-foot-wide permanent right-of-way, "therefore, operational impact [*sic*] are currently overestimated."[247] The Commission ignores the fact that the entire 125-foot-wide construction corridor is permanently impacted – thereby underestimating direct impacts from clearing by approximately 40% – and then goes on to present this underestimate as an overestimate.[248]

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[245] Lookingbill Report, *supra* note 224, at 13 (citations omitted).

[246] DEIS at 4-163.

[247] *Id.*

[248] *See* Lookingbill Report, *supra* note 224, at 9 ("Long-term impacts are defined in the DEIS as any impacts that would last longer than three growing seasons. In some cases, the impacted area would not resemble adjacent undisturbed lands for the life of the pipeline project. The DEIS specifically refers to these type of long-term impacts as 'permanent,' and provides as an example the removal of trees from coniferous, deciduous, and mixed forests. However, long-term impacts of fragmentation in the DEIS ultimately seem to be assessed in many instances on the operational right-of-way rather than the construction zone. This seems inconsistent. I have instead calculated the long-term impacts based on the construction widths, as the recovery of these forests would take many decades.").

This methodology also underestimates the extent of indirect impacts. The Commission states that "[n]ewly created edge habitats would be established by maintenance of the permanent right-of-way and the indirect impacts could extend for 300 feet on each side (600 feet total) of the new corridor into remaining interior forest blocks."[249] This assumes that edge effects begin at the edge of the permanent 75-foot-wide permanent right-of-way, when edge effects in fact extend 300 feet on each side of the 125-foot-wide cleared *construction* corridor. This means that edge effects extend even further into interior forest and reduce the amount of remaining intact interior forest to a greater extent than suggested by the Commission's drawing of the boundary between "impacted" and "non-impacted" land.

Using the 125-foot construction corridor width, Dr. Lookingbill calculates that approximately 2,263 acres of forest would be cleared in the seven-county study region.[250] Approximately 1,050 of this cleared acreage is currently intact forest.[251] Counting access roads, a total of 2,596 acres of forest would be cleared in the study region during project construction.

[249] DEIS at 4-166.

[250] Lookingbill Report, *supra* note 224, at 11.

[251] Intact forest is defined as forest in which the surrounding 37.6 acre square is 100% forest.

c. The draft EIS does not present a detailed assessment of the scope and extent of indirect impacts to forests.

Forest loss, beyond its direct impacts, is expected to diminish the quality of remnant forest in three ways: 1) increased amount of forest edge; 2) reduction in the connectivity of remaining habitat; 3) reduction in the size of large forest patches.[252]

i. The Commission fails to assess impacts from the conversion of interior forest to edge habitat.

The draft EIS acknowledges the numerous negative impacts of the creation of new forest edge by listing the general negative impacts known to be associated with the conversion of interior forest to edge.[253] These include, among others, more invasive species, higher rates of atmospheric deposition, increased predation, altered biochemical cycling, decreases in soil moisture, increased light, increased desiccation of vegetation, and changes in vegetative community makeup.[254]

However, the draft EIS contains no analysis of the impacts of edge creation along the pipeline route. Using a 300-foot buffer from the forest edge created by the pipeline construction corridor, Dr. Lookingbill calculated the increase in edge-affected forest. Within the seven-county study region, the Atlantic Coast Pipeline would create an additional 7,092 acres of edge forest.[255] Including impacts from

[252] Lookingbill Report, *supra* note 224, at 15.

[253] *See* DEIS at 4-164.

[254] *Id*.; Lookingbill Report, *supra* note 224, at 16.

[255] Lookingbill Report, *supra* note 224, at 16.

construction of access roads, this figure increases to 9,749 acres. Eighteen percent of this acreage would be located within National Forests. The three counties with the most intact forest, Bath, Pocahontas, and Randolph, would each have more than 1,000 acres of forest converted to forest edge by construction of the pipeline corridor, with hundreds of additional acres converted to forest edge by construction of access roads.[256]

The Commission cannot adequately assess the consequences of construction of the pipeline without considering the extent of edge creation and the impacts thereof on forests in the region. The conversion of thousands of acres of interior forest to edge habitat will have marked and lasting consequences for the intact, relatively unfragmented forests of western Virginia and West Virginia. The Commission has completely failed to quantify this conversion or to assess its impact on the forests through which the pipeline corridor will pass.

ii. The Commission fails to assess the impacts to forests of reductions in habitat connectivity.

Like other impacts of forest fragmentation, the Commission briefly mentions the loss of habitat connectivity caused by the pipeline, but again offers no analysis of those impacts for the Atlantic Coast Pipeline route. The Commission has not assessed the spatial context of the fragmentation that will occur, nor has it analyzed the extent to which habitat connectivity will be reduced.

[256] *Id*. at 16, 19.

The clearing of forest and creation of new forest edge has implications for habitat connectivity. When forest is cleared, remaining forest patches will be isolated from one another by the linear barrier of the pipeline corridor. Many species, including salamanders, cannot cross such clearings.[257] Movement of forest interior species is restricted by loss of habitat connectivity. Depending on the surrounding landscape matrix, loss of habitat connectivity can lead to increased mortality and lower reproductive success for those species that are able to cross the corridor, due to increased time and energy expended on travel outside of preferred habitat.[258] Isolation of habitat and the associated populations can also lead to reductions in gene flow, especially in species already undergoing population declines.[259]

In 2007, in its Virginia Natural Landscape Assessment (VaNLA),[260] the Commonwealth of Virginia designated for conservation a network of remaining core forest patches and connecting corridors. The VaNLA ranks designated cores from C1 to C5 based on ecological integrity, with C1 categorized as "Outstanding," and C2 as "Very High." Dr. Lookingbill calculates that Bath and Augusta Counties would each lose over 200 acres of VaNLA-designated C1 and

[257] *See id.* at 15, 20.

[258] Farwell Report, *supra* note 234, at 7.

[259] *See* Lookingbill Report, *supra* note 224, at 4; Farwell Report, *supra* note 234, at 7.

[260] *See Virginia ConservationVision Natural Landscape Needs Assessment*, Va. Dep't of Conservation and Recreation, http://www.dcr.virginia.gov/natural-heritage/vaconvisvnla (last visited Mar. 30, 2017), included as **Attachment 18**.

C2 core habitat.[261] In total, 723 acres of C1 and C2 core habitat would be lost due to the pipeline construction corridor in Bath, Highland, Nelson, and Augusta Counties in Virginia.[262]

In addition, 274 acres of designated corridor habitat would be cleared.[263] In these four counties in Virginia, construction of the pipeline would cause 3,640 acres of core habitat to be converted to edge, along with 1,247 acres of corridor habitat.[264] With the addition of access roads, core habitat losses increase to 831 acres, and corridor habitat losses to 296 acres.[265] Including access roads, 5,538 acres of core and 1,625 acres of corridor habitat would be converted to edge.[266]

These impacts simply have not been articulated or considered by the Commission in the draft EIS and associated mitigation plans. In fact, the current proposed route results in the destruction of significantly greater quantities of VaNLA core and corridor habitat than previous iterations.[267]

iii. The Commission fails to analyze the impacts of reductions in patch size on forests.

The draft EIS completely fails to analyze or consider the impacts of fragmentation through the lens of reduced forest patch size. A "patch," in

[261] Lookingbill Report, *supra* note 224, at 20.

[262] *Id.*

[263] *Id.*

[264] *Id.* at 21.

[265] *Id.*

[266] *Id.*

[267] *See id.* at 4, 17.

landscape ecology terms, is a relatively homogenous area that differs from its surroundings.[268] Different species have widely varying minimum patch size requirements.[269] As noted by the draft EIS, its 35-acre minimum patch size recommendation for defining "interior forest blocks" is below the minimum requirement for many species of birds;[270] this minimum patch size is also below the minimum requirement for medium- and large-sized mammals (generally hundreds and thousands of acres, respectively).[271] Fragmentation reduces average patch size and decreases connectivity between patches.

Dr. Lookingbill identified the existing ten largest forest patches in the seven county study region. Under current conditions, the mean patch size among these ten patches is greater than 120,000 acres. Construction of the pipeline would fragment several of the ten patches, decreasing mean patch size to 1,654 acres for the patches created out of the original ten. The majority of the resulting patches would be under 35 acres in size, and thus under the Commission's theoretical minimum for an interior forest block. Dr. Lookingbill calculated the area-weighted mean patch size to account for skewing of the mean by the large number of sub-35 acre patches. This analysis showed that the area-weighted mean patch size for the

[268] *Id*. at 23.

[269] *See* DEIS at 4-165; Lookingbill Report, *supra* note 224, at 23; Farwell Report, *supra* note 234, at 7.

[270] DEIS at 4-165; see further discussion of minimum patch size requirements below.

[271] Lookingbill Report, *supra* note 224, at 23.

ten largest patches would decrease by 21% after fragmentation by pipeline construction.[272]

While the Commission recommends that Atlantic and DTI assess fragmentation impacts to interior forest blocks greater than or equal to 35 acres in size, both the draft EIS and Atlantic and DTI's fragmentation analysis supplemental filing fail to assess the effects of the fragmentation of these patches on patch size. Reductions in the size of forest patches will have varying and specific impacts on the species inhabiting those forest patches and the viability of the newly fragmented forest patch as habitat for those species. These impacts are knowable and quantifiable, and must be analyzed by the Commission.

B. The measures presented to mitigate forest fragmentation impacts are wholly inadequate.

In the draft EIS, the Commission states that Atlantic and DTI will "implement a number of measures to reduce fragmentation and adverse effects of construction and operation of the projects on forest species[.]"[273] These include: "routing the pipelines to avoid sensitive environmental resources where feasible;" collocating the pipeline with existing rights-of-way; "providing mitigation for impacts on sensitive environmental resources, including migratory birds and listed species

[272] *Id.*

[273] DEIS at 4-166.

habitat;" following measures outlined in the Restoration and Rehabilitation Plan; and restricting mowing during the migratory bird nesting season.[274]

As noted above, the Commission requests in the draft EIS that Atlantic and DTI include in a prospective fragmentation analysis a discussion of forest edge and fragmentation impacts on migratory birds.[275] This discussion is absent from both the draft EIS *and* from the supplemental filing made by Atlantic and DTI on January 10, 2017, which presumably was intended to fulfill the Commission's request. As discussed above, the Commission's parameters for the fragmentation analysis are incomplete.

The draft EIS also requests that Atlantic file a revised Migratory Bird Plan to identify areas where Atlantic would construct during the "migratory bird season," and to identify additional conservation measures developed to minimize impacts on nesting migratory birds in such areas.[276] This revised Migratory Bird Plan should be available for public review and comment as part of the draft EIS or a Supplemental EIS, because the current Migratory Bird Plan is fatally flawed, as discussed below.

1. The Migratory Bird Plan is based on an incomplete assessment of adverse impacts.

The Migratory Bird Plan is inadequate because it rests upon an incomplete assessment in the draft EIS of the forest fragmentation that will be caused by the

[274] *Id*.

[275] *Id.* at 4-165.

[276] *Id*. at 4-160.

Atlantic Coast Pipeline, and because of a lack of thorough exploration of the impacts of that fragmentation on migratory bird species, among other wildlife. Besides the above-discussed deficiencies in the fragmentation analysis, the draft EIS contains numerous other defects in terms of its analysis of the harms done to migratory birds, especially neotropical migrant songbirds dependent on intact forest habitat, and other wildlife.

The draft EIS defines interior forest blocks as at least 35 acres in size.[277] This definition is misguided and misrepresents the cited literature.[278] While the Commission concedes that some birds have larger minimum patch size requirements, the draft EIS quotes the smallest forest patch size in which the species was detected, though the author of the cited study recommends using the area at which the probability of detecting the species is reduced by 50 percent.[279] Following this recommendation, then, the minimum recommended habitat requirement for Cerulean Warbler is 700 hectares (1730 acres), not 138 hectares (341 acres) as stated in the draft EIS.[280]

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[277] *Id*. at 4-165.

[278] *See* Farwell Report, *supra* note 234, at 7.

[279] *Id*.

[280] Farwell Report, *supra* note 234, at 7 (The draft EIS also seems to ignore the conclusion of Robbins *et al*. (1989) that, because "'[a]lthough several small forest reserves may accommodate more species than a single large reserve, it does not follow that several small reserves . . . can approach the value of a single large reserve in conserving populations of obligate forest-interior species. . . . If the management goal is to have the highest probability of providing for the least common of the species in the forest ecosystem, the clear recommendation would be to set aside forest preserves with thousands of acres.'" (quoting Robbins *et al.* (1989))).

The Commission identifies a number of migratory birds, across species groups, which could be impacted by the project.[281] These species are protected by the Migratory Bird Treaty Act (MBTA).[282] However, Atlantic and DTI appear to have surveyed along the project route for only five species: the federally endangered Red-cockaded Woodpecker, the state-threatened Loggerhead Shrike, and three species of conservation concern: Golden-winged Warbler, Northern Goshawk, and Northern Saw-whet Owl.[283] Surveys for these species were conducted only at limited locations along the hundreds of miles of the proposed pipeline route.[284]

Atlantic and DTI appear not to have conducted surveys for other migratory bird species, especially the forest interior migrant songbirds which will be impacted by construction of the corridor and the associated fragmentation and edge effects. For the birds of conservation concern in the project area, and especially those associated with interior forest, the draft EIS should include a science-based review of potential impacts to each species.[285]

It is difficult to see how the Commission can draw conclusions about the likely harms to these species – including numerous federal birds of conservation concern – or how it can mitigate those harms, without having undertaken such surveys and

[281] *See* DEIS at 4-153.

[282] 16 U.S.C. §§ 703-712.

[283] Atlantic Coast Pipeline, LLC & Dominion Transmission, Inc., Supplemental Filing app. C at 12-13 (Oct. 20, 2016).

[284] *Id*. at 13.

[285] *See* Farwell Report, *supra* note 234, at 3.

other studies. The actual impacts to these species remain unknown because their distribution and status and the effects of fragmentation on their habitat and populations along the route remain unstudied by the Commission and Atlantic and DTI.

The failure to study these impacts is especially glaring where the Commission has entered into a Memorandum of Understanding (the "Migratory Bird MOU")[286] with the United States Fish and Wildlife Service, pursuant to Executive Order Number 13186.[287] The Migratory Bird MOU expressly states that its purpose is to "further the purposes of" the MBTA, Bald and Golden Eagle Protection Act, NEPA, the Endangered Species Act, and other statutes.[288] The Migratory Bird MOU states that it "focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation[.]"[289]

The Commission must, within the scope of its NEPA analysis, address migratory birds and their habitats, with emphasis on species of concern but not to the exclusion of other migratory bird species.[290] The Commission must identify and evaluate "[d]irect, indirect, and cumulative effects, of the proposed action on

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[286] Memorandum of Understanding Between the Federal Energy Regulatory Commission and the U.S. Department of the Interior United States Fish and Wildlife Service Regarding Implementation of Executive Order 13186 [hereinafter the "Migratory Bird MOU"], https://www.ferc.gov/legal/mou/mou-fws.pdf (last accessed Mar. 31, 2017), included as **Attachment 19**.

[287] Exec. Order No. 13,186, 66 Fed. Reg. 3853 (Jan. 10, 2001).

[288] Migratory Bird MOU, *supra* note 286.

[289] *Id*.

[290] *Id*.

migratory birds," including "detrimental alteration of important habitats[.]"[291] In addressing migratory birds and their habitats, the Commission must, where the potential for impacts on species of concern is likely, "require applicant to conduct pre-application surveys to facilitate the evaluation of effects to migratory birds and their habitats."[292] Again, outside of data review and surveying conducted to identify raptor nests, wading bird rookeries, and Golden Eagle winter roosts, Atlantic and DTI conducted on-the-ground surveys for only five bird species, none of them forest interior-dependent migrant songbirds.

Per the directive of the Migratory Bird MOU, the Commission is to assess the cumulative effects of the proposed pipeline on migratory songbirds. The combined effects of successive anthropogenic disturbances are often greater than expected due to synergistic interactions which inhibit biological communities from recovering.[293] Given that there are eleven other planned, proposed, or existing natural gas transmission pipelines within the Atlantic Coast Pipeline and Supply Header Project geographic scope of influence as defined by the Commission,[294] and given its failure to adequately study the extent of forest fragmentation and its consequences for wildlife, including forest interior songbirds, the Commission's conclusion that "ACP and SHP, combined with the other identified projects,

[291] *Id*.

[292] *Id*.

[293] Farwell Report, *supra* note 234, at 10.

[294] *See* DEIS at 4-489.

would not have a significant cumulative impact on wildlife"[295] is conclusory and difficult to credit.

2. The Migratory Bird Plan fails to mitigate the harm done by forest fragmentation.

The Migratory Bird Plan is a flawed document lacking in scientific support for the conclusions it draws about impacts and for the mitigation measures it presents.[296] These flaws, along with recommendations for revisions to the Migratory Bird Plan, are discussed here, and in further detail in the Farwell Report (Attachment 16).

In addition to having failed to adequately survey for birds of conservation concern, especially forest interior birds of conservation concern, the Migratory Bird Plan fails to set out a plan for the long-term monitoring and mitigation of impacts during and after construction. For example, the Migratory Bird Plan should consider the potential need for a Brown-headed Cowbird removal program post-construction, should birds of conservation concern in the project area experience significant population declines due to nest parasitism.[297]

The Migratory Bird Plan repeatedly uses the term "migratory birds" to refer specifically to migratory raptor and wading bird species[298] – a small subset of the species protected as "migratory birds" by the MBTA. For instance, Table 3.1.1-

[295] DEIS at 4-501.

[296] Farwell Report, *supra* note 234, at 9.

[297] *See id.*

[298] *See id.*

1[299] is titled "Migratory Bird Nests in the ACP Project Area," but only presents data regarding aerial surveys for raptor nests and wading bird rookeries. "Most migratory bird nests can only be found through intensive field surveys."[300] Identification and mitigation of impacts to raptor nests and wading bird rookeries are important, but insufficient. It should be acknowledged and made clear that Atlantic and DTI have not surveyed for presence or nests of *other* migratory bird species, including forest interior birds of conservation concern.

In the Migratory Bird Plan and the draft EIS, the implication that impacts will be mitigated by clearing outside of the nesting season and the availability of suitable habitat adjacent to the construction areas[301] is "over-simplistic and unsupported by the literature."[302] Many migratory bird species breeding in temperate forests return each year to the same territories, actively defending past breeding sites.[303] Re-use of breeding sites reduces the costs of searching for a suitable breeding territory, allowing birds to reap benefits including reduced mortality during the search period and increased time and energy available for investment directly into breeding.[304] Upon returning to breeding territories that

[299] Migratory Bird Plan at 4.

[300] Farwell Report, *supra* note 234, at 9.

[301] *See* Migratory Bird Plan at 14-15 ("[S]uitable habitat will be available in areas immediately adjacent to the construction areas."); DEIS at 4-160 ("Outside of the nesting season, direct impacts on migratory birds would be minimized because individual birds would disperse to adjacent habitat.")

[302] Farwell Report, *supra* note 234, at 9.

[303] *Id.* at 5.

[304] *Id*.

have been altered so as to make them unsuitable, birds attempting to disperse into adjacent habitat must compete with returning breeding territory "owners" in those areas for limited breeding sites – leading to overcrowding, decreased rates of reproductive success and survival, and decreased abundance over time.[305]

While thorough assessment of impacts to and exploration of mitigation measures for individual bird species of conservation concern are critical, impacts to avian communities should be considered in formulating the Migratory Bird Plan. In forests disturbed by linear infrastructure, forest interior specialists decline, and habitat generalists and some edge-associated species benefit.[306] This species turnover poses a threat to native biodiversity.[307] This impact is briefly acknowledged in the draft EIS,[308] but pre- and post-construction monitoring and mitigation measures to address these impacts are notably absent from the Migratory Bird Plan.

The related assertion that, while forest interior species may be harmed, successional species such as the Golden-winged Warbler may benefit from the disturbance associated with the project,[309] is an over-generalization and is

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[305] *Id*.

[306] *Id*. at 8.

[307] *Id*.

[308] *See* DEIS at 4-164.

[309] *See, e.g., id.* at 4-153 (stating that early successional birds including Golden-winged Warbler "rely on disturbance to forested areas to maintain their preferred habitat" and could benefit from permanent maintenance of the pipeline right-of-way.); *id.* at 4-163 ("Fragmentation of forested habitat would make the right-of-way permanently unsuitable

misguided. First, forest interior species are experiencing widespread declines and habitat loss in the region, while edge species are not.[310] Second, these assertions ignore the fact that linear corridors often comprise inferior habitat for both forest *and* edge/successional species, and may function as "ecological traps," where birds misread cues about habitat quality, leading to reduced reproductive success or reproductive failure.[311]

The purported benefits to the Golden-winged Warbler are in doubt. Dr. Lesley Bulluck of Virginia Commonwealth University focuses her research on the Golden-winged Warbler in Highland County, Virginia. Dr. Bulluck notes that suitable habitat for Golden-winged Warblers in the southern Appalachians is restricted to elevations at or above 2,000 feet.[312] The species would not utilize successional habitat in rights-of-way below this elevation, and "even at the proper elevation, management to promote growth of **native** forbs and blackberry (*Rubus* spp) preferred by Golden-winged Warblers is essential."[313] Dr. Bulluck writes that more common early successional species are more likely to benefit from the project, and Brown-headed Cowbirds and nest predators could benefit from the disturbance, gaining access to the forest interior and contributing to declines in

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for interior forest species, but may create new habitat for species that prefer ecological edges.").

[310] Farwell Report, *supra* note 234, at 6.

[311] *Id*.

[312] Bulluck Report, *supra* note 243, at 2.

[313] *Id*. (emphasis in original).

forest interior species.[314] Control of invasive species such as autumn olive and multiflora rose should be undertaken "regardless of the cost," because control is often impossible after establishment.[315] Use of herbicides and/or regular mowing, however, will render the right-of-way unsuitable for Golden-winged Warblers.[316]

The Migratory Bird Plan also fails to address the impacts to ridgetop habitat. Ridgetops are utilized in high concentrations by raptors and songbirds during spring and fall migration.[317] They are breeding habitat for many forest interior songbirds, and are *preferentially* used as breeding habitat by Cerulean Warblers.[318] Large portions of the Atlantic Coast Pipeline and Supply Header Project will directly impact ridgetop habitats, as ridges will be cleared and in many cases excavated and flattened.[319] Here, there will be no adjacent habitat for displaced breeding birds to attempt to move into to compete with birds with established breeding territories, and the benefit of the habitat to migrating songbirds and raptors will be eliminated. These impacts will be especially pronounced within the Monongahela and George Washington National Forests, where 82% of the pipeline corridor will be located along ridgetops.[320] An assessment of impacts to

[314] *Id*.

[315] *Id*. at 3.

[316] *Id*.

[317] Farwell Report, *supra* note 234, at 10.

[318] *Id*.

[319] DEIS at 4-40.

[320] *Id*. at 4-37.

bird species preferentially using ridgetops during migration and/or for breeding should be undertaken.

The Migratory Bird Plan and draft EIS also ignore the value of ridgetop habitat given the growing evidence that species are migrating upward in elevation in response to climate change effects.[321]

Forests in the central Appalachian region are at risk from forest loss and fragmentation, and the forest interior birds inhabiting those forests are vulnerable to these impacts. Forest loss and fragmentation have been implicated in the declines of multiple bird species of conservation concern in Pennsylvania and West Virginia, including Cerulean Warbler and Wood Thrush.[322] The species most at risk are those vulnerable due to small population size, restricted range, narrow habitat requirements, and/or sensitivity to disturbance.[323]

Laura S. Farwell, of West Virginia University, has identified ten forest interior "focal species" that are federal birds of conservation concern, and provided a review of the breeding habitat requirements of these species.[324] The ten species are: Black-throated Green Warbler (*Setophaga virens*); Cerulean Warbler (*Setophaga cerulea*); Eastern Whip-poor-will (*Antrostomus vociferus*); Kentucky Warbler (*Geothlypis formosa*); Louisiana Waterthrush (*Parkesia motacilla*); Prothonotary Warbler (*Protonotaria citrea*); Red Crossbill (*Loxia curvirostra*);

[321] Farwell Report, *supra* note 234, at 10.

[322] *Id.* at 11.

[323] *Id*.

[324] *Id*. at 11-25.

Swainson's Warbler (*Limnothlypis swainsonii*); Wood Thrush (*Hylocichla mustelina*); and Worm-eating Warbler (*Helmitheros vermivora*).

Other federal birds of conservation concern that are associated with young forests and interior forest edges which are likely to be impacted by the project include: Black-billed Cuckoo (*Coccyzus erythropthalmus*); Brown-headed Nuthatch (*Sitta pusilla*); Canada Warbler (*Cardellina canadensis*); Olive-sided Flycatcher (*Contopus cooperi*); Northern Saw-whet Owl (*Aegolius acadicus*); Red-headed Woodpecker (*Melanerpes erythrocephalus*); and Yellow-bellied Sapsucker (*Sphyrapicus varius*).[325]

In addition, a number of other forest-associated bird species are not federal birds of conservation concern but have been listed as regional "priority species" by the Appalachian Mountains Joint Venture.[326] These species may not yet be priority species at the national level, but are birds of regional conservation concern, and are likely to be locally impacted by forest fragmentation in the project area. These species include, among others: Acadian Flycatcher (*Empidonax virescens*); Black-

[325] Farwell Report, *supra* note 234, at 11; s*ee* Migratory Bird Plan, att. A.

[326] *AMJV Priority Landbirds*, Appalachian Mountains Joint Venture, http://amjv.org/documents/Priority_Landbird_Species.pdf (last accessed Apr. 1, 2017); *see also About the AMJV*, Appalachian Mountains Joint Venture, http://amjv.org/index.php/about (last accessed Apr. 1, 2017) ("The Appalachian Mountains Joint Venture is a partnership of agencies and organizations that focuses on conserving and restoring habitats for priority bird species in the *Appalachian Mountains Bird Conservation Region*[.] . . . The Appalachian Mountains Joint Venture was officially recognized by the U.S. Fish and Wildlife Service in 2008. Joint ventures have proven to be efficient and effective mechanisms to conserve key species and their habitats across the nation.").

and-white Warbler (*Mniotilta varia*); Blackburnian Warbler (*Setophaga fusca*); Hooded Warbler (*Setophaga citrina*); and Scarlet Tanager (*Piranga olivacea*).

Because these species vary quite widely in their natural histories and specific habitat needs,[327] the draft EIS and Migratory Bird Plan should include species-specific assessments of project impacts, pre-construction surveys and post-construction monitoring, and species-specific mitigation plans. Even among the forest interior specialist species, "different responses to fragmentation are likely to reflect varying degrees of area sensitivity, habitat specialization, dispersal ability, and ability to cope with changing interspecific interactions."[328] These studies and mitigation measures are particularly important for the ten interior forest focal species, but are also warranted for other federal birds of conservation concern and for Appalachian Mountains Joint Venture priority species.

C. Conclusion

Until the above-discussed deficiencies are addressed with science-based assessments of impacts and plans for avoidance and/or mitigation of those impacts, the draft EIS sections pertaining to forest fragmentation and the Migratory Bird Plan do not meet the criteria for NEPA analysis of adverse environmental impacts and proposal of mitigation measures.

[327] *See, e.g.*, Farwell Report, *supra* note 234, at 11-25.

[328] Farwell Report, *supra* note 234, at 24 (citing Rueda *et al*. 2013).

V. ENDANGERED AND THREATENED SPECIES

A. The draft EIS's analysis of potential impacts on threatened and endangered species is inadequate.

Given the extraordinary reach of the Atlantic Coast Pipeline and the Supply Header Project, it is of little surprise that they threaten substantial harm to a large number of imperiled species. According to the draft EIS, the U.S. Fish and Wildlife Service "identified 30 federally listed threatened or endangered species, 2 designated critical habitats, 1 proposed species, 5 proposed critical habitats, and 6 species that are currently under review for federal listing that are known to occur in … [the] project areas."[329] Despite the Commission's legal obligation to "take a 'hard look'" at the projects' potential impacts on each of these species and habitat areas, however, the draft EIS fails to do so.[330] Instead, it punts—promising that the effects of the projects will be more fully evaluated down the road, whenever the relevant information has been gathered.

In attempting to solicit public comment on a draft impact statement that omits essential information and analysis, the Commission has turned its back on the requirements of NEPA. And in attempting to rely on the same statement as its biological assessment, the Commission has run afoul of the ESA.

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[329] DEIS at 4-199.

[330] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (internal quotations omitted).

B. The draft EIS omits essential information and analysis regarding the projects' potential impacts on threatened and endangered species.

Rather than offering a meaningful assessment of the projects' potential impacts on threatened and endangered species, the draft EIS is largely dedicated to cataloguing the not-yet-available information that will be essential to this analysis.[331] As previously noted, the amount of data that is missing from the draft statement would be difficult to overstate. With respect to biological surveys alone, the draft EIS admits that necessary data had yet to be collected for most of the species at issue:

- For the endangered gray and Virginia big-eared bats, the Commission was still awaiting "3,103 acres of hibernacula surveys in 2017[;]"[332]
- For the endangered Indiana bat and the threatened northern long-eared bat, the Commission was still awaiting "surveys on 65 acoustic sites, 4

[331] *See, e.g.*, DEIS at 4-199 ("While Atlantic and DTI conducted surveys for several federally listed species or species under review, survey access was not available in all cases…. In addition, as noted throughout this section and in our recommendations, Atlantic and DTI have not provided conservation measures to address potential impacts to these species in all cases. FERC and FWS will re-evaluate the determinations provided for these species upon receipt of pending survey results and proposed conservation measures.").

[332] *Id.* at 4-200 (Table 4.7.1-1). *See also, e.g.*, *id.* at 4-203 ("Approximately 43.5 miles of potentially suitable bat habitat remain to be surveyed; completion is anticipated in August 2017."); *id.* at 4-204 ("Discussions regarding the potential impacts to karst and bat hibernacula are ongoing with the FERC, FWS, FS, VDGIF, and WVDNR."); *id.* ("Conservation measures specific to occupied bat habitat and bat hibernacula would be further refined and defined upon FWS review of survey results, when impacts can be further quantified."); *id.* at 4-205 ("The 2016 bat hibernacula surveys have been completed; however, Atlantic has not filed the results of these surveys on NFS lands."); *id.* at 4-204 ("Based on currently available data, ACP *may affect* the Virginia big-eared bat; however, ACP is *not likely to adversely affect* the Virginia big-eared bat. ... FERC and FWS will re-evaluate this determination upon receipt of pending survey results and proposed conservation measures.").

mist net sites, 3,103 acres of hibernacula surveys and 185 acres of roost tree surveys in 2017[;]"[333]

- For the Neuse River waterdog, which is under review, the Commission was still awaiting "[o]ne waterbody crossing … survey[] prior to construction[;]"[334]
- For the endangered Roanoke logperch, the Commission was still awaiting "[s]urveys … at 7 waterbodies[;]"[335]
- For the Carolina madtom, which is under review, the Commission was still awaiting "2016 survey results and surveys on 5 waterbodies in 2016 or 2017[;]"[336]
- For the threatened Madison Cave isopod, the Commission was still awaiting an "evaluation of [the] Cochran's Cave area[;]"[337]

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[333] *Id.* at 4-200 (Table 4.7.1-1). *See also, e.g., id.* at 4-207 ("Approximately 43.5 miles of potentially suitable bat habitat remain to be surveyed; it is anticipated these would be complete in August 2017."); *id.* at 4-208 ("The acreage of total potentially suitable [bat] habitat that would be cleared throughout construction is pending."); *id.* at 4-213 ("Prior to the close of the draft EIS comment period, Atlantic should file with the Secretary, FWS, and FS … results of 2016 Indiana bat hibernacula surveys on NFS lands; … distance of known Indiana bat hibernacula from ACP workspace on NFS lands; … results of 2016 roost tree surveys on NFS lands; … total acreage of Indiana bat occupied habitat that would be impacted by ACP on the MNF and GWNF during the active season; and … total acreage of Indiana bat suitable habitat that would be impacted by ACP on the MNF and GWNF."); *id.* at 4-215 ("Prior to the close of the draft EIS comment period, Atlantic and DTI should file with the Secretary and FWS the total acreages of … northern long-eared bat occupied habitat that would be impacted by ACP and SHP during the active season; and … northern long-eared suitable habitat that would be impacted by ACP and SHP."); *id.* at 4-216 ("Prior to the end of the draft EIS comment period, Atlantic and DTI should file with the Secretary and FWS a revised list of known northern long-eared bat hibernacula located within 0.25 mile of ACP and SHP workspace.").

[334] *Id.* at 4-200 (Table 4.7.1-1).

[335] *Id.* at 4-201 (Table 4.7.1-1). *See also id.* at 4-224–4-225 ("Seven additional streams crossed by ACP were identified via desktop analysis in 2016 as having potentially suitable Roanoke logperch habitat. Land access at 5 streams was limited; Atlantic plans to conduct habitat assessments at these sites in 2017 upon receipt of land access. ... The remaining surveys are anticipated to be completed in September 2017.").

[336] *Id.* at 4-201 (Table 4.7.1-1). *See also, e.g., id.* at 4-227 ("Carolina madtom has been observed at 3 waterbody crossing locations. The remaining 5 waterbody surveys are anticipated to be completed by June 2017.").

- For the Chowanoke crayfish, which is under review, the Commission was "anticipat[ing]" survey reports in October 2016;[338]
- For the dwarf wedgemussel, James spinymussel, and Tar River spinymussel, all of which are endangered, the Commission was still awaiting "additional surveys in 2017[;]"[339]
- For the yellow lance mussel, Atlantic pigtoe mussel, and green floater, all of which are under review, the Commission was also awaiting "additional surveys in 2017[;]"[340]
- For the rusty patched bumble bee, which was recently listed as endangered, the Commission was still awaiting "additional consultation with FWS[;]"[341]

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[337] *Id.* at 4-201 (Table 4.7.1-1). *See also, e.g.*, *id.* at 4-230 ("The Madison Cave isopod has the potential to occur within the GWNF; however the 2016 Karst Survey Report does not clearly identify karst features located on NFS lands. Therefore, we recommend that … [p]rior to the close of the draft EIS comment period, Atlantic should file with the Secretary, and provide to the FS, a Karst Survey Report that specifically identifies the features identified on both the MNF and GWNF.").

[338] *Id.* at 4-201 (Table 4.7.1-1). *See also, id.* at 4-231 ("Surveys for … [the Chowanoke crayfish] were not conducted in Virginia. Based on the information provided by these agencies, we recommend that … [p]rior to the close of the draft EIS comment period, Atlantic should reconfirm with the FWS, VDGIF, and NCWRC whether surveys for the Chowanoke crayfish should be conducted at the Nottoway River, Roanoke River, and/or Waqua Creek, or any additional locations; or where Atlantic should assume presence for the Chowanoke crayfish in North Carolina and/or Virginia.").

[339] *Id.* at 4-201 (Table 4.7.1-1). *See also,e.g.*, *id.* at 4-232 ("Atlantic and DTI are currently conducting habitat assessments and surveys for federally listed mussels in 21 waterbody crossings in Virginia, 1 waterbody in West Virginia on ACP, 1 waterbody in West Virginia on SHP, and 34 waterbody crossings in North Carolina. In North Carolina, the FWS has instructed that surveys for federally listed mussel surveys [sic] would not be necessary where Atlantic and DTI intend to use the HDD crossing method. In Virginia, Atlantic's and DTI's consultations with the FWS regarding the requirement for surveys at waterbodies with HDD crossings are ongoing. Surveys for federally listed mussels are still needed on approximately 17 waterbodies in Virginia, and 7 waterbodies in North Carolina. No additional mussel surveys are currently proposed in West Virginia. Atlantic plans to complete these surveys by June 2017.").

[340] *Id.* at 4-201 (Table 4.7.1-1).

[341] *Id.*

- For the shale barren rock cress, pondberry, rough-leaved loosestrife, Michaux's sumac, northeastern bulrush, American chaffseed, and running buffalo clover, all of which are endangered, the Commission was still awaiting "additional surveys in 2017[;]"[342] and
- For the Virginia sneezeweed, swamp pink, small whorled pogonia, and eastern prairie fringed orchid, all of which are threatened, the Commission was also awaiting "additional surveys in 2017."[343]

The deficiencies of the draft EIS, however, are not limited to survey data. In the words of the document, as of December 2016, "Atlantic and DTI ha[d] not provided conservation measures to address potential impacts to … [imperiled] species in all cases."[344] And despite FWS's concerns regarding the adverse effects

[342] *Id.* at 4-201–4-202 (Table 4.7.1-1).

[343] *Id.*

[344] *Id.* at 4-199. *See also, e.g.*, *id.* at 4-212 ("Prior to the close of the draft EIS comment period, Atlantic and DTI should file with the Secretary and FWS the additional bat conservation measures as recommended by the West Virginia FWS Field Office."); *id.* at 4-230 ("We recommend … that prior to the end of the draft EIS comment period, Atlantic should file with the Secretary, and provide to the FWS, FS, WVDNR, and VDGIF, a revised *Karst Mitigation Plan*, developed in coordination with the appropriate agencies that takes into account unknown underground features, porosity, and connectivity of these subterranean systems, and the potential implications to subterranean obligate species, such as the Madison Cave isopod. Conservation measures included in the revised Karst *Mitigation Plan* should be designed to appropriately address these potential impacts."); *id.* at 4-231 ("Prior to the close of the draft EIS comment period, Atlantic should reconfirm with the FWS, VDGIF, and NCWRC whether surveys for the Chowanoke crayfish should be conducted at the Nottoway River, Roanoke River, and/or Waqua Creek, or any additional locations; or where Atlantic should assume presence for the Chowanoke crayfish in North Carolina and/or Virginia. Based on the results of this discussion, Atlantic should develop the appropriate conservation measures in consultation with these agencies to mitigate potential impacts. The impacts evaluation and conservation measures should be filed with the Secretary and the FWS."); *id.* at 4-238 ("To address the potential for documentation of additional listed or under review mussels, we recommend that … [p]rior to the close of the draft EIS comment period, Atlantic and DTI should consult with the FWS and other appropriate agencies to identify the conservation measures that would be implemented to avoid or minimize impacts on federally listed and under review mussel populations that may be documented in 2017.

of water withdrawals and discharges, Atlantic and DTI had not yet prepared "an alternatives analysis that identifies alternative water sources and discharge locations considered for waterbodies with documented or assumed presence of ESA-listed or under review species."[345]

The gaping holes in the draft statement's imperiled-species assessment are at odds with the National Environmental Policy Act. Under NEPA, federal agencies are obligated to take a "'hard look'" at the environmental implications of their actions—a look that demands, "[a]t the least, … a thorough investigation into the environmental impacts of … [proposed] action[s] and a candid acknowledgment of the risks that those impacts entail."[346] In order to satisfy these requirements, an agency must "gather" all relevant information and ultimately "provide the data on which it bases its environmental analysis."[347] As the Commission has yet to

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Atlantic and DTI should also file with the Secretary and the FWS the final avoidance and minimization plan for these federally listed and under review mussel species."); *id.* at 4-240 ("Prior to the close of the draft EIS comment period, Atlantic and DTI should file with the Secretary and FWS a species evaluation and corresponding conservation measures for the rusty patched bumble bee.").

[345] *Id.* at 4-202–4-203. *See also, e.g.*, *id.* at 4-228 (noting the need for an alternatives analysis with respect to the Carolina madtom); *id.* at 4-232 (noting the need for an alternatives analysis with respect to the Chowanoke crayfish); *id.* at 4-238 (noting the need for an alternatives analysis with respect to listed mussel species).

[346] *Nat'l Audubon Soc'y v. Dep't of the Navy*, 422 F.3d 174, 185 (4th Cir. 2005).

[347] *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1083, 1085 (9th Cir. 2011) (holding that the defendant agency "did not take a sufficiently 'hard look' to fulfill its NEPA-imposed obligations" where the challenged impact statement "d[id] not provide baseline data for many … species, and instead plan[ned] to conduct surveys and studies as part of its post-approval mitigation measures"). *See also, e.g.*, *Half Moon Bay Fishermans' Mktg. Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988) ("Without establishing the baseline conditions which exist in the vicinity of … [the proposed

compile the information required to assess the projects' impacts on threatened and endangered species, its draft EIS is both premature and arbitrary.

While the draft EIS repeatedly encourages Atlantic and DTI to submit all required surveys and analysis "[p]rior to the close of the draft EIS comment period," these "recommend[ations]" underscore—rather than remedy—the document's deficiencies.[348] As the U.S. Supreme Court has emphasized, the importance of an environmental impact statement is not limited to "ensur[ing] that … [an] agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts[.]"[349] Instead,

> [the] [p]ublication of an EIS, both in draft and final form, … [also] serves a larger informational role. It gives the public the assurance that the agency 'has indeed considered environmental concerns in its decisionmaking process,' … and, perhaps more significantly, provides a springboard for public comment[.][350]

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action], there is simply no way to determine what effect the … [action] will have on the environment and, consequently, no way to comply with NEPA.").

[348] DEIS at 4-202–4-203 (aquatic species); *id.* at 4-205 (Virginia big-eared bat); *id.* at 4-208, 4-212, 4-213 (Indiana bat); *id.* at 4-215–4-217 (northern long-eared bat); *id.* at 4-225 (Roanoke logperch); *id.* at 4-230 (Madison Cave isopod); *id.* at 4-231 (Chowanoke crayfish); *id.* at 4-238 (mussels); *id.* at 4-240 (rusty patched bumble bee); *id.* at 4-247–4-248 (listed plants).

[349] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

[350] *Id. See also, e.g., N.C. Wildlife Fed'n v. N.C. Dep't of Transp.*, 677 F.3d 596, 604 (4th Cir. 2012) ("NEPA emphasizes the importance of an open and public environmental assessment process. ... NEPA 'guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.'") (quoting *Robertson*, 490 U.S. at 349); 40 C.F.R. § 1506.6 ("Agencies shall … [m]ake diligent efforts to involve the public in

In order to allow a meaningful opportunity for public comment, a draft statement must include all relevant information and analysis. "When relevant information 'is not available during the [impact statement] process and is not available to the public for comment"—as is the case here—"the [impact statement] process cannot serve its larger informational role, and the public is deprived of [its] opportunity to play a role in the decision-making process."[351]

Because the Commission's "draft statement is so inadequate as to preclude meaningful analysis" of the projects' impacts on imperiled species, the agency must "prepare and circulate a revised draft[.]"[352]

C. The draft EIS fails to satisfy the requirements for biological assessments under the Commission's regulations.

As a result of the deficiencies outlined above, the draft EIS is also inadequate to serve as the Commission's biological assessment on the Atlantic Coast Pipeline and the Supply Header Project. According to the draft, the Commission is "propos[ing] to use this EIS as the Biological Assessment (BA) that would be used

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preparing and implementing their NEPA procedures."); 18 C.F.R. § 380.9(a)(1) ("The Commission will comply with the requirements of 40 CFR 1506.6 of the regulations of the Council for public involvement in NEPA.").

[351] *N.C. Wildlife Fed'n*, 677 F.3d at 604-05 (alterations in original) (quoting *N. Plains Res. Council*, 668 F.3d at 1085). *See also Nat'l Audubon Soc'y*, 422 F.3d at 184 ("NEPA requires an agency to disseminate widely its findings on the environmental impacts of its actions. Thus, it ensures that the public and government agencies will be able to analyze and comment on the action's environmental implications.").

[352] 40 C.F.R. § 1502.9(a).

for the Section 7 consultation process between the Commission and FWS."[353] Under the Commission's own regulations, however, a biological assessment "*must* contain the following information" for every species at issue:

> (A) Life history and habitat requirements; (B) *Results of detailed surveys* to determine if individuals, populations, or suitable, unoccupied habitat exists in the proposed project's area of effect; (C) *Potential impacts*, both beneficial and negative, that could result from the construction and operation of the proposed project, or disturbance associated with the abandonment, if applicable; and (D) *Proposed mitigation* that would eliminate or minimize these potential impacts.[354]

Because the draft EIS omits the "[r]esults of detailed surveys[,]" "[p]roposed mitigation" measures, and a reasoned assessment of "[p]otential impacts," it falls well short of these requirements.[355] The shortcomings of the draft's analyses regarding individual species are explained in more detail below.

D. The draft EIS's analysis of potential impacts on bat species is inadequate.

While we agree with the Commission's conclusion that the projects are likely to adversely affect both the Indiana bat and the northern long-eared bat, requiring

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[353] DEIS at 4-199.

[354] 18 C.F.R. § 380.13(b)(5)(ii) (emphasis added). *See also id.* § 380.13(b)(5)(iii) ("All surveys must be conducted by qualified biologists and must use FWS and/or NMFS approved survey methodology. In addition, the Biological Assessment must include the following information: (A) Name(s) and qualifications of person(s) conducting the survey; (B) Survey methodology; (C) Date of survey(s); and (D) Detailed and site-specific identification of size and location of all areas surveyed.").

[355] *Id.* § 380.13(b)(5)(ii).

formal consultation, the lack of information noted above renders the analysis of impacts to these and other bat species in the draft EIS incomplete. Moreover, the Commission has failed to properly include impacts to these species in its assessment of the cumulative impacts of the proposal.

The Atlantic Coast Pipeline has the potential to cause significant adverse impacts to listed bat species, particularly Indiana bats. According to the draft EIS, "there are seven known hibernacula within 5 miles of the … [pipeline] construction workspace, and 16 potential hibernacula within 0.5 mile of the … construction workspace that could serve as habitat for the Indiana bat located within the … project area[.]"[356] This information is based on 2016 survey data, with additional surveys still to be completed. The draft EIS further states that "[p]otential roost tree surveys conducted in West Virginia in 2015 and 2016 identified 42 primary roosts and 196 secondary roosts within the … [Atlantic Coast Pipeline] project workspace; 69 primary roosts and 308 secondary roosts were identified in the … [Supply Header Project] project workspace."[357] In short, the Indiana bat—a highly imperiled species—relies on the area that will be directly impacted by the projects.

Impacts to northern long-eared bats would be similar to those for the Indiana bat. Although the Endangered Species Act regulations for the northern long-eared bat drastically limit the applicability of take liability to the species, the applicants

[356] DEIS at 4-209.

[357] *Id.* at 4-211.

will not be able to utilize the streamlined consultation framework under the programmatic biological opinion for this species, "[d]ue to the potential for northern long-eared bat hibernacula located within the 0.25 mile of the workspace, pending bat hibernacula survey results, and potential indirect impacts to bat hibernacula resulting from impacts to the interconnected karst system[.]"[358] Therefore, the project would likely result in take of the species that is not allowed under the species' regulations, potentially resulting in significant harm to the species.

In recent years, populations of North American bats, particularly in the eastern and southern United States, have suffered steep declines. Millions of bat fatalities have been attributed to white-nose syndrome ("WNS"), a deadly fungal disease first identified in 2006. WNS is a fatal disease affecting hibernating bats that is named for the white fungus that appears on the muzzle and other parts of an infected bat. The disease has spread rapidly across the eastern half of the United States, and "is estimated to have killed more than 6 million bats in the Northeast and Canada."[359]

[358] *Id.* at 4-217.

[359] FWS, White-Nose Syndrome: The Devastating Disease of Hibernating Bats in North America (May 2016), *available at* https://www.whitenosesyndrome.org/sites/default/files/resource/white-nose_fact_sheet_5-2016_2.pdf.

WNS is the cause of "the most precipitous decline of North American wildlife in recorded history."[360] Recent studies have estimated an 88-percent decrease in the total number of hibernating bats, with 98-percent and 72-percent declines in hibernating northern long-eared and Indiana bats, respectively,[361] and have concluded that these perilous population declines are being exacerbated by the additive nature of both WNS and numerous human-induced environmental stressors.[362]

Indeed, the FWS recently determined that the listing of the northern long-eared bat was warranted, primarily due to the species' catastrophic decline caused by WNS.[363] There is no evidence the impact of the disease will lessen as it continues to spread across the rest of the species' range. The federally listed Indiana bat has also suffered population declines attributable to the spread of WNS, and the species' range is now almost entirely coincident with the area affected by WNS. A recent study by U.S. Geological Survey and FWS scientists projected that the Indiana-bat population will fall to just 14 percent of its pre-WNS numbers range-

[360] Consensus Statement of the Second WNS Emergency Science Strategy Meeting, Austin, Texas, May 27-28, 2009, http://www.batcon.org/pdfs/whitenose/Consensus Statement2009.pdf.

[361] Bat Conservation Int'l, *Impacts of Shale Gas Development on Bat Populations in the Northeastern United States* 7 (June 2012).

[362] *Id.*

[363] FWS, Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List the Eastern Small-Footed Bat and the Northern Long-Eared Bat as Endangered or Threatened Species; Listing of the Northern Long-Eared Bat as an Endangered Species, 78 Fed. Reg. 61,046 (Oct. 2, 2013).

wide by 2022.[364] A 2013 study determined that white-nose syndrome threatens the Indiana bat with a high risk of extirpation throughout large parts of its range.[365]

The FWS has assessed the summer habitat needs of both the Indiana bat[366] and the northern long-eared bat.[367] In addition, the Center for Biological Diversity's petition for listing the northern long-eared bat summarized available scientific literature regarding the species' summer habitat needs.[368] While geographic location, sex, and reproductive status all appear to influence the selection of habitat by members of both species, the overarching conclusions of available research are that both the Indiana bat and the northern long-eared bat appear moderately to strongly dependent on the availability of larger, older trees and snags for roosting, and on larger patches of relatively undisturbed forest, preferably near bodies of water, for foraging. Large, older trees that are located in areas of forest with lower canopy cover are of particular importance because they serve as the location of Indiana-bat maternity colonies. Thus, the removal of trees from forested lands, either by clearcutting or other techniques, and the

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[364] Thogmartin, W.E., C.A. Sanders-Reed, J.A. Szymanski, P.C. McKann, L. Pruitt, R.A. King, M.C. Runge, and R.E. Russell. 2013. White-nose syndrome is likely to extirpate the endangered Indiana bat over large parts of its range. Biological Conservation, 160: 162-172.

[365] *Id.*

[366] FWS, Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision (Apr. 2007), https://ecos.fws.gov/ServCat/DownloadFile/45796?Reference=44940.

[367] 78 Fed. Reg. at 61,054-55.

[368] Center for Biological Diversity, Petition to List the Eastern-Small Footed Bat *Myotis leibii* and Northern Long-Eared Bat *Myotis septentrionalis* as Threatened or Endangered Under the Endangered Species Act (2010), http://www.biologicaldiversity.org/species/mammals/eastern_small-footed_bat/pdfs/petition-Myotisleibii-Myotisseptentrionalis.pdf.

fragmentation of habitat, whether by logging, road-building, or construction and maintenance of pipeline corridors, creates a real threat to the recovery and survival of these vulnerable species.

The northern long-eared bat, in particular, appears highly sensitive to forest fragmentation and reductions in canopy cover.[369] Given the threat of WNS to northern long-eared bats, the FWS has recognized that "[o]ther sources of mortality could further diminish the species' ability to persist as it experiences ongoing dramatic declines," since WNS has "reduced these populations to the extent that they may be increasingly vulnerable to other stressors that they may have previously had the ability to withstand."[370] The draft EIS, however, fails to adequately analyze the pipeline's likely impacts to this species, since the extent of these impacts remains unknown. For instance, while the draft EIS states that "[s]ome occupied northern long-eared bat forested habitat may need to be cleared outside the recommended winter clearing period for protected bat species[,]" it ultimately admits that "[t]otal acreage of potential northern long-eared bat

[369] Caceres, M.C., and R. Barclay. 2000. *Myotis septentrionalis*. Mammalian Species 634: 1-4; Caceres, M. C., and M. J. Pybus. 1997. Status of the Northern Long-eared Bat (*Myotis septentrionalis*) in Alberta. Alberta Environmental Protection, Wildlife Management Division, Wildlife Status Report No. 3, Edmonton, AB; Ford, W.M., Menzel, M.A., Rodrigue, J.L., Menzel, J.M., and Johnson, J.B. 2005. Relating bat species presence to simple habitat measures in a central Appalachian forest. Biological Conservation 126: 528-539; Forest Service Manual 2600 – Wildlife, Fish, and Sensitive Plant Habitat Management. Chapter 2670 – Threatened, endangered, and sensitive plants and animals. September 2005; Veilluex, J.P. and S. Reynolds. 2006. Northern Myotis.

[370] *See* FWS, Northern Long-Eared Bat Interim Conference and Planning Guidance, USFWS Regions 2, 3, 4, 5 & 6 (2014).

occupied and suitable habitat that would be cleared during the summer season is pending."[371]

Although concerns about impacts from oil and gas development have focused on well pads, drill pits, and hazardous fracking fluids, the pipelines associated with increased gas production are particularly powerful drivers of habitat fragmentation and harm. Increasingly, as pipelines have proliferated across the eastern U.S., they have become a major environmental concern in their own right.

Fragmentation of forests causes "irreversible alterations to the forest ecosystem" that "can result in increased predation, brood parasitism, altered light, wind, and noise intensity, and spread of invasive species."[372] Further, pipeline companies continue to keep pipeline right-of-way areas cleared, causing sustained forest fragmentation.[373] This results in less forest cover, leaving wildlife more vulnerable and with fewer trees for bats to perch upon.[374] For forest-dependent species like the Indiana and northern long-eared bats, the escalation of forest fragmentation and reduction of interior forest area results in a landscape less and less suited to the species' needs for suitable roosting sites, security from predators,

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[371] DEIS at 4-215.

[372] Abrahams, L.S., Griffin, W.M., and Matthews, H.S. 2015. Assessment of policies to reduce core forest fragmentation from Marcellus shale development in Pennsylvania. Ecological Indicators, Vol. 52, Pp. 153-160, http://www.sciencedirect.com/science/article/pii/S1470160X14005664.

[373] *See* Food & Water Watch, Fracking Infrastructure Is Carving Up Pa. (Dec. 2013), https://www.foodandwaterwatch.org/sites/default/files/Fracking%20Infrastructure%20Pennsylvania%20FS%20Dec%202013.pdf.

[374] *Id.*

competitive advantage over other nocturnal insectivores, and appropriate foraging habitat. In parts of the East that are already intensively developed for shale gas and other petroleum and natural-gas products, biologists are finding a radically transformed landscape—one that used to be dominated by continuous, mature forest, but is now being segmented into smaller and smaller parcels in which invasive plants and animals become more common as the disturbed habitats that favor them become proportionally more abundant.[375]

The draft EIS failed to include an analysis of the cumulative impacts that bat populations would suffer as a result of WNS and additional habitat fragmentation. Rather, the draft EIS appears to rely on "conservation measures" that have not yet been developed and may not even be followed. For example, the conservation measures include seasonal restrictions on tree clearing, yet the draft EIS states:

> Some occupied Indiana bat forested habitat may need to be cleared outside the recommended winter clearing period for protected bat species. Loss of maternity roost trees due to clearing incurs a loss of potential summer habitat to individuals. In addition, removal of occupied roost trees when bats are present on the landscape during summer months could cause injury or death either through direct harm if bats do not or cannot exit the tree or through harassment due to noise disturbance.[376]

Furthermore, even if the applicants limited tree removal to the winter months, individuals that could have been expected to emerge from hibernation and tolerate

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[375] Nadeena Sadasivam, *Gas Pipeline Boom Fragmenting Pennsylvania's Forests*, Inside Climate News, Dec. 10, 2013, https://insideclimatenews.org/news/20131210/gas-pipeline-boom-fragmenting-pennsylvanias-forests.

[376] DEIS at 4-208.

the disappearance of traditional roosting areas that were logged during the hibernation period may have lower margins of survival. Bats that survive a winter of WNS infection are likely to be in a weakened state that could predispose them to higher rates of mortality or reproductive failure from a variety of other causes. With the additional factor of WNS, the increased energy expenditure compelled by the loss of spring, summer, or fall habitat may be the difference between survival and death.

The fragmentation effects of the recent boom in shale-gas extraction and pipeline construction have been profound on both public and private lands, and scientists are deeply concerned about the long-term consequences of such significant landscape alteration on wildlife.[377] Given the unprecedented collapse of WNS-affected bat populations, any other adverse impacts to the species are likely to be significant and must be assessed in tandem with the proposed activities and evaluated as part of the Commission's determination.

The draft EIS does not provide any analysis of the impacts of forest fragmentation on the Indiana bat. While the Commission admits that "[t]he loss of

[377] Slonecker, E.T., Milheim, L.E., Roig-Silva, C.M., and Malizia, A.R. 2013. Landscape consequences of natural gas extraction in Allegheny and Susquehanna counties, Pennsylvania, 2004-2010. USGS Open-File Report 2013-1025, 34pp, http://pubs.usgs.gov/of/2013/1025/OFR2013_1025.pdf. Drohan, P. J., M. Brittingham, J. Bishop, and K. Yoder. 2012. Early trends in landcover change and forest fragmentation due to shale-gas development in Pennsylvania: a potential outcome for the Northcentral Appalachians. Environmental Management 49:1061-1075. Drohan, P. J., J. C. Finley, P. Roth, T. M. Schuler, S.L. Stout, M. C. Brittingham, N.C. Johnson. 2012. Oil and Gas Impacts on Forest Ecosystems: findings gleaned from the 2012 Goddard Forum at Penn State University. Environmental Practice 14:394-399.

potential roosting habitat as a result of … [the pipeline] may impact bat species over the long term[,]" it suggests that the remaining roost trees would be sufficient, averring that "[a]lthough some potential roost trees would be removed from the area during construction, suitable potential roost trees would remain within the uncut portions of … [the] project areas. In those areas retained as forest, it is anticipated that potential roost trees would be available for future occupation by protected bat species."[378] While uncut roost trees may remain "available," that does not mean that bats would be able to utilize them, and the Commission has failed to account for the impacts that fragmentation will have on the project areas.

The draft EIS therefore fails to properly consider the significance of habitat loss and fragmentation from the proposed pipeline-construction activities in the context of the ongoing threats from WNS, as well as climate change and private surface development. Moreover, the Commission must consider how the proposed activities could fragment the bats' remaining habitat for spring staging, fall swarming, and foraging; could disrupt breeding and foraging patterns; and could pollute and degrade the bats' drinking-water sources.

The draft EIS also fails to properly assess the impacts of construction activities on Indiana bats. The Commission does not appear to even know whether blasting is necessary, stating "Atlantic would coordinate with the FWS if blasting is necessary"—yet they conclude that "[b]lasting or other construction activities are

[378] DEIS at 4-211.

not expected to affect known Indiana bat hibernacula."[379] Absent actual information to base this on, such a conclusion is arbitrary.

Similarly, while the Commission admits that "FWS has expressed concern regarding impacts to potentially connected karst system located upstream of bat hibernacula that could cause changes to structure, hydrology, and/or hibernacula microclimate that could make bat hibernacula unsuitable, and/or disrupt hibernating bats, leading to mortality[,]"the Commission states that the applicants would follow a "*Karst Mitigation Plan*."[380] In this same section, the Commission admits that "[d]iscussions regarding the potential impacts on karst and bat hibernacula are ongoing with the Commission, FWS, FS, VDGIF, and WVDNR."[381] If these discussions are ongoing, it is impossible to know whether or how the eventual karst mitigation plan will reduce impacts to bat species. Without this information, it is clear that the impacts and proposed mitigation have not yet been fully vetted.

Finally, we are concerned that the applicants do not intend to strictly comply with the conservation measures that are necessary to avoid impacts to listed bat species. According to the draft EIS, there are tree-clearing restrictions that would prevent harm to bats, yet the applicants would only comply with these "to the extent practicable[,]" and the Commission appears to acknowledge that tree

[379] *Id.* at 4-212.

[380] *Id.*

[381] *Id.*

clearing will occur outside these restrictions.[382] There is no discussion regarding the extent of these activities, or the impacts they may have. Additionally, the Commission pushes off such analysis until later, claiming that "Atlantic would consult with the NFS, FWS and applicable state agencies regarding additional or special requirements or mitigation for tree clearing that may need to take place during summer months when bats are active on the landscape."[383] However, as explained above, that analysis must be included in the draft EIS so that the Commission can evaluate the full range of the projects' impacts and the public may provide comment on those activities.

In sum, it is clear that the projects threaten significant harm to bat species that are already imperiled as a result of white-nose syndrome and habitat loss. The Commission's failure to adequately address this renders the draft EIS incomplete.

E. The draft EIS's analysis of potential impacts on the red-cockaded woodpecker is inadequate.

The analysis in the draft EIS of impacts on the endangered red-cockaded woodpecker exemplifies the failure of the Commission to provide a sufficient discussion of potential impacts to imperiled species. The Commission acknowledges that the projects may adversely affect the species, stating:

> Temporary removal of forest cover along the pipeline route could lead to a loss of 111.1 acres of potentially suitable red-cockaded woodpecker habitat. In addition, loss of forest cover in the permanently maintained right-of-way may cause fragmentation of

[382] *Id.* at 4-217.

[383] *Id.* at 4-213.

> potentially suitable habitat making it unavailable for future use by red-cockaded woodpeckers. Noise from construction activities may also disturb red-cockaded woodpeckers in the vicinity of … [the pipeline].[384]

However, the Commission concludes that the projects are not likely to adversely affect the species based on the results of surveys indicating that there are "no cavity trees … within 0.5 mile of … [the Atlantic Coast Pipeline] workspace[.]"[385] While cavity trees may not have been identified during surveys, the fragmentation and loss of suitable habitat that would result from the projects could still cause substantial harm the species. This is especially true given the ongoing loss of habitat due to development and climate change, which the Commission failed to discuss in the draft EIS. In order to comply with both NEPA and the ESA, the Commission must analyze how the loss of additional suitable habitat and the further fragmentation of the landscape may impact the red-cockaded woodpecker—rather than summarily dismissing the potential impacts based on a lack of known cavity trees.

With respect to the Endangered Species Act, it is readily apparent that the draft EIS does not satisfy the Commission's duty to "evaluate the potential effects of the action" on the red-cockaded woodpecker and "determine whether … [it is] likely to be adversely affected by the action[.]"[386] The lack of any analysis of how

[384] *Id.* at 4-218.

[385] *Id.*

[386] 50 C.F.R. § 402.12(a).

the loss of 111 acres of suitable woodpecker habitat and fragmentation of the landscape in the context of regional habitat loss would affect this endangered species indicates that the draft EIS does not meet the requirements for a biological assessment. Notably, the threshold for triggering formal consultation is very low. Therefore, in addition to satisfying NEPA's requirements, the "not likely to adversely affect" determination for the red-cockaded woodpecker must be revisited, and the Commission should undertake formal consultation regarding the species with FWS.

F. The draft EIS's analysis of potential impacts on the Atlantic sturgeon is inadequate.

As with the red-cockaded woodpecker, the Commission has failed to take a hard look at the potential for the projects to harm the endangered Atlantic sturgeon. The pipeline would cross several rivers where Atlantic sturgeon are present, including proposed critical habitat for the Carolina distinct population segment. Yet, while the Commission readily admits that Atlantic sturgeon could be harmed by an inadvertent return of drilling fluid if there is an HDD frac-out, that the open-cut method used to cross the Neuse River would increase turbidity and affect sturgeon downstream, and that intake pumps for water withdrawals may entrain or impinge sturgeon and alter the species' habitat, the Commission concludes that the projects are "not likely to adversely affect" Atlantic sturgeon

based on timing restrictions that limit construction and water withdrawals, and the implementation of an HDD plan.[387]

This conclusion was arbitrary. While timing restrictions and the HDD plan might "minimize impacts[,]" this does not mean that "take" will be entirely eliminated—and under the ESA, the possibility of such harm is alone enough to require formal consultation.[388] The Commission has failed to provide any analysis regarding the potential for a frac-out to occur, and what harm might be suffered by Atlantic sturgeon as a result, even with the HDD plan in place. The Commission has also failed to provide any analysis of the potential for take from increased turbidity or entrainment and impingement. The Commission has accordingly failed to provide a meaningful analysis of the pipeline's likely impacts on the Atlantic sturgeon, in violation of both NEPA and the ESA.

G. The draft EIS's analysis of potential impacts on freshwater mussels is inadequate.

According to the Freshwater Mollusk Conservation Society, freshwater mussels are "the most gravely imperiled group of animals in the country."[389] At

[387] DEIS at 4-223–4-224.

[388] *Id.*; FWS and Nat'l Marine Fisheries Serv., Endangered Species Consultation Handbook (Mar. 1998), at xv ("[A]n 'is likely to adversely affect' determination should be made"—and formal consultation initiated—whenever "incidental take is anticipated to occur as a result of the proposed action[.]"). *See also id.* at 3-12 ("Insignificant effects relate to the size of the impact and should never reach the scale where take occurs.").

[389] Freshwater Mollusk Conservation Soc'y, Freshwater Mussels Are Important, http://molluskconservation.org/MC_Ftpage.html.

present, "38 of these species are presumed to be extinct, and another 77 species are considered critically impaired."[390]

The Freshwater Mollusk Conservation Society has drafted a letter, which is attached, stating that in their expert opinion as the foremost conservation and advocacy group for freshwater mollusks, construction of the Atlantic Coast Pipeline poses "a high risk of harm to imperiled mussel species" and "could potentially jeopardize the continued existence of these sensitive species[.]"[391] This conclusion is unsurprising, given the route of the proposed pipeline. The projects will cross several streams and rivers that are known habitat for endangered freshwater mussels. According to the draft EIS, "[f]ive federally listed mussel species have been documented in … [the] project areas in West Virginia, Virginia, and North Carolina"—the dwarf wedgemussel, the clubshell, the James spinymussel, the Tar River spinymussel, and the snuffbox—as well as several species proposed for listing.[392] The draft EIS notes that these species are incredibly imperiled, acknowledging that their populations are small to extremely small in size, isolated, highly fragmented, and often suffer from low genetic viability and a high risk of extinction.

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[390] *Id.* *See also* FWS, America's Mussels: Silent Sentinels, https://www.fws.gov/midwest/endangered/clams/mussels.html ("To put this in perspective, The Nature Conservancy reports that about 70 percent of mussels in North America are extinct or imperiled, compared to 16.5 percent of mammalian species and 14.6 percent of bird species.").

[391] Letter from W. Gregory Cope, Ph.D., Past President, Freshwater Mollusk Conservation Soc'y, to FERC and FWS (Apr. 26, 2016), included as **Attachment 20**.

[392] DEIS at 4-232.

The projects would cross some waterways using the HDD method, while others would be crossed using open-trench cuts. Both of these methods pose a risk of significant harm to mussels. Open-trench cuts would cause direct harm to mussels by altering water flow and leading to increased sedimentation from construction activities. HDD, which is intended to avoid the direct impacts of open-trench construction, risks the inadvertent and harmful return of drilling muds, known as "frac-outs," when pipeline holes are drilled beneath waterways. In the draft EIS, the Commission acknowledges that "Atlantic may indirectly affect downstream mussel populations during construction through increased sedimentation, degraded water quality, and turbidity[,]" and that "Atlantic's construction activities may cause injury or mortality to individuals that occur at the crossing from trenching in the streambed."[393] However, the draft EIS does not make any attempt to quantify or even discuss the impacts that such construction activities and incidents, including an HDD frac-out, would have on imperiled mussel species.

Furthermore, the draft EIS acknowledges that project "access roads are in close proximity" to a known population of listed mussels.[394] Construction of these roads, as well as runoff following construction, may result in increased sediment in waterways, which may adversely affect the mussels, as discussed further

[393] *Id.* at 4-237.

[394] *Id.* at 4-233.

below.[395] Listed mussels are also at risk of entrainment or impingement at water intakes, and the draft EIS recognizes that water withdrawals "may also reduce water flow volumes and velocities, increase sedimentation, alter dissolved oxygen levels, and expose mussels to the air and desiccation."[396]

Freshwater mussels are incredibly susceptible to sediment loading. Studies have shown that "[o]ne of the most ubiquitous factors that may adversely affect mussel populations is excessive sedimentation caused, in part, by poor land-use practices. Excessive sedimentation has been suspected as a cause of unionid mussel declines since the late 1800s."[397] Mussel species in the project areas—such as the James spinymussel, which has been extirpated from 90 percent of its historic range—have experienced precipitous declines over the past several decades due to development of the region. These species have a very restricted distribution, and are therefore incredibly susceptible to water-quality impacts, since they are limited to areas of unpolluted water with clean sand and cobble bottom sediments.[398]

In its draft EIS, the Commission has failed to adequately consider the downstream impacts of the proposed activities. These activities have the potential

[395] *See id.* at 4-238 ("Traffic on…roads may deposit sediment on the road surface which could travel into the creek during rain events.").

[396] *Id.*

[397] Box, J.B., Mossa, J. Sediment, land use, and freshwater mussels: prospects and problems. J. N. Am. Benthol. Soc. at 100, 18(1):99-117 (1999).

[398] FWS, James Spinymussel (*Pleurobema collina*) Recovery Plan at 3 (Sept. 24, 1990), https://efotg.sc.egov.usda.gov/references/public/WV/James_Spinymussel_Recov_Plan.pdf.

to increase sediment loads not only from stream-crossing construction activities, but from the loss of riparian vegetation which will lead to increased erosion and sedimentation.

Excessive amounts of sediments, especially fine particles that wash into streams, can affect mussels through multiple mechanisms. Fine sediments can lodge between coarse grains of the substrate to form a hardpan layer, thereby reducing interstitial flow rates.[399] Silt and clay particles can also clog the gills of mussels,[400] interfere with filter feeding,[401] or affect mussels indirectly by reducing the light available for photosynthesis and the production of food items.[402]

Much of the region contains ecological communities characterized by thin soils and exposed parent material that result in localized complexes of bare soils and rock, herbaceous and/or shrubby vegetation, and thin, often stunted woods and sparse woodlands with shallow, drought-prone soils. Other areas are characterized by rugged, mountainous terrain with steep hills and ridges dissected by a network of deeply incised valleys. These communities are susceptible to erosion from activities that remove vegetation and disturb soil. Construction activities therefore

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[399] Gordon, N. D., T. A. McMahon, and B. L. Finlay-Son. 1992. Stream hydrology: an introduction for ecologists. John Wiley and Sons, New York.

[400] Ellis, M. M. Erosion silt as a factor in aquatic environments. Ecology, 17:29-42 (1936).

[401] Aldridge, D. W. et al. The effects of intermittent exposure to suspended solids and turbulence on three species of fresh-water mussels. Environmental Pollution, 45:17-28 (1987).

[402] Davies-Colley, R. J., C. W. Hickey, J. M. Quinn, and P. A. Ryan. Effects of clay discharges on streams: 1. Optical properties and epilithon. Hydrobiologia, 248:215-234 (1992).

have the potential to cause substantial sediment discharge into receiving waters that provide habitat for endangered mussels.

While we support the efforts to minimize impacts to imperiled freshwater mussels through relocation, the draft EIS does not provide an adequate analysis of the harm that this might cause to mussels, or the cumulative impacts such efforts may have on mussel populations. Removing mussels from streams and rivers will reduce the population in the waterbodies, potentially making it harder for those species to reproduce. This impact is especially significant in light of the fact that, as the Commission acknowledges, mussel populations are already isolated, highly fragmented, and often experience low genetic viability. Moreover, given the draft EIS's acknowledgement that fish-relocation activities are viewed by the FWS as "take" requiring formal consultation, there is no justification for refusing to engage in additional analysis and formal consultation with respect to freshwater mussels.[403]

The draft EIS also fails to address where mussels would be relocated to, and whether these other rivers or streams are threatened by development activities that could pose a risk of harm to relocated mussels. In fact, the draft EIS states that this matter is still under review, and that a final plan has not yet been developed.[404] It was therefore arbitrary for the Commission to conclude that the Project is not likely to adversely affect listed mussel species, given that the details of the

[403] DEIS at 4-226.

[404] *Id.* at 4-236.

relocation efforts have not been provided, and no analysis of resulting impacts has been made.

Furthermore, it remains unclear what the geographic scope of the relocation efforts will be. Relocating only those mussels that are found in the immediate area of a river crossing may reduce the harm to those individuals, but it would do little to prevent impacts to mussels downstream, which may be harmed by increased sediment. Studies and analysis indicate that threatened and endangered aquatic species are most susceptible when they are within 10 river miles of a project.[405]

[405] Anderson, R. M., Layzer, J. B., & Gordon, M. E. (1991). Recent catastrophic decline of mussels (Bivalvia, Unionidae) in the Little South Fork Cumberland River, Ky. Brimleyana, (17), 1-8.; Layzer, J. B., & Anderson, R. M. (1992). Impacts of the coal industry on rare and endangered aquatic organisms of the upper Cumberland River Basin. Ky. Dep't of Fish and Wildlife Res.; Warren Jr, M. L., & Haag, W. R. (2005). Spatio-temporal patterns of the decline of freshwater mussels in the Little South Fork Cumberland River, USA. Biodiversity & Conservation, 14(6), 1383-1400; Houp, R. E. (1993). Observations of long-term effects of sedimentation on freshwater mussels (Mollusca: Unionidae) in the North Fork of Red River, Ky. Transactions of the Ky. Academy of Science, 54(3-4), 93-97; U.S. Envtl. Prot. Agency. (2002). Clinch and Powell Valley Watershed Ecological Risk Assessment. EPA/600/R-01/050; Newton, T. J., & Bartsch, M. R. (2007). Lethal and sublethal effects of ammonia to juvenile Lampsilis mussels (unionidae) in sediment and water-only exposures. Envtl. Toxicology and Chemistry, 26(10), 2057-2065; Vannote, R. L., & Minshall, G. W. (1982). Fluvial processes and local lithology controlling abundance, structure, and composition of mussel beds. Proceedings of the Nat'l Acad. of Sciences, 79(13), 4103-4107; Pond, G. J., Passmore, M. E., Borsuk, F. A., Reynolds, L., & Rose, C. J. (2008). Downstream effects of mountaintop coal mining: comparing biological conditions using family-and genus-level macroinvertebrate bioassessment tools. Journal of the N. Am. Benthological Soc'y, 27(3), 717-737; Jenkinson, J. J. (2005). Specific gravity and freshwater mussels. Ellipsaria, 7, 12-13; McCann, M.T. & Neves, R.J.(1992). Toxicity of coal-related contaminants to early life stages of freshwater mussels in the Powell River, Va. Va. Coop. Fish and Wildlife Research Unit, Dep't of Fisheries and Wildlife Sciences. Research Work Order No. 23 for FWS, Asheville Field Office. Aug. 1992; Kitchel, H. E., Widlak, J. C., & Neves, R. J. (1981). The impact of coal-mining waste on endangered mussel populations in the Powell River, Lee County, Va. Report to the Vaa State Water Control Bd., Richmond; Ahlstedt, S. A., & Tuberville, J. D. (1997). Quantitative reassessment of the freshwater mussel fauna in the Clinch and Powell Rivers, Tenn. and

The sediments and pollutants that harm these species are most prevalent within this 10-mile area. As a result, in order to fulfill its obligations under NEPA and the ESA, the Commission must consider impacts to listed mussel species within this 10-mile area. The draft EIS, however, does not discuss the extent of relocation efforts, or impacts from sediments downstream of construction activities. The draft EIS notes that the applicants would attempt to minimize harm by using silt curtains; however, there is no analysis regarding the impacts these may have on the aquatic environment, and there is no discussion regarding how much sediment would still be deposited into streams, and what impacts this sediment would have on listed mussels.

We are very concerned by the Commission's failure to properly analyze the potential impacts to freshwater mussels. It is clear that FERC does not yet have sufficient information on mussel species, given that the draft EIS states that habitat

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Va. Conservation and mgmt. of freshwater mussels II. Upper Miss. River Conservation Comm., Rock Island, Ill., 72-97; Burkhead, N. M., & Jelks, H. L. (2001). Effects of suspended sediment on the reproductive success of the tricolor shiner, a crevice-spawning minnow. Transactions of the Am. Fisheries Soc'y, 130(5), 959-968; Sutherland, A. B., & Meyer, J. L. (2007). Effects of increased suspended sediment on growth rate and gill condition of two southern Appalachian minnows. Envtl. Biology of Fishes, 80(4), 389-403; Jones, E. B., Helfman, G. S., Harper, J. O., & Bolstad, P. V. (1999). Effects of riparian forest removal on fish assemblages in southern Appalachian streams. Conservation Biology, 13(6), 1454-1465; Sutherland, A. B., Maki, J., & Vaughan, V. (2008). Effects of suspended sediment on whole-body cortisol stress response of two southern Appalachian minnows, Erimonax monachus and Cyprinella galactura. Copeia, 2008(1), 234-244; Zamor, R. M., & Grossman, G. D. (2007). Turbidity affects foraging success of drift-feeding rosyside dace. Transactions of the Am. Fisheries Soc'y, 136(1), 167-176; Newcombe, C. P., & Jensen, J. O. (1996). Channel suspended sediment and fisheries: a synthesis for quantitative assessment of risk and impact. N. Am. Journal of Fisheries Mgmt., 16(4), 693-727; Newcombe, C. P., & MacDonald, D. D. (1991). Effects of suspended sediments on aquatic ecosystems. N. Am. Journal of Fisheries Mgmt., 11(1), 72-82.

assessments are ongoing "in 21 waterbody crossings in Virginia, 1 waterbody in West Virginia on … [the Atlantic Coast Pipeline], 1 waterbody in West Virginia on … [the Supply Header Project], and 34 waterbody crossings in North Carolina[,]" while "approximately 17 waterbodies in Virginia, and 7 waterbodies in North Carolina" have yet to be surveyed and will not be completed until June 2017.[406] As explained above, completed surveys are necessary to undertake the "hard look" that NEPA requires, as well as to comply with the ESA, yet the Commission has made a "not likely to adversely affect" determination without even knowing all of the places where mussels can be found.

Furthermore, while the Commission acknowledged the potential for harm to mussels from water withdrawals, it failed to consider alternatives to the proposed action, as NEPA requires, and to meaningfully assess the harm that could result. The draft EIS states that "Atlantic and DTI would monitor water levels during withdrawals for hydrostatic testing and HDDs and ensure that they do not exceed 25 percent of the waterbody's discharge[.]"[407] There is no analysis, however, as to why 25 percent is the appropriate target, or what impacts a 25-percent reduction in flow may have on listed mussels. The Commission needs to consider alternatives to this 25-percent limit, since it may be possible and environmentally beneficial to limit withdrawals further—to perhaps 10 percent of flow. That is the very purpose

[406] DEIS at 4-232.

[407] *Id.* at 4-238.

of NEPA—to require consideration of impacts and alternatives—yet the Commission makes no attempt to do so in the draft EIS.[408]

Rather than address these issues in the draft EIS, the Commission attempts to shift responsibility onto the applicants, requesting that Atlantic "conduct an alternatives analysis regarding water appropriations and discharges for waterbodies where federally listed species or species under federal review may be present[.]"[409] The failure of the Commission to include this alternatives analysis in the draft EIS renders it incomplete. Moreover, the Commission concludes its discussion of freshwater mussels by stating that "Atlantic and DTI should consult with the FWS and other appropriate agencies to identify the conservation measures that would be implemented to avoid or minimize impacts on federally listed and under review mussel populations that may be documented in 2017."[410] This statement is indicative of the lack of analysis in the draft EIS, as well as the Commission's failure to fulfill its duties under the ESA. As private parties, the applicants are not subject to the analytical and consultation requirements of NEPA and the ESA; instead, it is the Commission, as the lead federal agency on this proposal, that has duties to fulfill under both laws.

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[408] Further, the draft EIS states that "FWS has recommended that no water appropriations occur in waterbodies where federally listed species or species under federal review may be present[,]" *id.*, yet FERC does not state whether this directive will be followed.

[409] *Id.*

[410] *Id.*

In short, the Commission's determination that the projects are not likely to adversely affect listed mussel species is not supported by sufficient analysis in the draft EIS. Indeed, the Commission admits that it will have to "re-evaluate this determination upon receipt of pending survey results and proposed conservation measures."[411] In order to satisfy the requirements of NEPA, the Commission must prepare a supplemental draft EIS once the relevant surveys and conservation measures are complete. And in order to satisfy the requirements of the ESA, the Commission must engage in formal consultation regarding the projects' impacts on freshwater mussels.

H. The draft EIS's analysis of potential impacts on the Roanoke logperch is inadequate.

We support the Commission's determination that the projects are likely to adversely affect the Roanoke logperch. However, the draft EIS fails to adequately assess the potential impacts to this species, and provides insufficient information on which to provide comments. The Commission has therefore not fulfilled its NEPA obligations to take a hard look at the impacts, and to provide a meaningful opportunity for public participation.

The FWS recovery plan for the Roanoke logperch specifically identifies a need to "reduce erosion and excessive stream sedimentation."[412] Under the plan,

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[411] *Id.*

[412] FWS, Roanoke Logperch (*Percina rex*) Recovery Plan at 17 (Mar. 20, 1992), https://www.fws.gov/northeast/virginiafield/pdf/PARTNERS/longleaf_pine/logperch_recovery_plan.pdf.

"[h]ighest priority should be placed on reducing the quantity of silt entering the North Fork Roanoke, Nottoway, and Pigg Rivers."[413] However, the pipeline would cross the Roanoke River drainage, as well as a Roanoke-logperch priority area located in Dinwiddie, Nottoway, and Brunswick counties, and would use dry-crossing methods on ten waterbodies with suitable habitat, which would result in direct impacts to individuals as well as increased sedimentation of logperch habitat.

The draft EIS fails to assess the impacts of these activities on the Roanoke logperch. The document does not state how many linear feet of stream bank will be impacted during construction, and how many feet will be permanently maintained as grassy and/or shrub vegetation after construction. Riparian forest permanently eliminated from the upper Roanoke River drainage or other priority areas could have a devastating impact on the species, yet the Commission fails to identify or address these concerns. The Commission further fails to identify the potential for spills to occur, and the potential impacts on the species, stating only that "[a]ccidental spills … may occur" and "could harm" the species—yet no specifics or analysis are provided.[414]

The lack of any meaningful discussion of the impacts to Roanoke logperch from spills and sedimentation, and the potential means of mitigating these impacts, renders the draft EIS incomplete. It remains unclear how the projects' proponents

[413] *Id.*

[414] DEIS at 4-226.

will avoid such impacts, and what that might mean for the overall impacts of the projects on the environment. For example, it may be that through formal consultation it is determined that alternative routes or stream-crossing methods are necessary to mitigate impacts, yet since the draft EIS does not discuss these matters, there is no opportunity for the public to provide comment. The Commission must supplement the draft EIS with a full discussion of the impacts to this species, and provide an opportunity for meaningful public participation.

I. The draft EIS's analysis of potential impacts on the Madison Cave isopod is inadequate.

We support the Commission's determination that the projects are likely to adversely affect the threatened Madison Cave isopod, requiring formal consultation under the ESA. However, once again the Commission has failed to provide sufficient information on which to base public comments. The Madison Cave isopod is incredibly susceptible to harm from contamination and alterations of the hydrologic conditions within the subsurface karst habitat on which it depends. The Commission has acknowledged that "it is possible that impacts associated with construction activities could have population level effects on this species[,]" yet the draft EIS does not make any attempt to quantify those impacts or discuss how they might impact the species.[415]

Moreover, pertinent information on the impacts to the species has not been provided for public comment. The Commission has requested that the applicants

[415] *Id.* at 4-230.

file a "revised *Karst Mitigation Plan*, developed in coordination with the appropriate agencies that takes into account unknown underground features, porosity, and connectivity of these subterranean systems, and the potential implications to subterranean obligate species, such as the Madison Cave isopod."[416] It is not clear how the Commission has analyzed the cumulative environmental impacts of the projects, given the lack of such essential information. The Commission must accordingly supplement the draft EIS with a full discussion of the impacts to this species, and provide an opportunity for meaningful public comment on the updated karst mitigation plan.

J. The draft EIS's analysis of potential impacts on the rusty patched bumble bee is inadequate.

After a four-year wait, the U.S. Fish and Wildlife Service listed the rusty patched bumble bee as endangered on March 21, 2017.[417] In anticipation of the listing, the draft EIS purported to evaluate the projects' potential impacts on the species, asserting that "Atlantic and DTI *may affect* the rusty patched bumble bee" but are "*not likely to adversely affect* th[e] species."[418] This conclusion, however, was at odds with the limited evidence before the agency. According to the draft EIS, for instance, "[c]onstruction of … [the pipeline] would temporarily impact about 7,490.1 acres of pollinator habitat (including forests, scrub-shrub,

[416] *Id.*

[417] 82 Fed. Reg. 10,285 (Feb. 10, 2017).

[418] DEIS at 4-240.

grasslands/herbaceous, barren land, woody wetlands, and emergent wetlands)."[419] Despite the scale of this harm, the draft EIS declares—without citation or support—that "[t]he temporary loss of this amount of habitat would not significantly affect the overall availability of suitable habitat and would not result in a detectable or measurable impact on an individual's ability to find roosting, foraging, or breeding habitat."[420] The draft is similarly dismissive of the fact that "[h]ibernating queens and colonies may be located in … [the] project areas," stating only that "the potential is low and discountable."[421] Given the highly imperiled status of the rusty patched bumble bee, more information and analysis is required.

Ultimately, the draft EIS relies on Atlantic and DTI's incorporation of a forb-seed mixture into their vegetative "Restoration and Rehabilitation Plan," which is still subject to revision, to assume that any effects from the projects will be sufficiently mitigated.[422] However, applying a forb-seed mixture as the only method of mitigation is insufficient, as it does not begin to address other potential project impacts acknowledged elsewhere in the draft EIS. The draft EIS admits,

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[419] *Id.*

[420] *Id. See also id.* (acknowledging that "noise or presence of humans and equipment involved in construction activities may cause foraging rusty-patched bumble bee[s] to divert from the area[,]" but arguing that "[t]he resulting response would be temporary disturbance that would not have a measurable or detectable effect on an individual's survivorship or reproductive capacity" and, "[a]s such, the potential impact would be insignificant and would not result in harassment or an adverse impact").

[421] *Id.*

[422] *Id.* at F-6; *id.* at 4-154 to 4-155.

for instance, that forest fragmentation will occur as a result of pipeline construction and that "[f]ragmentation of forest habitats is often associated with increased invasive species[.]"[423] It goes on to acknowledge, in the very next sentence, that "[i]nvasive species can also greatly impact pollinator species such as … rusty-patched bumble-bees[.]"[424] All told, in arbitrarily declaring that the rusty patched bumble bee is not likely to be adversely affected by the pipelines, the Commission fell short of its obligations under NEPA and the ESA.

K. The draft EIS's analysis of potential impacts on "under review" species and migratory birds is inadequate.

The draft EIS acknowledges that there are five proposed critical-habitat designations in the project areas (for distinct population segments of the Atlantic sturgeon, discussed above), as well as six species under review for listing (the Neuse River waterdog, Carolina madtom, Chowanoke crayfish, yellow lance mussel, Atlantic pigtoe mussel, and the green floater). Like its analysis of other issues, however, the draft EIS's assessment of the likely impacts on these species and designations was inadequate.

The Commission's determinations for the under-review species lack the substantive analysis NEPA and the ESA require to understand how species will be impacted, and to fully assess the environmental effects of the projects. There is no analysis as to whether the projects could adversely affect these species and make it

[423] *Id.* at 4-166.

[424] *Id.*

more likely that they would need to be listed under the ESA. It is also not clear whether and how the Commission would fulfill its duty to conference with FWS on these species.

The draft EIS similarly fails to analyze and disclose the projects' potential impacts on migratory birds. The Fish and Wildlife Conservation Act mandates that FWS create and maintain the Birds of Conservation Concern (or "BCC") list, the goal of which "is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservation actions and coordinating consultations[.]"[425] Specifically, birds included on the BCC list are "birds that may warrant protection under the ESA in the future if conservation and management efforts are not focused on them[.]"[426] Although the "*Migratory Bird Plan*" provided by the applicants does provide a complete list of BCC in the region, it is notably lacking in any analysis of whether the projects may further threaten listed birds and push them toward listing under the ESA.

L. The draft EIS fails to assess potential impacts on state-designated species, including the Eastern tiger salamander and the Northern coal skink.

In keeping with its deficiencies on other fronts, the draft EIS also fails to assess the projects' potential impacts on species that have been designated as sensitive or imperiled by states in the region. According to the draft, "[d]ue to pending survey results, pending conservation measures, and consultations with the appropriate

[425] *Id.* at 4-157.

[426] *Id.* at 4-158.

federal and state agencies, in particular with regard to bat species and bat hibernacula, subterranean obligate species, and aquatic species, … [the Commission's] determination regarding the overall impacts on state-listed and sensitive species is pending."[427] Rather than awaiting this essential information, however, the draft EIS simply "recommend[s] that … [p]rior to the close of the draft EIS comment period, Atlantic should file with the Secretary an evaluation of the impacts and species-specific conservation measures, developed in coordination with the applicable federal and state agencies … , for … [65 listed] species … where Atlantic has identified potential impacts, and/or where the appropriate agency has requested additional analysis or conservation measures."[428] This look-into-it-later approach, as previously explained, is impermissible under NEPA.

The draft EIS's failure to meaningfully evaluate the projects' effects on state-listed species is particularly concerning with respect to the eastern tiger salamander. According to Virginia's Department of Game and Inland Fisheries, the eastern tiger salamander "can be considered extant in only two sites" within the state—including one in Augusta County, which would be burdened by 56.1 miles of the Atlantic Coast Pipeline.[429] As a result of its "very restricted" range in

[427] *Id.* at 4-267.

[428] *Id.* at 4-267–4-269.

[429] Va. Dep't of Game and Inland Fisheries, Eastern Tiger Salamander (*Ambystoma tigrinum tigrinum*), https://www.dgif.virginia.gov/wildlife/information/eastern-tiger-salamander, included as **Attachment 21**; DEIS at 2-4 (Table 2.1.1-1) (indicating that Augusta County would house nearly a tenth of the Atlantic Coast Pipeline's total miles—more than any other county). *See also* DEIS at S-43 (reporting that the species has also

Virginia, the species was listed as "State Endangered" on October 1, 1987.[430] It remains on Virginia's "Rare Animal List" today.[431]

Despite the eastern tiger salamander's precarious status in Virginia, the draft EIS gives it little attention. The document reports that "2016 surveys completed at 59 wetland features … [identified] … four sites … as moderate habitat and one as high; one larval tiger salamander [was also] observed[.]"[432] The draft notes, too, that the species is "[a]ssociated with the Big Levels-Maple Flats Conservation Site and at isolated wetlands in Sherando Quad, which are in proximity" to the Atlantic Coast Pipeline.[433] And the draft EIS concedes that the pipeline could harm the salamander, explaining that:

> The greatest threat to this species is the loss of breeding ponds and adjacent woodlands. Direct impacts on breeding habitat include temporary sedimentation and potentially long-term alteration of hydrology associated with the sinkhole pond. Removal of adjacent mature forests would reduce terrestrial habitat available to adults. Construction

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been identified in neighboring Nelson County, which would also be crossed by the Atlantic Coast Pipeline).

[430] Va. Dep't of Game and Inland Fisheries, Fish and Wildlife Info. Serv., Eastern Tiger Salamander, https://vafwis.dgif.virginia.gov/fwis/NewPages/VaFWIS_booklet_chapters.asp?chapter=14&chapterName=Entire&bova=020052&version=17253&pf=1&ss=1, included as **Attachment 22**.

[431] Va. Dep't of Conservation and Recreation, Nat. Heritage Res. of Va.: Rare Animals (Feb. 2016), at 12, included as **Attachment 23**.

[432] DEIS at S-43.

[433] *Id.*

> activities could also fragment or isolate salamanders from their breeding or terrestrial habitat.[434]

Ultimately, however, the draft EIS grants the eastern tiger salamander only a promise of future studies and conservation measures, omitting the very analysis that NEPA requires.[435]

The draft EIS does even less in assessing the potential impacts on the northern coal skink. Like the eastern tiger salamander, the coal skink is "[r]arely encountered in Virginia[;]"[436] it has accordingly been listed by the state as "rare."[437] While the species may be found in four of the counties that would be crossed by the Atlantic Coast Pipeline—Augusta, Bath, Highland, and Nelson—

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[434] *Id.* at R-56.

[435] *Id.* at S-43 ("Additional surveys are pending at 1.4 miles and are anticipated to be completed in June 2017. … VDGIF has recommended avoidance of occupied wetlands with 300-meter buffer. Pending VDGIF review of survey results and recommended conservation measures. The GWNF has recommended additional surveys of sinkhole ponds on the GWNF[.]"); *id.* at R-56 ("GWNF recommended additional surveys of sinkhole ponds within the GWNF, and a 1,000-foot buffer of all sinkhole ponds regardless of presence as they may serve as breeding habitat. Atlantic continues to consult with the GWNF with regard to the conservation measures for this species."); *id.* at 4-253–4-254, 5-39 ("[R]ecommend[ing] that … [p]rior to the close of the draft EIS comment period, Atlantic should file with the Secretary and GWNF a revised GWNF Locally Rare Species Report that … provides results of sinkhole surveys on the GWNF in relation to the eastern tiger salamander, and any other locally rare species that may use sinkhole ponds as habitat.").

[436] *Id.* at R-55.

[437] Va. Dep't of Game and Inland Fisheries, Fish and Wildlife Info. Serv., N. Coal Skink, https://vafwis.dgif.virginia.gov/fwis/NewPages/VaFWIS_booklet_chapters.asp?chapter=14&chapterName=Entire&bova=030003&version=17253&pf=1&ss=1, included as **Attachment 24**.

the draft EIS fails to evaluate the resulting effects.[438] Instead, the draft simply declares that any "impacts would be localized and adjacent habitat would be available." [439] NEPA requires more.

VI. WATERS AND WETLANDS

A. Impacts to streams and wetlands are not minimal and cannot be permitted under NWP 12.

The draft EIS outlines widespread and significant adverse effects on streams and wetlands, particularly forested wetlands, in the pipeline's path. In North Carolina, the proposed impacts to wetlands exceed the amount of impacts approved in each of the last 10 years.[440] The draft EIS reports that the proposed pipeline would affect 451.3 acres of wetlands in the state, including 156.1 acres permanently.[441] In Virginia, the proposed impacts would likewise be substantial. From 2010 to 2015, the state approved impacts to 688 acres of wetlands, an

[438] DEIS at R-55. *See also* The Wilderness Soc'y, Virginia's Mountain Treasures at 47, included as **Attachment 25** (noting that "[t]he Coal Skink, a tiny lizard of the forest floor that is considered 'very rare and imperiled' in Virginia, is known to occur" on Hankey Mountain, which is near the planned route of the Atlantic Coast Pipeline).

[439] DEIS at R-55. *See also id.* (asserting that while "[t]here is potential for mortality or injury during construction[,] … it is anticipated that skinks would move out of the construction area").

[440] *See* **Attachment 26** (chart listing wetland impacts approved in North Carolina between 2007 and 2012). For purposes of this statement, one extraordinarily large project approved in 2008 is excluded from calculation. From 2007 through 2016, North Carolina approved impacts to 1,734 acres of wetlands, an average of 173 a year. NC's approved wetland impacts were less than 156 acres in 4 of the 10 years.

[441] *See* DEIS at 4-120.

average of 115 acres a year and never more than 146 acres.[442] The draft EIS reports that the proposed pipeline would affect 309.5 acres of wetlands in the state, including 88.1 acres permanently.[443]

These large-scale impacts make NWP 12 inapplicable. NWP 12 can only lawfully apply when the regulated activity causes "only minimal individual and cumulative environmental impacts."[444] Permitting multiple years' worth of wetland impacts is not and cannot be considered a "minimal" adverse effect.

When deciding whether a project has minimal adverse environmental effects under NWP 12, the district engineer must consider "the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g. partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer."[445]

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[442] *See* **Attachment 27** (chart listing wetland impacts approved in Virginia from 2010 to 2015).

[443] *See* DEIS at 4-120.

[444] 33 C.F.R. § 323.2(h)(1).

[445] 82 Fed. Reg. 2005; U.S. Army Corps of Engineers, Decision Document: Nationwide Permit 12 at 43(Dec. 21, 2016), http://www.usace.army.mil/Portals/2/docs/civilworks/nwp/2012/NWP_12_2012.pdf.

Here, each of these factors supports finding that the proposed environmental effects are not minimal. First, the environmental setting supports finding that the effects are not minimal. For example, significant rare wetlands in both the Spruce Creek Tributary Conservation Site and Meherrin River and Fountains Creek watersheds are threatened by the pipeline.[446] Not only are the proposed impacts to particular high quality habitats, the overall total acreage of wetlands affected (as described above) significantly exceeds the annual average for either North Carolina or Virginia.

Second, the type of resources that will be affected—including high value habitats and forested wetlands—and the functions they provide support finding that NWP 12 does not apply. As reflected in the draft EIS, the waters and wetlands in the path of the pipeline provide valuable habitat. The pipeline would cross through the buffer zone for a highly valuable Central Appalachian Low-Elevation Acidic Seepage Swamp within the Spruce Creek Conservation Site in Virginia, which the state of Virginia has assigned a high biodiversity ranking as an indicator of its rarity and quality.[447] The pipeline would also cross the Meherrin River and Fountains Creek watersheds, located in southeastern Virginia, which are part of the Nature Conservancy's Albemarle Sound Whole System project area and "contain large intact forested wetlands that support high levels of use by

[446] *See* DEIS at 4-117.

[447] *See* DEIS at 4-117.

migratory and breeding birds and provide exceptional migratory fish spawning and nursery habitats."[448] The pipeline would also cross through habitat for several species of concern or listed species in Virginia and North Carolina, including the Atlantic sturgeon, the Roanoke logperch, the Orangefin madtom, the Neuse River waterdog, and the Chowanoke crayfish.[449]

Third, the degree of impacts and their duration require finding that NWP 12 does not apply. As discussed above, the more than 1,000 acres of wetlands impacts is significantly greater than the annual average for Virginia and North Carolina. The draft EIS acknowledges that a significant part of those impacts will be permanent—eliminating 231 acres of forested wetlands.[450] Even those "temporary" impacts to forested wetlands, which by definition have trees more than 20 feet tall and a mature canopy,[451] will be very long-term.[452] The draft EIS concedes that "[g]iven the species that dominate the forested wetlands crossed by the Atlantic Coast Pipeline and the Supply Header Project, recovery to preconstruction state may take up to 30 years or more."[453] Such impacts are not

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[448] DEIS at 4-118.

[449] *See* DEIS at 4-179, 4-180, 4-182, 4-183.

[450] DEIS at 4-120.

[451] DEIS at 4-117.

[452] If hydrology is not maintained, the effects of the project will be much greater. As discussed *supra* Section III, the proposal outlined in the draft EIS does not provide any assurance that wetland hydrology will be maintained or monitored.

[453] DEIS at 4-122.

temporary and require finding that the project will have more than minimal adverse effects.

Finally, no mitigation has been proposed to date.[454] The draft EIS simply proposes to file a copy of the approved mitigation prior to construction. Therefore, the information provided cannot support a finding that application of NWP 12 is appropriate.

B. Impacts to forested wetlands are losses of Waters of the U.S. that require an individual permit.

NWP 12 also does not apply because the proposed impacts to forested wetlands require an individual permit. An individual permit is required if any part of the pipeline does not meet NWP 12 requirements.[455] Here, the draft EIS concedes that numerous impacts exceed the 0.5 acre threshold and disqualify the project.

Based on the Corps' definitions, it is clear that permanent elimination of the forested wetland use is a "loss of waters."[456] By definition, wetlands "that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity" are lost.[457] Those "[p]ermanent adverse effects

[454] DEIS at 4-124 to 4-125.

[455] *See* 33C.F.R. § 330.6(d) (stating that individual parts of a broader project can only be permitted under NWP if they have independent utility).

[456] 82 Fed. Reg. 2006.

[457] *Id.*

include . . . chang[ing] the use of a waterbody."[458] The loss of a use includes the elimination of "certain functions and services of waters . . . such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained right-of-way."[459] In *Environmental Defense Fund v. Tidwell*, the U.S. District Court for the Eastern District of North Carolina found that a similar conversion of a swamp forest to a pine plantation constituted a change in use under the Act.[460]

This interpretation is not only required by the Corps' definition, it is mandated by the Clean Water Act. The objective of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The U.S. Supreme Court has interpreted this purpose as "a broad, systemic view of the goal of maintaining and improving water quality . . . 'the word integrity … refers to a condition in which the *natural structure and function of ecosystems* . . . [are] maintained.'" *U.S. v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 132, 106 S. Ct. 455, 462 (1985) (emphasis added) (internal quotation marks and citation omitted). When it comes to forested wetlands, "the removal of all of the vegetation would destroy the vital ecological function of the wetlands."[461] Failing to protect forested wetland vegetation "would frustrate the

[458] *Id.*

[459] 82 Fed. Reg. 35235.

[460] 837 F. Supp. 1344, 1350 (E.D.N.C. 1992).

[461] *Avoyelles Sportsmen's League, Inc. v. Marsh*, 715 F.2d 897, 922 (5th Cir. 1983).

ecological purposes of the CWA" and allow widespread destruction of the very environments the Act is designed to protect.[462]

Here, there is no question that forested wetlands will be significantly degraded. The draft EIS acknowledges that by "maintaining the right-of-way . . . some of the functions (primarily habitat) of these wetlands would be permanently altered by conversion to scrub-shrub and/or emergent wetlands."[463] And although the draft EIS describes impacts to forested wetlands outside of the right-of-way as "temporary," it is clear that the adverse effects are significant and long lasting. "[I]mpacts on forested wetlands would be much longer, and may include changes in the density, type, and biodiversity of vegetation. Given the species that dominate the forested wetlands crossed by the Atlantic Coast Pipeline and the Supply Header Project, recovery to preconstruction state may take up to 30 years or more."[464]

Moreover, almost all of the wetland impacts are to forested wetlands. Forested wetlands account for "80 percent of all wetlands impacted, and 93 percent of the permanent wetland impacts."[465] The draft EIS concedes that "nearly all of the permanent forested wetland impacts" will eliminate their use as forested wetlands.[466]

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[462] *Id.*

[463] DEIS at 4-122.

[464] *Id.*

[465] DEIS at 4-125.

[466] *Id.*

The acreage of forested wetlands lost as a result of the permit significantly exceeds the 0.5 acre threshold for NWP 12. In North Carolina, the project would permanently adversely affect 79 wetlands greater than 0.5 acres; in Virginia 34 wetlands would similarly be lost.[467] If "temporary" adverse effects—which may last more than 30 years—are included, 203 sites in North Carolina and 116 in Virginia exceed the threshold.

In addition, many of the purported "separate and distant" wetlands are, in fact, in close proximity and cannot be considered separate impacts under 33 C.F.R. § 330.2(i). For example, wetlands identified as wnrh007f-11f in Northampton County, N.C. are listed separately in Appendix L,[468] yet are in close proximity and appear to all drain to the same stream.[469] In Robeson County, N.C., wetland impacts in very close proximity (and that appear to border the same stream or ditch)[470] are listed as separately impacted.[471] The same is true in Johnston County, N.C.[472] and numerous other locations along the pipeline's route. These and other similarly situated wetlands are unquestionably part of the same system and cannot be considered separate and distant. They certainly are not sufficiently "distant" such that the "distance between those crossings will [] dissipate the direct and

[467] *See* **Attachment 28** (chart summarizing wetlands impacts over .5 acres).

[468] *See* DEIS at L-20.

[469] *See* **Attachment 29** (Northampton 1, Drawings E006-07).

[470] *See* **Attachment 30** (Drawing E178).

[471] *See* DEIS at L-38 (describing impacts to wetlands wrog001s and wrog001f).

[472] *See* DEIS at L-30 (listing impacts to wetlands wjoo012f through wjoo020f separately), included as **Attachment 31** (Drawings E091-93 (showing close proximity of wetlands)).

indirect adverse environmental effects so that the cumulative adverse environmental effects are no more than minimal."[473]

C. The draft EIS hopes, but does not ensure, that wetland hydrology will be retained.

Based on the information available, NWP 12 does not apply for an additional reason—nothing the draft EIS ensures that wetland hydrology will be retained. The best the draft EIS offers is that contours would be restored "to the extent practicable," that trenches "may" be constructed so that they do not drain waters of the U.S, and that wetland soils will only be "restored to their original profile to the extent possible."[474]

The Corps cannot assume hydrology will be maintained without a binding obligation that can be monitored and enforced. In *Friends of Back Bay*, the Fourth Circuit held that the US Army Corps of Engineers' assumption regarding the effectiveness of a mitigation measure, absent any evidence that it would be adequately enforced, was arbitrary and capricious.[475] Specifically, the Corps claimed that a No Wake Zone would mitigate the impacts of motorized watercraft to Back Bay National Wildlife Refuge. The NEPA document prepared by the Corps, however, offered no indication that the No Wake Zone would ever be recognized or followed by the public, and thus provided no reasonable basis to

[473] U.S. Army Corps of Engineers, Decision Document: Nationwide Permit 12, *supra* note 445, at 11.

[474] DEIS at 4-121-22.

[475] *Friends of Back Bay v. United States Army Corps of Eng'rs*, 681 F.3d 581, 588–89 (4th Cir. 2012).

conclude that the No Wake Zone would be an effective mitigation tool. Assumptions in the draft EIS that hydrology will be maintained are similarly misplaced.

D. As proposed, the project does not comply with regional conditions on NWP 12.

The draft EIS also exposes several instances in which the Atlantic Coast Pipeline does not conform to regional conditions for NWP 12 issued by the Wilmington and Norfolk districts. The Wilmington District Regional Conditions for NWP 12 require that construction through wetlands "be accomplished utilizing directional drilling/boring methods to the maximum extent practicable."[476] The draft EIS, however, states that Horizontal Directional Drilling or bore methods will only be used for 26 of the project's 1,989 waterbody crossings, but that "[o]ther HDD crossings for the ACP [Atlantic Coast Pipeline] could be evaluated as a result of ongoing engineering design or consultation with permitting agencies."[477] Importantly, neither the main body of the draft EIS' nor the attached HDD plan contain a practicability analysis.[478] Therefore, the draft EIS fails to make a *prima facie* showing that additional HDD is not practicable.

In addition, the work area contemplated by the draft EIS is far beyond what is authorized by regional conditions. Wilmington Regional Condition 4.6.3 requires

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[476] Wilmington Regional Conditions for Nationwide Permits [hereinafter Wilmington Conditions], § 4.6.1, http://saw-reg.usace.army.mil/NWP2017/2017NWP12.pdf.

[477] DEIS at ES-8; DEIS, Appendix H at 1-4.

[478] *See* DEIS at 2-38; DEIS, Appendix H.

that work areas be "minimized to the greatest extent practicable" and limits work corridors to 40 feet in width or else the permittee must provide written justification to the Corps. Here, the draft EIS states that the construction right-of-way through wetlands would be reduced to 75 feet in wetland areas *where feasible*.[479] The draft EIS does not state whether the applicant has provided the required written justification for this corridor width, and the draft EIS does not contain a practicability analysis with regard to corridor width. The applicant has not met this regional condition.

Furthermore, the Wilmington District requires that temporary discharges of excavated or fill material be for the absolute minimum period of time necessary and that they be fully contained with erosion control methods.[480] The draft EIS does not contain sufficient information to ensure compliance with this requirement, but instead generally states that "[c]onstruction and operation-related impacts on wetlands would be further minimized or mitigated by compliance with the conditions imposed by the USACE and state water regulatory agencies."[481] Similarly, the Norfolk District requires a practicability analysis for placing

[479] *See* DEIS at 2-18, 2-19, 4-120.

[480] Wilmington Conditions, § 4.6.2.

[481] DEIS at ES-9; *see also* Wilmington Conditions, § 4.6.9 (requiring a plan to restore and re-vegetate wetland areas cleared for construction).

excavated material on a Corps confirmed upland site.[482] This analysis is absent from the draft EIS.

Regional conditions also require a wetlands compensatory mitigation plan, which the draft EIS does not describe.[483] Instead of providing a plan, the draft EIS merely states that "Atlantic and DTI are working with the USACE to determine wetland mitigation requirements and we recommend that they file copies of their final wetland mitigation plans and documentation of USACE approval of the plans."[484]

VII. DRILLING THROUGH THE BLUE RIDGE MOUNTAINS

A. The draft EIS does not adequately address the risk of failure and environmental impacts of drilling through the Blue Ridge Mountains.

Due to restrictions on construction of a utility corridor across the Appalachian National Scenic Trail (ANST), Atlantic proposes to tunnel through the Blue Ridge using horizontal directional drilling (HDD). Another drilling method, direct pipe installation (DPI), is proposed as a contingency should the HDD operation fail.[485] A map depicting the proposed HDD and DPI drill paths, workspace, pipe pullback areas, and access roads is provided as **Figure VII(a)**.

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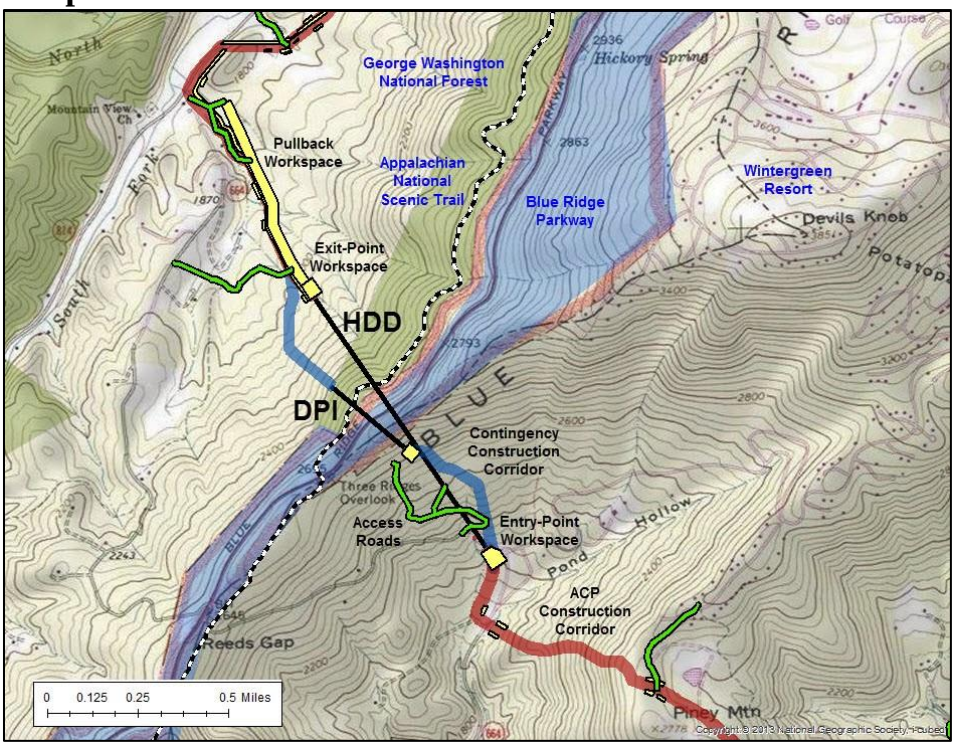
[482] *See* Norfolk Regional Conditions for NWP 12, Condition 5, https://media.defense.gov/2017/Mar/23/2001720917/-1/-1/1/NAO_FINAL_2017NWP_REGIONAL_CONDITIONS_28FEB2017.PDF.

[483] *See* Wilmington Condition 4.6.10; Norfolk Condition 3(c)("Compensatory mitigation may be required for permanent conversion of wetlands within the utility line corridor.").

[484] DEIS at ES-9.

[485] The proposed HDD operation endpoints would be at elevation of 2,000 feet, and the length of the drill path would be 4,639 feet. The proposed DPI operation endpoints would be at elevations of 2,400 and 2,600 feet, and length of the drill path would be 1,396 feet.

FIGURE VII(a) – Proposed Horizontal Directional Drilling (HDD) and contingency Direct Pipe Installation (DPI), endpoint workspace, access roads, and construction corridors, based on information included in the draft EIS and other information submitted to the Commission by Dominion prior to publication of the draft EIS. The location of the pullback workspace is based on information submitted to the Commission on 1/19/17, after the draft EIS was published.



The HDD operation would involve drilling for 4,639 feet at 800 feet below the crest of the Blue Ridge.[486] The contingency DPI operation would involve drilling for 1,396 feet at 200 feet below the crest.[487] Both methods are commonly used for installing pipelines under rivers or other obstacles where the terrain is relatively flat and extremely hard or fractured bedrock is not encountered. The use of either method to drill for long distances through steep mountains is less common. Atlantic's proposal for drilling through the Blue Ridge approaches the limits of

[486] DEIS at 3-21, H2-3.

[487] *Id.* at H2-7.

either technology, especially where geophysical conditions are both problematic and uncertain.

Horizontal Directional Drilling typically involves three operational phases (**Figure VII(b)**):

- Phase 1: A pilot hole is drilled from one side of the obstacle (river, mountain, road, etc.) to the other. A bentonite clay drilling fluid removes drill cuttings.
- Phase 2: Reamers with larger bits and cutters are used to enlarge the borehole.
- Phase 3: A pre-welded and pre-tested pipe string is pulled through the borehole from the exit side. The pullback section of pipe is elevated to align with the borehole.

Direct Pipe Installation is a newer method that involves mounting the drill bit on the front of a pre-welded and pre-tested pipe string and pushing it though or under the obstacle.

As described in this section, both the HDD and DPI methods involve substantial risks of failure and environmental damage, given workspace limitations

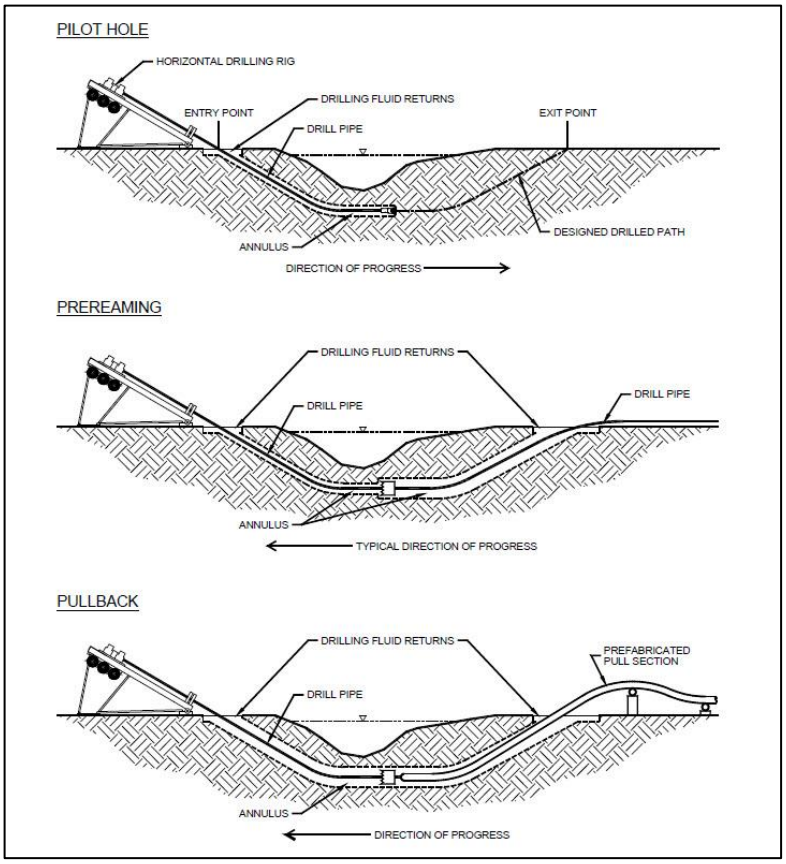


FIGURE VII(b) – Phases of the HDD process as presented in the HDD Design Report prepared for Dominion Transmission, Inc. by J.D. Hair & Associates, Inc. (7/27/16). The depiction shows the more-common use of HDD for installing pipelines under rivers or other water bodies. Dominion proposes ten HDD crossings for pipe diameters of 36-inches or greater. The Blue Ridge crossing is the only HDD that involves drilling through a mountain, and it is the longest among the ten, exceeding the next longest by 1,674 feet.

and the topographic and geologic characteristics of the proposed drilling locations. Despite these serious concerns, the draft EIS fails to adequately assess the risk of failure and the unavoidable environmental damage associated with the plans proposed by Atlantic for drilling through the Blue Ridge Mountains.

NEPA requires an opportunity for meaningful public and agency review and comment. In order to fulfill its obligations under NEPA, an agency must issue a "properly prepared EIS [that] ensures that federal agencies have sufficiently detailed information to decide whether to proceed with an action in light of potential environmental consequences."[488] In addition, an adequate EIS must "provide[ ] the public with information on the environmental impact of a proposed action."[489] But as discussed at length in Section I and throughout these comments, the draft EIS for the Atlantic Coast Pipeline repeatedly fails to address or provide the critical information required for meaningful review by the agencies or the public. The draft EIS's treatment of Atlantic's proposed Blue Ridge drilling operation is a particularly significant example of this deficiency. Because the draft EIS fails to fully disclose and assess the risk factors and uncertainties associated with the proposal, the Commission should issue a revised draft EIS to provide an adequate opportunity for public comment.

B. The draft EIS is inadequate due to missing, misleading, and insufficient information.

Commenters' objections to the proposed Blue Ridge crossing have much in common with other concerns about the Atlantic Coast Pipeline project, discussed throughout these comments. Namely, large-scale forest clearing and excavation on steep mountainsides presents substantial risk of erosion and sedimentation,

[488] *See, e.g., Ariz. Cattle Growers' Ass'n v. Cartwright*, 29 F.Supp.2d 1100, 1116 (D. Ariz. 1998) (quoting *Or. Envtl. Council v. Kunzman*, 817 F.2d 484, 492 (9th Cir. 1987)).

[489] *Id.*

alteration of runoff properties, and landslides. Yet despite substantial risks, the Commission has failed to require Atlantic to provide detailed plans for construction and mitigation prior to publication of the draft EIS, thereby precluding informed public and regulatory agency analysis of risks, alternatives, and mitigation measures. The proposed HDD and contingency DPI installations will require extensive excavation for creation of level workspaces, access roads, and areas for pipe fabrication, testing, staging, and pullback. The information included in the draft EIS is insufficient because it fails to disclose the full scope or impact of the proposed operations.

1. Critical information on workspace requirements is missing in the draft EIS.

The draft EIS provides limited or misleading information concerning the excavation that will be required for the proposed primary and contingency drilling operations, and to the extent that information is provided, it is subject to change. Information submitted to the Commission by Atlantic does acknowledge, but only in general terms, that there are issues related to the amount of excavation that will be required: "The proposed HDD crossing will be complicated by the challenging topography at the site, which is likely to require some amount of excavation at both ends of the crossing to create level work areas for the HDD equipment."[490]

[490] Dominion Transmission, Inc., *HDD Design Report, Revision 2, Atlantic Coast Pipeline Project* 16 (Dec. 14, 2016) (prepared by J.D. Hair & Assocs., Inc.) Submitted to the Commission by Atlantic (Jan. 10, 2017).

Despite this admission, no specific information concerning the actual extent of entry and exit point excavation was provided to the Commission for consideration in the draft EIS. For example, the draft EIS includes a schematic of the HDD operation.[491] However, the locations, areas, and excavation required for the entry and exit points are imprecisely specified as "proposed" or "to be designed by contractor."[492] In addition, the draft EIS does not address plans submitted to the National Park Service that describe a modified HDD operation in which drilling would be conducted from both sides of the mountain.[493]

Information in the draft EIS concerning the contingency DPI operation is similarly deficient. The limited information provided on excavation required for entry and exit points is characterized as "conceptual" and qualified by the statement that "[a]ny excavations required for launch and reception of the tunnel boring machine shall be designed by the contractor."[494] Although the draft EIS indicates that Atlantic was to provide a site-specific contingency plan in late 2016, the plan was not included in the draft EIS.[495]

Perspective on the footprint associated with HDD operations is provided by **Figure VII(c)**, which shows an entry-side workspace for a recent HDD operation

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[491] DEIS at H3.

[492] *See, e.g., id.* at H3-2.

[493] Stated in correspondence to Mark H. Woods, Superintendent, Blue Ridge Parkway, from Leslie Hartz, Vice President, Atlantic Coast Pipeline, LLC, Oct. 21, 2016. Submitted to the Commission by Dominion (Nov. 17, 2016).

[494] DEIS at H2.

[495] *See id.*at H1.

in West Virginia. In contrast with the proposed Blue Ridge operations, this workspace was on relatively level ground where the need for cut and fill excavation was minimal. The pipeline was also smaller, and the length of the drill path was much less. **Figure VII(d)** shows the approximate location of the entry-side workspace for the proposed Blue Ridge HDD.

FIGURE VII(c) – Entry-side workspace for a comparatively small HDD operation for the Stonewall Gathering Pipeline in West Virginia. The pullback phase has been completed and the drilling rig has been removed. This operation involved a 1,000 foot boring to install a 36-inch pipeline under Interstate 79.

FIGURE VII(d) – This photo was taken adjacent to the location (to the right) of the entry-side workspace for the proposed Blue Ridge HDD operation. The entrance to Wintergreen Resort is in the background.

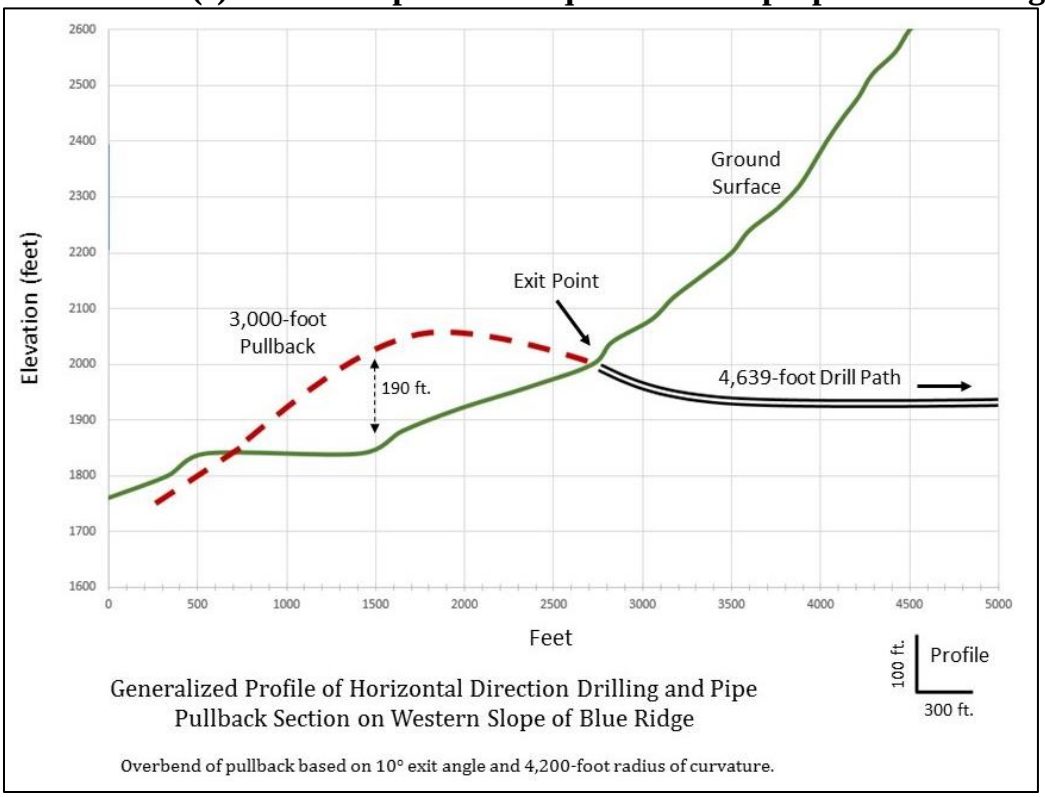
2. The draft EIS contains misinformation regarding workspace requirements.

The draft EIS fails to address the footprint that will be required for pipe pullback, fabrication, and testing. The schematic provided for the HDD operation simply indicates that the pull-section staging area will be about 3,000 feet long and the workspace will be 150-feet wide.[496] The necessary alignment of the pull-section pipe with the borehole will require suspension of the pipe high above the ground. The industry-accepted safe bending radius (radius of curvature) for a 42-

[496] *Id.* at H3.

inch steel pipe is 4,200 feet.[497] Given this bending radius and the slope of the location, it will be necessary to suspend the pipe for approximately 2,000 feet at heights approaching 200 feet above the mountainside (see **Figure VII(e)**). If this is even practicable, it will require significant excavation for access, pipe fabrication and testing, and siting of the multiple large cranes or other heavy equipment needed for pipe handling and support. The required suspension of pull-section pipe for the proposed mountainside HDD operation greatly exceeds what is required for typical HDD operations on relatively flat ground. For example, see **Figure VII(f)**.

FIGURE VII(e) – Extreme pullback required for the proposed Blue Ridge HDD.



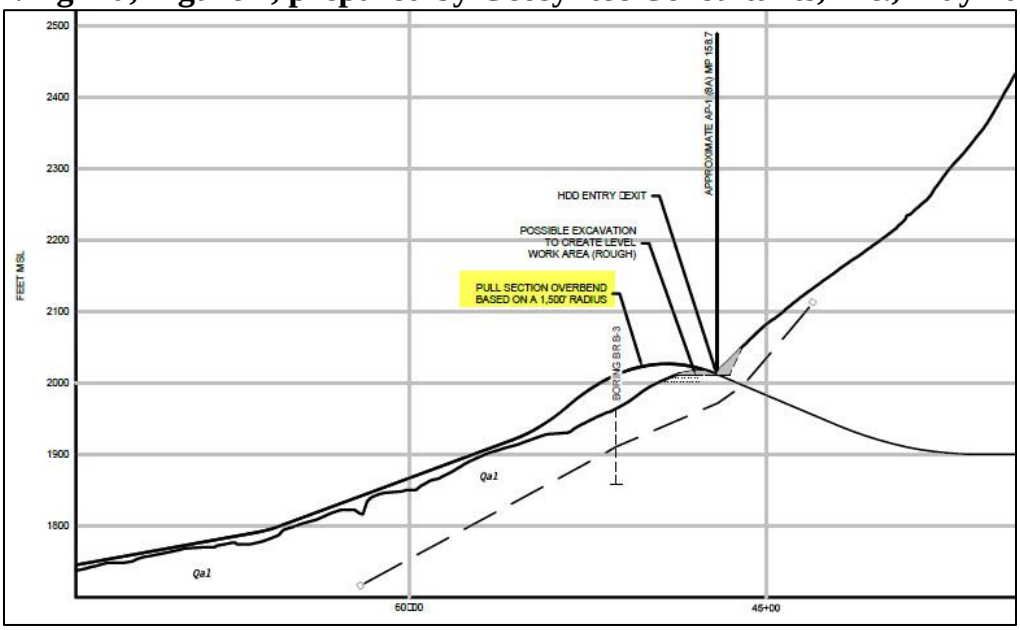
[497] American Society of Civil Engineers, *Pipeline Design for Installation by Horizontal Directional Drilling* (Eric R. Skonberg & Tennyson M. Muindi eds., 2d ed. 2014).

FIGURE VII(f) – Final section of pullback pipe for an HDD operation in relatively flat terrain.

The contingency DPI installation, which would occur on even steeper slopes than the proposed HDD operation, also raises questions about the potential footprint of the staging and fabrication area and the need for pipe suspension.[498] The fact that the suspension of pullback pipe and the magnitude of the related footprint were not addressed in the draft EIS may be due to incorrect or misleading information provided to the Commission by Atlantic. The only depiction of the HDD pullback section included in Atlantic submissions to the Commission is based on a 1,500-footbending radius (**see Figure VII(g)**).

[498] DPI requires a large entry-side work area to accommodate the pipe thruster, supporting equipment and long lengths of welded pipe. The pipe thruster requires that structural steel, including piles, be installed to support the operation. *See Waterbody Crossing Review, Mountain Valley Pipeline Project* (Jan. 15, 2016), FERC Docket No. CP16-10-000.

FIGURE VII(g) – Profile of the proposed Blue Ridge HDD showing the exit-side suspension of pullback pipe based on a 1,500-foot bend radius instead of the correct 4,200-foot bend radius. From Geotechnical Site Investigation Report for Atlantic Coast Pipeline – Proposed Horizontal Directionally Drilled Crossing, Blue Ridge Parkway, Segment AP-1 MP 158 to 159, Virginia, Figure 4, prepared by Geosyntec Consultants, Inc., May 2016.



This differs substantially from the correct 4,200-foot bending radius. As indicated in the depiction, a shorter bending radius would require much less lifting of the pipe. The necessary elevation would only be about 50 feet compared to about 200 feet for the longer correct bending radius. The length of pipe suspension would also be much less.

Atlantic has acknowledged, but again only in general terms, that there are topographic complications that affect the pullback operation: "[S]ince the product pipe will be laid downhill from the proposed exit point, it is anticipated that several cranes will be needed to handle the pipe and support it as it is lifted during

pullback to be aligned with the reamed hole. However, the need for excavations and cranes does not cause any concern with regard to technical feasibility."[499]

It is not clear, however, that the statement concerning technical feasibility and the suggestion that only "several cranes will be needed" is based on accurate information concerning the design or bending radius of the pipe. In addition, evaluation of environmental impacts, as required in preparation of a draft EIS, concerns more than technical feasibility. However, the unavoidable environmental impacts associated the forest clearing and mountainside excavation required for the pullback component of the HDD operation are not addressed in the draft EIS.

3. The draft EIS contains insufficient information on stream crossings.

Construction in the proposed HDD and DPI operations area, including for the primary and contingency pipeline corridors, the entry- and exit-point workspaces, the pipe pullback workspace, and access roads, will directly impact a number of streams (see **Figure VII(h)**). The draft EIS does not address the impacts of construction for an extended period (a year or more) on these streams.[500] These impacts would be associated with continuing excavation earth disturbance, movement of heavy equipment and pipe, all involving steep slopes, steep access roads, and multiple stream crossings. The draft EIS provides summary information concerning stream crossings (see **Table VII(a)**).

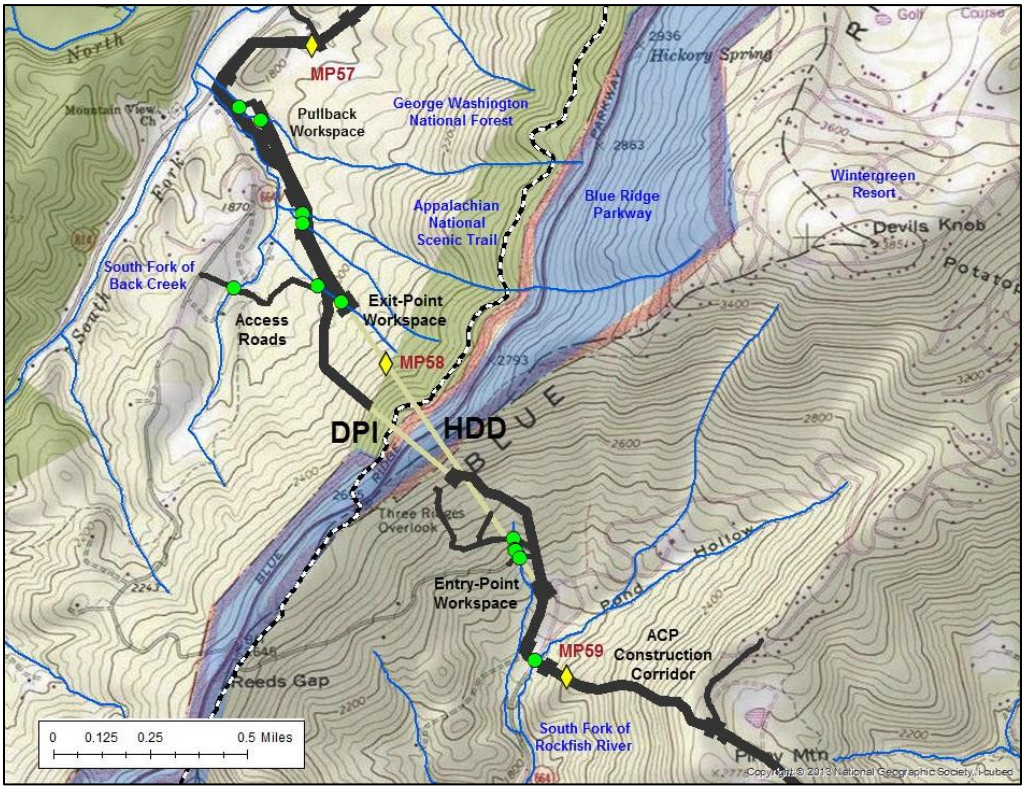
[499] Dominion Transmission, Inc., *HDD Design Report, Revision 2, supra* note 490.

[500] DEIS at 2-47.

TABLE VII(a) – Water Crossing Information: Excerpt from draft EIS[501]

	Mile Post 157-158 Western Slope	Mile Post 158-159 Eastern Slope
Total Stream Crossings	14	5
Perennial Streams	3	4
Intermittent Streams	10	1
Blasting Within 1000 Feet	7	4
In-Stream Blasting	5	1
Time-of-Year Restrictions	11	5

FIGURE VII(h) – Streams crossed by construction associated with the proposed HDD and contingency DPI operations. The green symbols indicate stream crossings by the pipeline construction corridor, entry- and exit-point workspaces, pipe pullback and other workspace, and access roads. The yellow symbols indicate ACP mileposts. The stream lines shown on the map were obtained from the National Hydrography Dataset (U.S. Geological Survey). Note that more stream crossings are listed for this area in the draft EIS (see Table VII(a)). The reason for the difference has not been determined.



[501] *Id.* at Appendix K-1.

The indicated time-of-year restrictions for these streams limits work from October 1 to March 31 to protect sensitive life stages of aquatic life (see Section 5.1). Adherence to time-of-year restrictions conflicts with Atlantic's plans for wintertime construction. Information submitted by Atlantic to the National Park Service does not correlate with the stream crossing information depicted in **Figure VII(h)**, nor does it reflect a pro-active approach to stream protection.[502] Among a series of questions concerning the HDD operation, the National Park Service asked: "Does the project proposal include altering any stream courses, surface or ground water flows in the area . . . ?" Atlantic's response: "No. The project will not result in the alteration of any perennial or intermittent streams . . . . Both the HDD entry and exit points are located between 50 and 100 feet away from intermittent streambeds. . . . The temporary construction workspace for both sides of the HDD will be in close proximity to the intermittent streambeds. However, should the streams happen to be flowing during construction, the intermittent streambeds will be protected with erosion control devices installed within or along the boundaries of the workspace in compliance with applicable regulations."

[502] Correspondence with Mark H. Woods, Superintendent, Blue Ridge Parkway, from Leslie Hartz, Vice President, Atlantic Coast Pipeline, LLC, Oct. 21, 2016. Submitted to the Commission by Dominion (Nov. 17, 2016).

C. The drilling operation may fail.

The draft EIS acknowledges that "[i]t is possible for HDD operations to fail, primarily due to encountering unexpected geologic conditions during drilling or if the pipe were to become lodged in the hole during pullback operations."[503] The likelihood of such failure is by no means insignificant. Of particular concern are the proposed segmentation of the pullback pipe and the dearth of geophysical information in the draft EIS. It is also notable that HDD was recently rejected as a method for the Mountain Valley Pipeline's proposed crossing of the ANST in the Jefferson National Forest due to engineering constraints.

1. Segmentation of pullback pipe increases the risk of failure.

Topographic and workspace limitations affecting the pullback stage are among the significant problems confronting the proposed Blue Ridge HDD operation. As indicated in the draft EIS, Atlantic anticipates fabricating the pullback string in at least two sections.[504] Segmentation of the pullback string requires tie-in welding and thus a delay during the pullback. According to published HDD design information, segmentation of the pipe pullback string increases the risk of failure, and it does not conform to recommendations provided by engineering consultants working for Atlantic.

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[503] DEIS at 2-40.

[504] *Id.* at H3.

The American Society of Civil Engineers has published a series of reports on engineering practice, including a 2014 report on HDD design that includes the following statement: "The exit side (sometimes referred to as the pipe side) is where the pipeline is fabricated. Ideally, there is space in line with the drill alignment of sufficient length to fabricate the pipeline into one string. Delays associated with connecting strings together during pullback increase risk for the HDD installation."[505]

The HDD design report prepared for Atlantic by J.D. Hair & Associates, Inc. includes the following statement on pullback workspace requirements: "It is preferable to have workspace aligned with the drilled segment extending back from the exit point the length of the pull section plus approximately 200 feet. This will allow the pull section to be prefabricated in one continuous length prior to installation. If space is not available, the pull section may be fabricated in two or more sections which are welded together during installation. It should be noted that delays associated with joining multiple pipe strings during pullback can increase the risk of the pipe becoming stuck in the hole. . . . A typical pull section fabrication site plan is shown in Figure 3 [see **Figure VII(i)**]. Where possible, we recommend obtaining workspaces of similar dimensions to accommodate HDD pipe side operations on the ACP Project."[506]

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[505] American Society of Civil Engineers, *supra* note 497.

[506] Dominion Transmission, Inc., *HDD Design Report, Revision 2*, *supra* note 490.

FIGURE VII(i) – Recommended exit-side and pullback pipe fabrication workspace.

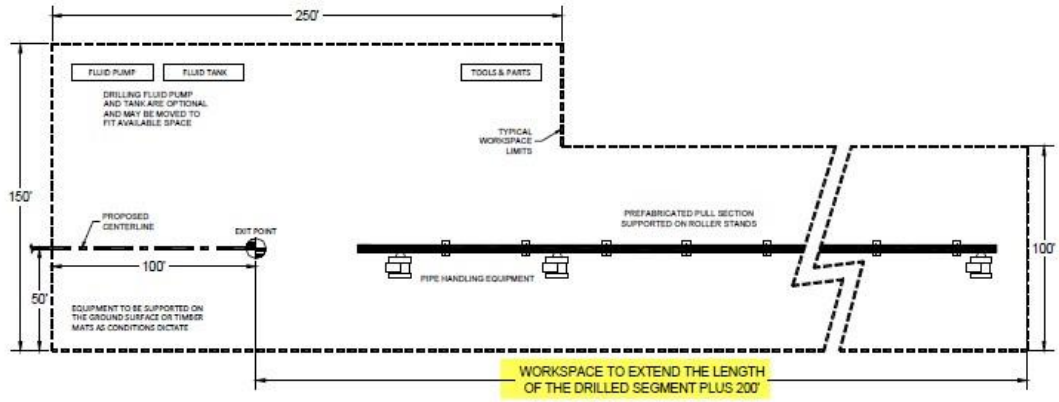


Figure 3. Typical Pull Section Fabrication Site Plan

The length of the drilled segment for Atlantic's proposed HDD is 4,639 feet. The recommended pullback segment would thus be 4,839 feet. However, as indicated in the draft EIS, the length of the workspace available for staging the pipe pullback is only about 3,000 feet, which makes fabrication, hydrostatic testing, and pullback of the recommended single continuous pipe string impossible.

Figure VII(j) shows the exit-side and pullback area for the proposed HDD on western slope of the Blue Ridge.

FIGURE VII(j) – Exit-side for the proposed HDD. The pullback workspace for the HDD operation would extend from the western slope of the main Blue Ridge crest in the background. This photo was taken from Torry Ridge Trail above the Sherando Lake Recreation Area in the George Washington National Forest.

2. The lack of geophysical characterization increases the risk of failure.

It is possible for HDD operations to fail, primarily due to encountering unexpected geologic conditions during drilling or if the pipe were to become lodged in the hole during pullback operations.[507] Detailed investigation of geophysical conditions is thus standard practice for assessing the feasibility of

[507] DEIS at 2-40.

prospective HDD operations.[508] The draft EIS includes the following assurance: "Atlantic has completed geotechnical subsurface borings at the HDD crossing location and has confirmed its expectations that the drill path would be primarily through solid rock approximately 800 feet below the BRP and the AT. Drilling through solid rock, while a time-consuming process, significantly helps to ensure the success of the drill operation due to the avoidance of rock fragments and cobbles that can disrupt or block the drill pathway."[509]

This statement is not supported by information included in the draft EIS nor in documents published in the Commission docket. In fact, Atlantic has obtained surprisingly little geotechnical information specific to the proposed HDD or contingency DPI drill paths. Based on the information submitted to the Commission by Atlantic, only two subsurface borings were completed for the proposed HDD, and both were at a lower elevation than the proposed HDD drill path. The only direct physical measurement of geotechnical properties or groundwater in the HDD area was provided by these borings. There were no subsurface borings in the area of the contingency DPI. Additional investigation using geophysical survey methods was limited to areas close to the HDD entry and exit points, covering only a small part of the projected drill path. The locations of

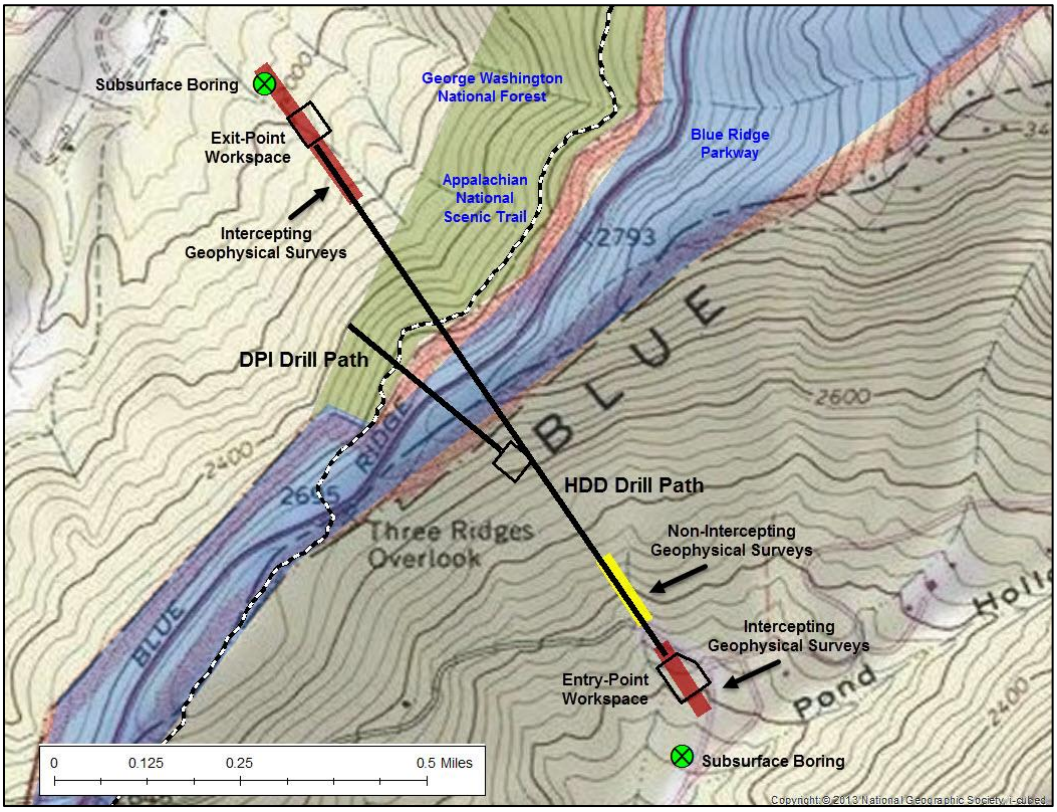
[508] American Society of Civil Engineers, *supra* note 497 ("A successful HDD project requires that surface features and subsurface geotechnical and utility data be gathered and incorporated into its design.").

[509] DEIS at H2.

the two subsurface borings and other geophysical surveys for the HDD are indicated in **Figure VII(k)**.

FIGURE VII(k) – Locations of subsurface borings and geophysical surveys conducted for the proposed Blue Ridge HDD crossing. From Geotechnical Site Investigation Report for Atlantic Coast Pipeline Horizontal Directionally Drilled Crossing, Blue Ridge Parkway, Segment AP-1 MP 158 to 159, Virginia, Geosyntec Consultants, Inc., May 2016.

Designation of geophysical surveys (intercepting or non-intercepting) refers to the depth of seismic refraction and electrical resistivity imaging in relation to the depth of the drill path. From Geophysical Study for a Proposed Blue Ridge HDD Crossing, Augusta and Nelson Counties, Virginia, ATS International, Inc., 4/12/16.



Neither the borings nor the geophysical surveys were focused on the full length of the proposed drill path, and none of the information obtained through borings or geophysical surveys confirms "that the drill path would be primarily through solid

rock." The results of these investigations instead reveal a high degree of uncertainty concerning geotechnical properties of the drill path.

An 85-foot subsurface boring on the HDD entry (eastern) side is about 500 feet downslope and south of the entry point. A 108-foot boring on the HDD exit (western) side is about 650 feet downslope of the exit point. Both borings encountered thick surficial layers of unconsolidated material consisting of boulders, cobbles, gravel, sand, silt, and clay. The entry-side boring did not reach bedrock. The exit-side boring encountered highly fractured rock beginning at about 60 feet, but did not reach solid bedrock.[510]

In addition to the two subsurface borings, surface-based geophysical survey techniques were employed to evaluate geologic conditions associated with the proposed HDD operation. In addition to the near-surface unconsolidated material identified with the subsurface borings, the surveys indicated the presence of faulting and fractured rock at greater depth.[511] The survey results indicated that approximately 100 feet of fractured rock associated with a fault would be encountered at approximately 160 feet from the west-side exit point. Another fault

[510] Dominion Transmission, Inc., *Geotechnical Site Investigation Report for Atlantic Coast Pipeline – Proposed Horizontal Directionally Drilled Crossing, Blue Ridge Parkway, Segment AP-1 MP 158 to 159, Virginia* (May 2016) (prepared by Geosyntec Consultants, Inc.). Submitted to the Commission May 13, 2016.

[511] Geosyntec Consultants, Inc., *Geophysical Study for a Proposed Blue Ridge HDD Crossing Augusta and Nelson Counties, Virginia* (Apr. 12, 2016) (prepared by ATS International, Inc.). Included in Appendix B of *Geotechnical Site Investigation Report for Atlantic Coast Pipeline – Proposed Horizontal Directionally Drilled Crossing, Blue Ridge Parkway, Segment AP-1 MP 158 to 159, Virginia* (May 2016) (prepared by Geosyntec Consultants, Inc.). Submitted to the Commission May 13, 2016.

of undetermined extent, was estimated to be present in the drill path beginning at approximately 425-550 feet from the ground surface at the east-side entry point.[512] **Figure VII(l)** depicts the findings obtained through electrical resistivity and seismic refraction surveys.

Although the geophysical surveys served to confirm the presence of faulting and fractured rock in the projected HDD drill path, the information provided is limited in both scope and reliability. No geotechnical information was obtained for more than 75% of the drill path. For the part of the drill path that was surveyed, the absence of representative subsurface borings precluded specific findings concerning the location of the faults, the geotechnical properties of the fault zones, or the presence and amount of associated groundwater.[513]

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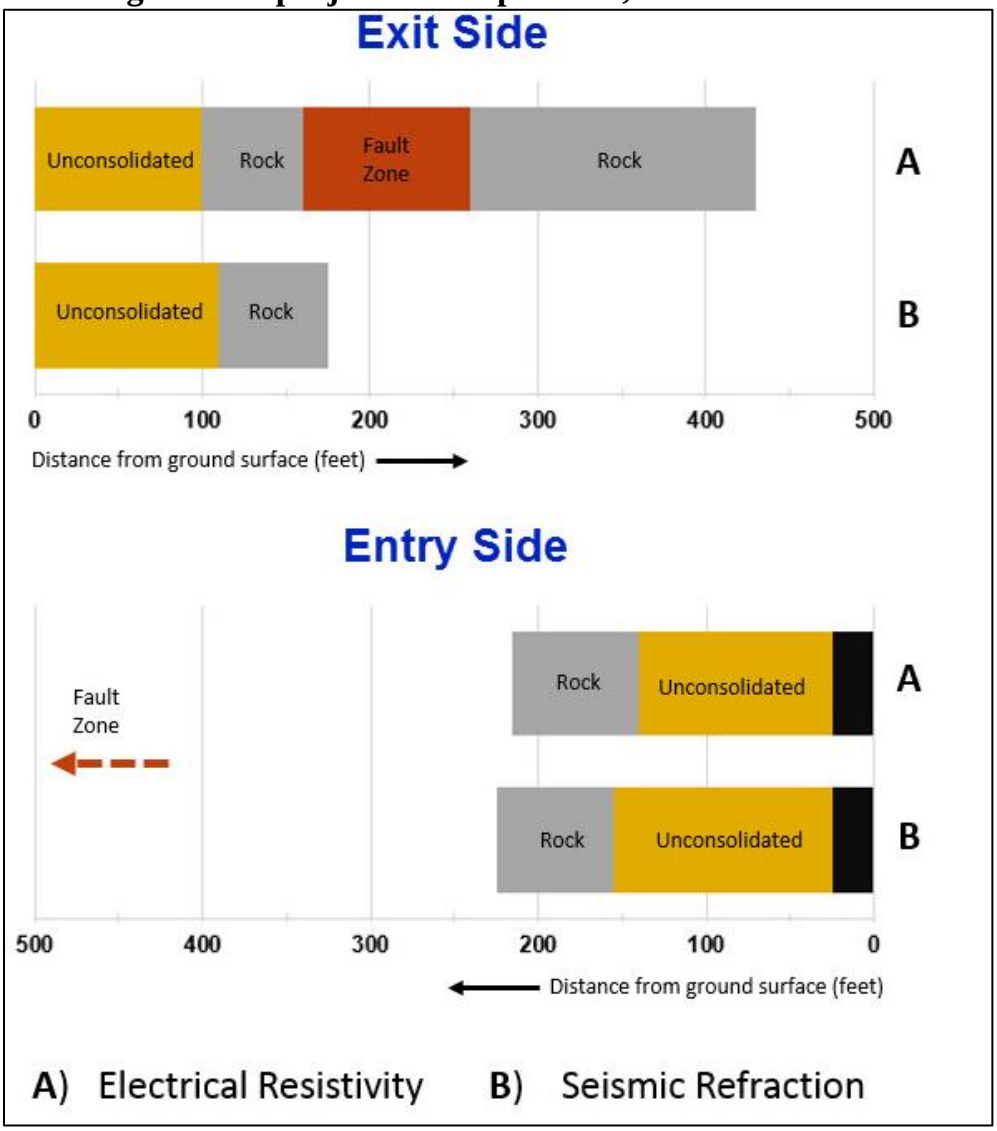
[512] This corresponds to a major thrust fault at the contact between the primary bedrock formations in the area, the granitic Pedlar Formation and the basaltic Catoctin Formation. Faulting in the Pedlar and Catoctin Formations is extensive, with offsets ranging from hundreds to over 1,000 feet. *See* Mervin J. Bartholomew, *Geology of the Greenfield and Sherando Quadrangles, Virginia*, Virginia Division of Mineral Resources, Commonwealth of Virginia (1977), https://www.dmme.virginia.gov/commercedocs/PUB_4.pdf.

[513] Interception of groundwater during an HDD operation can interfere with the circulation of drilling fluids, result in "*inadvertent return*" of drilling fluid to the surface, and disrupt or contaminate groundwater systems. The DEIS and information in the FERC docket addressed "*hydrofracture*" and loss of drilling fluids during HDD but did not address the potential for groundwater-related problems associated with fault zones in the Blue Ridge. Investigations have shown that faults in the Blue Ridge Province can yield significant quantities of water and may dominate the hydrology of the region. *See, e.g.*, Thomas J. Burbey & W.J. Seaton, *Influence of Ancient Thrust Faults on the Hydrogeology of the Blue Ridge Province*, 43 *Ground Water* 3, 301-313 (2005).

FIGURE VII(l) – Interpreted results of geophysical surveys conducted at the entry- and exit-sides of the proposed HDD drill path. (Based on Geophysical Study for a Proposed Blue Ridge HDD Crossing Augusta and Nelson Counties, Virginia, prepared by ATS International, Inc., 4/12/16.)

Results are shown for survey sections where imaging intercepted the projected drilling path. The fault zone in the entry-side section was estimated based on non-intercepting surveys, and was estimated to begin at 425-550 feet from the ground surface. The black-colored segments starting at the ground surface on the entry side indicate planned excavation. The total length of the projected drill path is 4,639 feet.



In fact, the geophysical services company that conducted and interpreted the surveys raised questions concerning the reliability of even its limited findings,

stating: "[W]hile three different geophysical methods were utilized in this study with the purpose of providing ample corroboration between the methods, all geophysical methods are interpretive, and the results presented in this report are provided with limited boring data with which to corroborate the geophysics. Additional boring and/or coring data would be necessary to confirm or refute these findings. Actual subsurface conditions may differ from those interpreted within this report."[514]

In other words, the company that performed the survey work cannot verify the accuracy of its interpretation. This is consistent with the industry-recognized need for corroboration of information derived with geophysical techniques. A report prepared for a pipeline-industry research organization includes the following statement concerning the value of geophysical surveys: "Geophysical exploration techniques are sometimes employed, but, results are only moderately reliable and vary significantly depending on the number of exploratory borings available for correlation."[515]

The draft EIS gives no consideration to the lack of substantive geologic data for the Blue Ridge HDD and DPI contingency proposals. Although the draft EIS

[514] Geosyntec Consultants, Inc., *Geophysical Study for a Proposed Blue Ridge HDD Crossing Augusta and Nelson Counties, Virginia* (Apr. 12, 2016) (prepared by ATS International, Inc.). Included in Appendix B of *Geotechnical Site Investigation Report for Atlantic Coast Pipeline – Proposed Horizontal Directionally Drilled Crossing, Blue Ridge Parkway, Segment AP-1 MP 158 to 159, Virginia* (May 2016) (prepared by Geosyntec Consultants, Inc.). Submitted to the Commission May 13, 2016.

[515] Pipeline Research Council, Inc., *Pre-Construction Drillability Assessment for Horizontal Directional Drilling* (Aug. 2008) (prepared by J.D. Hair & Associates, Inc.).

acknowledges that any Forest Service approval of ACP construction will be conditioned on successful completion of the Blue Ridge drilling, the draft EIS did not address the risk factors at issue. The only risk-related information included in the draft EIS was the misleading claim that subsurface borings provided confirmation that the drilling would primarily encounter solid rock.[516] Neither Atlantic nor the Commission has acknowledged the risk associated with the presence of fault zones and fractured rock deeper in the drilling path. Atlantic's earlier submissions to FERC, however, acknowledged risks associated with the unconsolidated near-surface material.

For instance, Atlantic submitted the following in an HDD design report in January 2017: "Upon completion of the boring on the southeast end of the crossing in which bedrock was not encountered, there was a concern that the adverse alluvium may be so extensive that the feasibility of the proposed HDD installation would be questionable. However, the results of the boring on the northwest end of the crossing and the subsequent geophysical survey indicate that the adverse alluvial soils are not as extensive as initially feared. Based on that information, it is believed that bedrock can be reached within 90 to130 feet of both HDD endpoints which will allow for large diameter surface casings to be set from

[516] DEIS at H2.

the endpoints to competent rock. The ability to set surface casings through the adverse soils significantly reduces the risk of the proposed HDD installation."[517]

Although the installation of large-diameter casings may allow the HDD operation to bypass the unconsolidated material covering the mountainside, the environmental issues related to the installation of casings are not addressed in the draft EIS. These include the possible plan to conduct entry-side drilling from both sides of the mountain, a plan that was probably developed due to the difficulty of aligning the drill path with a distant exit-point casing.[518] It is also possible that Atlantic will opt to remove the unconsolidated material rather than install casings. This would avoid the significant noise factor reportedly associated with this type of casing installation.[519] Although excavation on this scale would dramatically increase the footprint of the HDD operation, it is an option that Atlantic reserved in plans submitted to the Commission by indicating that excavation, if needed at the entry-point, will be "determined by the contractor."[520]

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[517] Dominion Transmission, Inc., *HDD Design Report, Revision 2*, *supra* note 490.

[518] The plan for drilling from both sides of the mountain was revealed in correspondence to Mark H. Woods, Superintendent, Blue Ridge Parkway, from Leslie Hartz, Vice President, Atlantic Coast Pipeline, LLC (Oct. 21, 2016).

[519] Although Dominion has not provided specifics on the installation of endpoint casings, the noise levels associated with the equipment most often used to drive casings may not be acceptable. *See* Trent Miller & Tom Bryski, Going Deep with *Horizontal Directional Drilling (HDD)*, World Pipelines (Oct. 23, 2012), http://www.golder.com/global/en/modules.php?name=Publication&sp_id=260&page_id.

[520] DEIS at H3.

3. A similar HDD proposal for the Mountain Valley Pipeline was deemed likely to fail.

Another proposed pipeline project, the Mountain Valley Pipeline (MVP), may cross the Appalachian National Scenic Trail and Peters Mountain in the Jefferson National Forest at the West Virginia-Virginia border. HDD was rejected as a crossing method due to site-specific engineering constraints.[521] The 2016 draft EIS for the proposed MVP project included the following statement: "Mountain Valley assessed the feasibility of HDD at the proposed ANST crossing area and reported that due to the topography of the area, the drill entry and exit areas exceeded recommended angles, thereby increasing the chance of HDD failure. . . . Substantial issues associated with topography and with a safe bending radius during pullback of the pipeline section (either in whole or in sub-sections) back through the bore hole also would increase the likelihood of HDD failure. Further, given the geology of the area, the use of drilling fluids under high pressure, and the likelihood of a high rock content and potential issues with keeping the borehole open prior to pipeline pullback, Mountain Valley concluded that HDD at this location was too likely to fail. We [FERC] concur."[522]

And in response to earlier information requests from the Commission, it was explained that "[f]abrication and pullback of the pipe in one continuous pullback is

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[521] *Waterbody Crossing Review, Mountain Valley Pipeline Project* (Jan. 15, 2016) FERC Docket No. CP16-10-000.

[522] Alternatives for Crossing the Appalachian National Scenic Trail. MVP DEIS at 3-46.

the preferred method for installing pipe by HDD. In analyzing the proposed exit side for HDD construction, the steep slopes on either side of the ANST lower the feasibility of an HDD. Due to the length of the proposed HDD and the sloping topography, long sections of pipe would have to be elevated to maintain a safe bend radius during the pullback phase. In addition, pipe pullback will likely have to be achieved in numerous sections, further complicating pullback operations. Based on these factors an HDD is not a feasible method for crossing the ANST."[523]

It's notable that the Commission agreed with the MVP developer's assessment that the Peters Mountain HDD would be likely to fail. Examination of topographic and geologic maps suggests that geophysical conditions associated with the proposed Peters Mountain HDD operation, including the length of the drill path, slope steepness, rock content, and resulting pullback issues are similar to those of the proposed Blue Ridge HDD operation. Given the significance of the decisions, an objective comparison of the conditions that led to opposite conclusions concerning the feasibility of the proposed MVP Peters Mountain and ACP Blue Ridge HDD operations is needed.

D. The draft EIS does not adequately address erosion, runoff, and slope stability issues.

Despite the extensive steep-slope excavation that will be required for the proposed Blue Ridge HDD, the draft EIS does not include site-specific details

[523] Responses to the Commission Post-Application Environmental Information Request #3, Mountain Valley Pipeline, LLC (July 28, 2016) FERC Docket No. CP16-10-000.

concerning erosion and sediment control, stormwater management, and slope-failure prevention. This is the case for the broader Atlantic Coast Pipeline project, as well as for the Blue Ridge HDD location. **Figure VII(m)** shows slope classes for the pipeline corridor, workspaces, pullback area, and access roads in the Blue Ridge HDD and contingency DPI areas.

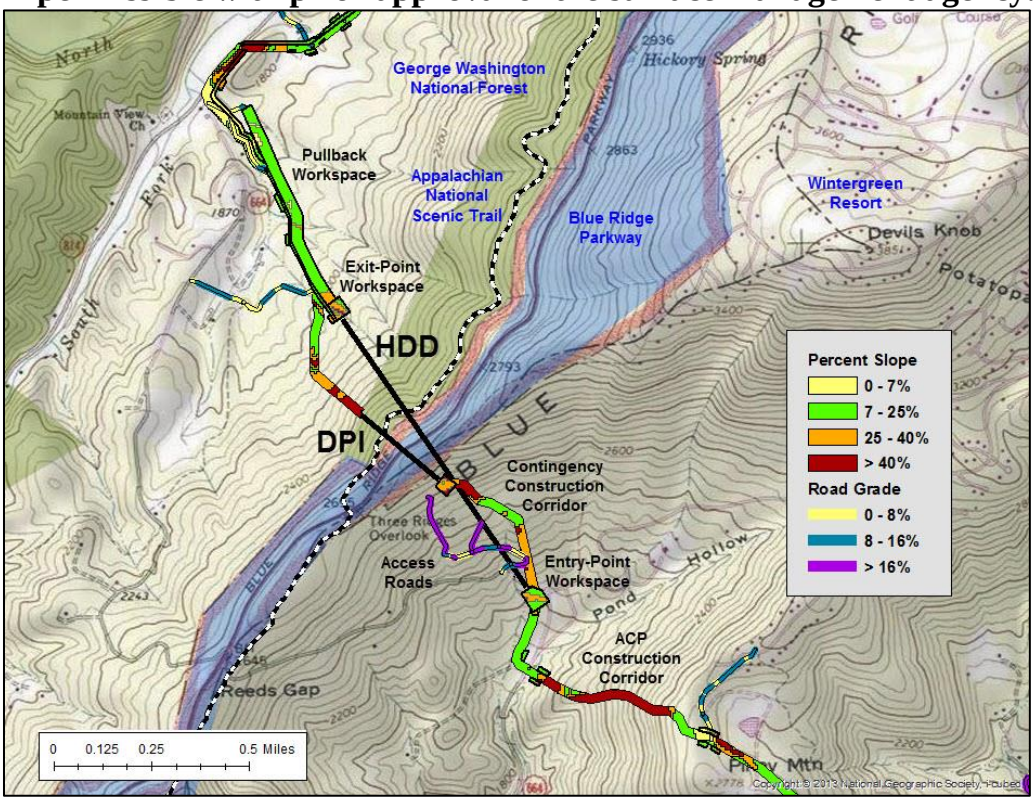
FIGURE VII(m) – Construction-area slope and access-road grade classification for the Blue Ridge HDD and contingency DPI operations area.

- **Slope classification for the corridor and workspace areas is based on the following spacing criteria for right-of-way or runoff diversions (Virginia Erosion and Sediment Control Handbook, 1992).**

SLOPE	REQUIRED SPACING
7-25%	75 feet
25-40%	50 feet
>40%	25 feet

- **Slope classification for access-road gradients is based on the following design requirements for oil and gas roads (Surface Operating Standards and Guideline for Oil and Gas Exploration and Development, Bureau of Land Management and U.S. Forest Service, 2007).**

  The gradient should fit as closely as possible to natural terrain. . . . The gradient should not exceed 8 percent except for pitch grades (300 feet or less in length) in order to minimize environmental effects. In mountainous or dissected terrain, grades greater than 8 percent up to 16 percent may be permissible with prior approval of the surface management agency.



Atlantic proposes to wait until after completion of environmental review, until after permitting, or until after initiation of construction to provide specific plans and identify engineering solutions for the range of significant geohazard and water-related problems that confront the ACP project. This delay in planning and analysis undermines the regulatory review process, as it will not provide the agencies with the information needed for responsible permitting decisions. It also denies the public an opportunity to review and comment on the actual project.

1. The draft EIS is missing crucial information pertaining to drilling.

Atlantic is developing what it calls a "Best in Class Program" to address geohazards in the proposed pipeline corridor. This Best in Class Program will convene a team of subject-matter experts to identify hazards and design mitigation measures.[524] However, Atlantic has not completed the related field surveys, geotechnical studies, and geohazard analyses.[525] The Commission is evidently willing to accept deferral of this critical data gathering, analysis, and planning until after environmental review and permitting. The Commission simply recommends completion of the work and submission of results "prior to construction."[526] This approach relies on the presumption that practicable control technologies are available for mitigation of the most-extreme geohazards that

[524] Atlantic Coast Pipeline, LLC, *Draft Construction, Operations, and Maintenance Plans* (Aug. 2016) (prepared by ERM). Submitted to the U.S. Forest Service and the Commission Aug. 22, 2016. Included in the DEIS at G-1to G-184.

[525] DEIS at ES-4.

[526] *Id.* at 5-2.

confront the Atlantic Coast Pipeline. It precludes any possible conclusion that the risks are insurmountable or unacceptable.

The Commission routinely dismisses concerns about erosion, sedimentation, and runoff control based on the expectation that pipeline construction will comply with its Plans and Procedures.[527] These are one-size-fits-all guidelines that identify mitigation measures for minimizing impacts of pipeline construction, including erosion and impacts to water resources.

The Commission has not been responsive to concerns that the central Appalachian region presents a set of geophysical and hydrologic conditions that, in combination with the extreme earth disturbance required for the proposed Atlantic Coast Pipeline, present challenges that are not adequately addressed by the generic Plans and Procedures. The draft EIS did not address scoping comments that called on the Commission to identify scientifically objective and quantitative evidence that the Plans and Procedures requirements are sufficient to prevent water resource impacts during and after construction of the Atlantic Coast Pipeline.[528] Given this failure to consider substantive concerns, there is no reason

[527] FERC, *Upland Erosion Control, Vegetation, and Maintenance Plan* (May 2013), https://www.ferc.gov/industries/gas/enviro/plan.pdf; FERC, *Wetland and Waterbody Construction and Mitigation Procedures* (May 2013) https://www.ferc.gov/industries/gas/enviro/procedures.pdf.

[528] Dominion Pipeline Monitoring Coalition, *Response to Supplemental Notice of Intent to Prepare an Environmental Impact Statement and Proposed Land and Resource Plan Amendment(s) for the Proposed Atlantic Coast Pipeline, Request for Comments on Environmental Issues Related to New Route and Facility Modifications, and Notice of Public Meetings* (June 2, 2016), http://www.abralliance.org/wp-content/uploads/2016/06/DPMC-Scoping-Comments-06-2-16.pdf.

to expect a more objective analysis of geohazard and water resource issues prior to the Commission's final decision on the project.

2. The draft EIS does not adequately address Forest Service issues.

As discussed at length in Section C, before construction of the Atlantic Coast Pipeline on National Forest land can proceed, the Forest Service must grant construction orders and special use permits and amend the Land and Resource Management Plans for the Monongahela National Forest (MNF) and the George Washington National Forest (GWNF). In light of the of the uncertainty associated with the Atlantic proposals, the U.S. Forest Service (USFS) has stipulated that any authorization for Atlantic Coast Pipeline construction on National Forest lands would be conditioned on prior successful completion of the proposed Blue Ridge HDD or DPI operations.[529] This requirement should serve to avoid a situation in which a significant investment and resource commitment associated with premature Atlantic Coast Pipeline construction would be put at risk and in direct conflict with established legal protection of a highly valued public resource. Atlantic's proposed construction schedule for the Atlantic Coast Pipeline, however, cannot be met given the year or more that would be required to first complete the HDD or DPI operations.[530] The Commission has thus recommended

[529] This condition was initially stated in correspondence to Leslie Hartz, Vice President, Atlantic Coast Pipeline, LLC, from the U.S. Forest Service, Regional Forester Eastern Region and Regional Forester Southern Region (Jan. 19, 2016).

[530] DEIS at 2-47.

that Atlantic consult with the USFS and provide a realistic schedule prior to the end of the comment period for the draft EIS.

Atlantic can be expected to argue that its plans are sufficient to assure the success of the drilling effort, and thus there is no need for the delay required to demonstrate success. However, the information that Atlantic provided for consideration in the draft EIS analysis is incomplete and misleading. It does not support an objective evaluation of the proposed drilling operations with respect to either the potential for successful completion or the acceptability of associated environmental damage.

Although the Commission has primary responsibility for conducting the required NEPA review for the proposed project, the Forest Service is responsible for decisions concerning pipeline construction on National Forest lands.[531] The Forest Service also has a duty to meet all NEPA requirements independently if the Commission fails to do so. The Forest Service has indicated that it must follow the administrative review process established by federal law, and that its timetable will depend on receipt of necessary information, including data, analysis, and design criteria.[532] In contrast, the Commission has sought to follow a fixed schedule and consequently has issued a draft EIS that does not include information

[531] Notice of Availability, 82 Fed. Reg. 1685, 1685-87 (Jan. 6, 2017).

[532] Letter from Clyde Thompson, Forest Supervisor, U.S. Forest Service, to Nicholas Tackett, FERC (Nov. 18, 2016), included as **Attachment 11**.

required by the Forest Service. Atlantic, for its part, has sought an expedited review process and even a waiver of the Commission regulations.[533]

The Forest Service has repeatedly requested information about the Atlantic Coast Pipeline that Atlantic has persistently failed to provide. As stated in Forest Service correspondence with the Commission, much of this missing information is needed for evaluation of risks and mitigation options.

The Forest Service, to the extent necessary, will develop avoidance, minimization, and mitigation strategies on National Forest System lands that would be affected by the proposed Atlantic Coast Pipeline Project. A number of effects have not been analyzed due to outstanding data and analyses. Without having all of the information requested for the project, the Forest Service cannot provide detailed comments on potential avoidance, minimization, and mitigation strategies.[534]

The need for informed evaluation of risks and mitigation options extends to other areas in the route of the proposed Atlantic Coast Pipeline project, as well as to the National Forests. By insisting on receipt of critical information and analysis as a prerequisite for decisions on the project, the Forest Service is meeting its own obligations and demonstrating an appropriate standard of review for other permit-granting agencies and the concerned public.

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[533] Amendment to Application of Atlantic Coast Pipeline for a Certificate of Public Convenience and Necessity and Blanket Certification, No. CP15-554-001 (FERC Mar. 11, 2016).

[534] Letter from Clyde Thompson to Nicholas Tackett, *supra* note 532.

The following Atlantic Coast Pipeline project information that the Forest Service requires is directly relevant to the proposed Blue Ridge HDD.

a. Atlantic has failed to provide requested information on high-hazard locations, rendering the draft EIS incomplete.

As discussed in Section C, the Forest Service has repeatedly raised concerns about the high-hazard conditions that the Atlantic Coast Pipeline would encounter in the central Appalachian region, noting that "difficult situations include steep slopes, presence of headwater streams, geologic formations with high slippage potential, highly erodible soils, and the presence of high-value natural resources downslope of high hazard areas . . . exacerbated by high annual rates of precipitation and the potential for extreme precipitation events."[535]

As described above, Atlantic proposed a "Best in Class Program" that defers critical data gathering, analysis, and planning until after environmental review and permitting. For the purpose of informing a preliminary determination of Forest Plan consistency, the Forest Service asked Atlantic to instead demonstrate that the Atlantic Coast Pipeline can be built without unacceptable risk of resource damage (1) by documenting the effectiveness of control methods and (2) by developing site-specific stabilization designs for selected areas that present high risks for

[535] Letter from Clyde Thompson, Forest Supervisor, U.S. Forest Service, to Kimberly D. Bose, Secretary, FERC (Oct. 24, 2016), included as **Attachment 12**.

slope failure, slippage, erosion, and sedimentation.[536] Only limited information has been provided in response to this request.

One of the high-hazard areas selected for site-specific analysis is in the GWNF on the western slope of the Blue Ridge near Atlantic Coast Pipeline mile post 155, about two miles north of the pullback workspace for the proposed HDD (see **Figure VII(n)**). Similar high-hazard conditions are present in the proposed HDD area. Based on geologic and topographic factors associated with slope failures in the region, the geohazard risks may be even more extreme in the HDD operations area.[537] Atlantic identified the area as susceptible to debris flow hazards.[538]

[536] *Id.*

[537] Many of the debris-avalanches and landslides that occurred in the 1969 Hurricane Camille catastrophe were associated with the type of granitic and basaltic rock, saprolite, and soil present in the proposed HDD operations area. *See* Mervin J. Bartholomew, *Geology of the Greenfield and Sherando Quadrangles, Virginia*, Virginia Division of Mineral Resources, Commonwealth of Virginia (1977), https://www.dmme.virginia.gov/commercedocs/PUB_4.pdf.

[538] Dominion Transmission, Inc., Geohazard *Analysis Program Phase 2 Report, Atlantic Coast Pipeline and Supply Header Project*, Table 3-2 (Aug. 2016) (prepared by Geosyntec Consultants, Inc.). Submitted to the Commission Aug. 2, 2016.

FIGURE VII(n) – One of the high-hazard areas selected for site-specific analysis by the Forest Service is located in the Back Creek watershed near the center of this photo. The HDD pullback area for the proposed ACP would extend from the western slope of the Blue Ridge in the foreground. The ACP would follow Back Creek northward and turn west across the Shenandoah Valley in the distance. Back Creek is identified as a Priority Watershed in the Forest Plan for the GWNF, a designation that places a priority on evaluation of proposed actions that could affect water quality.

b. Atlantic has not provided adequate information regarding stormwater management.

Atlantic contends that preparation and implementation of post-construction stormwater management are not required for the Atlantic Coast Pipeline on National Forest lands because areas disturbed by pipeline-related construction will be restored to pre-development runoff condition: "[F]orest/open space or managed turf will be returned to a vegetative state and characteristics of stormwater runoff

should remain unchanged. Therefore, post-construction stormwater management will not be required."[539]

This is the same argument made in Atlantic's 2016 Annual Standards and Specifications submission to the Virginia DEQ.[540] Atlantic further argues in its submission to the Forest Service that regulatory agencies in both Virginia and West Virginia recognize that construction of aboveground and underground linear utilities "may not result in changes" to the post-development runoff characteristics of the land surface. The Forest Service responded to this argument by asking for specific documentation that justifies not considering post-construction stormwater management measures.

The Forest Service responded to this argument by asking for specific documentation that justifies not considering post-construction stormwater management measures: "While it is true that the ACP pipeline as proposed *may not* create a significant increase in impervious surface along the majority of its route, there will be significant permanent changes to the vegetative composition of the pipeline corridor, as well as potential changes to soil compaction and other environmental conditions. These changes together will have a measureable impact

[539] Atlantic Coast Pipeline, LLC, *Draft Construction, Operations, and Maintenance Plans* (Aug. 2016) (prepared by ERM). Submitted to the U.S. Forest Service and the Commission Aug. 22, 2016. Included in the DEIS at G-1–G-184.

[540] Dominion Transmission, Inc., *2016 Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management for Construction and Maintenance of Pipeline Projects in Virginia* (Feb. 2016).

on the ability of the land within the pipeline corridor to intercept, absorb, and retain both aboveground and belowground flow."[541]

c. Atlantic has not provided adequate information with regard to open-trench limits.

Atlantic has advised the Forest Service of its intention to seek a variance to Virginia's open-trench limit: "The Virginia Erosion and Sediment Control Law Minimum Standard 16a requires that no more than 500 feet of trench remain open at one time. However, this requirement would significantly slow construction and increase the amount of time the work area remains disturbed. In accordance with 9 VAC 25-870-50, Atlantic will request that DEQ waive Minimum Standard 16a."[542]

The Forest Service responded that Atlantic has not presented proof that the open-trench limit causes a significant increase in disturbance and construction time in steep mountainous terrain, citing a recent example on National Forest land where the result was unacceptable: "This standard is in place to help minimize erosion and sedimentation. Unknown to the USFS, a waiver was granted for the Celanese pipeline replacement, and there was excessive erosion and sedimentation

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[541] U.S. Forest Service's Comments on the Construction, Operation, Maintenance Plan for the Proposed Atlantic Coast Pipeline Project, Nos. CP15-554-000, CP15-554-0001 (FERC Nov. 10, 2016), https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd527979.pdf.

[542] Atlantic Coast Pipeline, LLC, *Draft Construction, Operations, and Maintenance Plans* (Aug. 2016) (prepared by ERM). Submitted to the U.S. Forest Service and FERC Aug. 22, 2016. Included in the DEIS at G-1 to G-184.

at this location following a heavy rain event. *Such a waiver would not be allowed on NFS lands*. . . . Construction practices shall be planned in such a manner that the minimum standard 16a is met. . . . No variance shall be granted on NFS lands without site specific approval by a USFS AO [Authorized Officer] prior to implementation."[543] The cited Celanese pipeline replacement project is described in **Figure VII(o)**.

[543] U.S. Forest Service's Comments on the Construction, Operation, Maintenance Plan for the Proposed Atlantic Coast Pipeline Project, *supra* note 541.

FIGURE VII(o) – A comparatively small 2014 pipeline replacement project in the Jefferson National Forest on Peters Mountain in Giles County, Virginia. A variance to the 500-foot open trench limit was requested for this project. Although slopes exceeded 40%, the DEQ approved the variance request, allowing a 2,000-foot open trench. No water interceptor diversions were installed during trenching. Following a rain event that occurred shortly before the above photo was taken, a Forest Service employee described having "never seen that much sediment move off site before." A case-study report is posted at www.pipelineupdate.org/case-study-no-1/.

The Dominion Pipeline Monitoring Coalition conducted a study of open-trench variance requests for pipeline construction projects in Virginia. Fifteen variance requests were submitted between January 2011 and July 2014, and all were approved. The authorized open-trench lengths ranged between 800 feet and 15 miles, with an average length of 2.3 miles. Nothing was discovered in DEQ documents to indicate that an analysis was conducted to ensure that these variances would not cause illegal discharges and water quality degradation.

d. Atlantic has provided insufficient information to address the impacts of road construction on slope stability.

The Forest Service has clearly indicated that ESC plans will be required for Atlantic Coast Pipeline access roads in the National Forest, including new, upgraded, and reconstructed roads. Detailed soil surveys will be required to ensure that access roads are designed to support the anticipated level of use. Additional information, including analysis of cut and fill slopes will be required to assess the potential for road construction to impact slope stability.[544] This level of investigation and planning may not be required for Atlantic Coast Pipeline access roads that are not in the National Forest. As indicated in Section 5.1, it is not clear whether state or local-level government will be responsible for ESC plan review and compliance oversight for access roads associated with the proposed Blue Ridge HDD and contingency DPI operations. It is also not clear, given the extreme gradients, how these roads can be constructed in compliance with accepted standards.

E. Conclusion

The feasibility of drilling under the Blue Ridge is crucial to determining whether the Atlantic Coast Pipeline can go forward along the proposed route. In light of the uncertainty of success of either method, arising from uncertain and problematic geologic and topographic conditions, the deficiencies in the draft EIS discussed in this section are particularly troublesome. Neither the risks nor the

[544] *Id.*

potential environmental impacts of drilling through the Blue Ridge using either the HDD or the DPI method are adequately explored in the draft EIS. The only adequate cure for a draft EIS so lade with missing, misleading, and insufficient information on an issue of such central importance is issuance of a revised draft EIS that will allow the Commission and the Forest Service to take a hard look at the environmental impacts of attempting to use HDD or DPI to drill through the steep, uncertain terrain of the Blue Ridge.

VIII. CONSERVATION EASEMENTS

A. Impacts to the Virginia Outdoors Foundation's open-space easements.[545]

Atlantic's proposed route for the Atlantic Coast Pipeline would cut across ten properties on which the Virginia Outdoors Foundation (VOF) holds open-space easements. The ten properties are located in the largely undeveloped landscape of the central Appalachian Mountains, a region characterized by its extraordinary natural beauty, pristine headwaters, dense forests, and rich wildlife habitat. As discussed further below, Atlantic's efforts to build the Atlantic Coast Pipeline through these properties in spite of protections the open-space easements were

[545] Conservation Groups incorporate by reference prior filings with the Commission discussing the VOF conservation easement issue: Shenandoah Valley Network et al., Motion to Reject Proposed Route through Conservation Easements in Virginia, FERC Docket Nos. CP15-554-000, CP15-554-001, CP15-555-000 (eLibrary No. 20161013-5029) (Oct. 13, 2016), included as **Attachment 32**; Shenandoah Valley Network et al., Comments Concerning Conservation Easements in Virginia, FERC Docket Nos. CEP-15-5540-000, CP15-554-001, CP15-555-000 (eLibrary No. 20161213-5282) (Dec. 13, 2016), included as **Attachment 33**.

intended to provide has generated intense public opposition and controversy far beyond the region where the ten properties are located. Despite the importance of the issue and the public controversy surrounding it, the draft EIS ignores the impacts to the ten properties and VOF easements almost entirely.

As affirmed most recently in VOF's March 10, 2017 comment letter to the Commission on the draft EIS, "VOF has consistently taken the position that construction, maintenance and operation of the interstate gas transmission line is inconsistent with the open space protections afforded by the subject easements."[546] Yet despite this clear conflict, the draft EIS fails to provide any meaningful analysis of the project's direct or indirect impacts on each property, or the specific conservation resources located thereon that each open-space easement is intended to protect. Nor does the draft EIS even attempt to assess the damage that Atlantic's efforts to traverse the VOF easements would have on a key part of VOF's mission that relates to—and the broader state interest in—using open-space and conservation easements to preserve the natural, scenic, historic, scientific, open-space, and recreational areas of the Commonwealth.[547] In short, the analysis of the impacts that would result from constructing the project across these properties in contravention of the purpose of the VOF open-space easements and

[546] Letter from Brett Glymph, Exec. Dir., VOF, to Kimberly D. Bose, Sec'y, FERC (Mar. 10, 2017), included as **Attachment 34**.

[547] *See* Va. Code Ann. § 10.1-1800.

specific protections they include does not pass muster under NEPA.[548] Consequently, the public's opportunity to comment meaningfully on the draft EIS is thwarted.[549]

B. The draft EIS impermissibly fails to assess the project's impacts on parcels with VOF open-space easements and the specific conservation values they protect.

Section 4.8.5 (Recreation and Special Interest Areas) of the draft EIS mentions that the route for the AP-1 mainline crosses 8.7 miles of VOF easements, and Table 4.8.5-2 lists the ten VOF easements at issue[550] and a few "features" of each of the eased properties. In some instances, the listed features are among the conservation values each easement seeks to protect, but the list is unacceptably incomplete. For example, the table notes that the easement on the Normandy

[548] *See Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 768 (2004) (describing one of the purposes of NEPA as ensuring "that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision").

[549] *See League of Wilderness Defs./Blue Mountains Biodiversity Project v. Connaughton*, 752 F.3d 755, 761 (9th Cir. 2014) ("Informed public participation is in reviewing environmental impacts is essential to the proper functioning of NEPA.").

[550] A separate table in the DEIS at 4-310 (Table 4.8.5-1) lists recreation and special interest areas affected by the Atlantic Coast Pipeline route. It includes the ten VOF open-space easements included in Table 4.8.5-2, as well as two additional ones: the Scott Timberland property in Dinwiddie County, and the Brandon property in Brunswick County. Regarding the Timberland parcel, the easement on that property was proposed to VOF after Atlantic had made VOF aware of the proposed route for the Atlantic Coast Pipeline. As a result, and in line with VOF policy, the Timberland deed of easement was drafted with a provision that explicitly allows Atlantic to acquire a utility easement through the property for the Atlantic Coast Pipeline. Because the easement on the Timberland property and its specific protections were negotiated with the disturbance from the Atlantic Coast Pipeline assumed, these comments do not focus on the impacts of the project on that easement. As for the Brandon property, VOF staff informed SELC via email on March 13, 2017 that no VOF open-space easement was ever recorded for that parcel, so its inclusion in the table as a VOF open-space easement is in error.

Capital property and the easement on the Rice property both protect land that the National Audubon Society has designated as the Alleghany Highlands Important Bird Area (IBA). However, there is no mention that the Saunders property lies within the Central Piedmont IBA and that this is one of the specific conservation values that easement is intended to protect.[551]

Further, nowhere does the table or the surrounding text indicate how the project's crossing of a particular easement will impact any of the properties with regard to the features (or portions thereof) referenced in Table 4.8.5-2, or with regard to any other specific conservation purposes cited in each easement. There is one mere sentence of purported analysis on page 4-324 that suggests the impacts on each easement would be the same as the impacts described in the separate section of the draft EIS on land use. This reference certainly does not suffice, as nothing in that section assesses the degree of impacts to each eased parcel or the specific conservation resources (or portions thereof) situated on them. Without knowing the extent to which the project will directly and indirectly affect the conservation resources that an open-space easement is intended to protect, it is impossible to determine the impact the project will have on that easement.[552]

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[551] *See* Deed of Gift of Easement from Saunders and Saunders to VOF 6 (Nov. 28, 2012), included as **Attachment 35**.

[552] Of note, section 4.5.3.3 (Important Bird Areas) of the DEIS consists of a one-paragraph general discussion on IBAs and includes a table summarizing the seven IBAs the project would cross. Although the table mentions both the Alleghany Highlands and the Central Piedmont IBAs, there is no discussion of the impacts the project will have on any of the IBAs—much less the portions of the IBAs that the relevant VOF easements are intended to protect. Rather, the text simply states that "[t]he FERC and FWS MOU

For example, a number of the VOF easements refer to scenic viewsheds on the eased properties and adjacent areas that the easements are intended to protect and preserve, such as recreational trails in the George Washington National Forest (GWNF). More specifically, the deed for the VOF easement on the Normandy Capital property states that the easement is intended to protect the viewshed as seen from a public trail in the GWNF that runs along the ridge of Tower Mountain.[553] Similarly, the deed for the VOF easement on the Revercomb property makes clear that easement is intended to protect viewsheds from two trails—the Walker Mountain Trail and the Shenandoah Mountain Trail—that traverse GWNF property on ridgelines above the property.[554] In addition, the deed for the VOF easement on the Bright property explains that the easement will help protect the view from the Brushy Ridge Trail in the GWNF.[555]

In subsection 4.8.8 (Visual Resources), the draft EIS acknowledges that the project's general impact on scenery would be the most severe where

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requires the agencies and Applicants to identify measures to protect, restore, and manage, as practicable, IBAs, and other significant bird sites that occur on lands impacted by projects." DEIS at 4-158. Merely stating that a memorandum of agreement requires an applicant to identify measures to protect, restore, and manage IBAs does not provide an adequate picture of the impact the project will have on those resources, and it certainly does not indicate the impacts on any open-space easements specifically entered into with a goal of helping to preserve them.

[553] *See* Deed of Gift of Easement from Normandy Capital, LLC to VOF 4 (Oct. 29, 2013), included as **Attachment 36**.

[554] *See* Deed of Gift of Easement from William Phillips Revercomb and Cindy Powell Revercomb to VOF 4 (Sept. 15, 2011), included as **Attachment 37**.

[555] *See* Deed of Gift of Easement from Lester D. Bright to VOF 5 (Apr. 28, 2016), included as **Attachment 38**.

"mountainsides and ridgetops with a predominant surrounding landscape character of intact forest canopy" are viewed from valleys and adjacent mountains.[556] Notably, several of the properties protected by the VOF easements at issue consist largely of forested and mountainous terrain at high elevations, so the project is likely to undermine the scenic conservation values those easements are intended to protect. Yet the draft EIS includes no discussion of the impacts to the views onto those protected properties.

Several of the VOF easements at issue are also intended to protect forestland, and yet there is no discussion in the draft EIS of the impacts to forest resources on these parcels. For example, forest preservation is a key purpose of the deed for the Normandy Capital property; three of the easement's recitals of conservation values pertain to the protection and preservation of the significant acreage of upland forest located on that property, and wildlife habitat is referenced among the resources that the protected forestland benefits.[557] This forest is also designated as core forest by the Commonwealth of Virginia's 2007 Virginia Natural Landscape Assessment (VaNLA). Yet the most densely forested portion of this property would be bisected by the Atlantic Coast Pipeline route and the associated access road, resulting in significant impacts to the easement and its conservation purposes that are not assessed in the draft EIS. Specifically, based on a GIS analysis of core

[556] DEIS at 4-336-37.

[557] *See* Deed of Gift of Easement from Normandy Capital, *supra* note 9, at 4.

forest as designated by the 2007 VaNLA, the clearing required for the 125-foot pipeline construction corridor and the access road across the property would result in a direct loss of 18 acres of forestland. Another 144 acres of interior forest would be converted to edge habitat, based on a 300-foot buffer from the forest edge. In addition, indirect effects would include significant fragmentation of the core forest area on the property where the pipeline and road would slice it into smaller patches with less habitat value and lower habitat connectivity.[558]

Similar impacts would occur on the heavily-forested Teague property, the deed of easement for which highlights the multi-aged forest and the rich wildlife habitat it provides as conservation values that easement is intended to protect.[559] On that property, the proposed Atlantic Coast Pipeline route bisects the middle of the property, fragmenting a core forest area. Again, based on a GIS analysis of VaNLA-designated core forest, the clearing required for the pipeline would destroy 17 acres of core forest, and another 97 acres would be altered from interior forest to edge habitat. The damage to the forest resources is also likely to impact the portion of a designated brook trout stream, Stony Run, that traverses the property (and which is another conservation value discussed in the easement[560]).

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[558] *See* Todd Lookingbill, *Analysis of Potential Fragmentation Impacts of the Atlantic Coast Pipeline Proposed Route* (2017), included as **Attachment 15**.

[559] *See* Deed of Gift of Easement from D. Keith and Penny B. Teague to VOF 3 (Nov. 16, 2007), included as **Attachment 39**.

[560] *Id.*

There is no mention in the draft EIS of these impacts to this protected parcel and the conservation values the VOF easement is intended to protect.[561]

The failure of the draft EIS to assess the direct or indirect impacts to each eased parcel or the specific conservation resources (or portions thereof) situated on them makes it impossible to use the draft EIS to gauge the effect the Atlantic Coast Pipeline would have on those easements. This precludes the informed decision-making that NEPA requires. In order to satisfy NEPA, the Commission must fully evaluate potential impacts to the easements' conservation values in a revised draft EIS.

C. The draft EIS ignores the project's impacts on VOF's open-space easement program and Virginia's land conservation efforts.

At a broader level, the draft EIS also fails to discuss the significant damage this project could do to VOF's ability to advance its statutory mission, as well as the overall effectiveness of open-space and conservation easements as tools in Virginia's land conservation efforts. These are impacts that the Commission should consider closely—not just as the agency works to remedy the deficiencies in the draft EIS, but as it determines whether this proposed route even warrants approval.

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[561] Indeed, several of the easements reference as conservation purposes the protection of streams or other waterways that cross the protected properties or receive drainage from them. As with the other examples of impacts mentioned in this section of these comments, there is no discussion in the Draft EIS of how the land disturbances necessary to build and maintain the pipeline would impact the waterways or these important conservation purposes of the easements, in violation of NEPA. A new EIS must assess and document these effects.

According to the applications that Atlantic has submitted to VOF for "conversions" of open-space land under Virginia Code Ann. § 10.1-1704, the land that would be permanently impacted from the 50-foot-wide right-of-way that the Commission recommends in the draft EIS would total 54.6 acres of property that are protected by these ten VOF easements. Another 73.8 acres of these properties would be impacted by temporary construction access roads and other related disturbances.[562] This major intrusion on lands that are ostensibly protected by VOF easements would deeply undermine the public's confidence in Virginia's open-space easement program, as existing and potential easement donors would learn and be deterred by the fact that the unique land they seek to protect in perpetuity with a conservation or open-space easement would still be vulnerable to the siting of large-scale, federal infrastructure projects like the Atlantic Coast Pipeline that could drastically affect a property's conservation values. As VOF itself noted in its September 6, 2016 letter to the Commission about the impact of the Atlantic Coast Pipeline on the easements at issue:

> The Commonwealth's investments in conservation could be jeopardized by the construction, operation and maintenance of a large-scale gas transmission line. The degradation of protected resources may also result in a loss of confidence in the effectiveness of open-space easements by the public.[563]

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[562] *See* Atlantic's Revised Applications for Conversion or Diversion of Open Space (Jan. 2017), http://www.virginiaoutdoorsfoundation.org/event/february-2017-policy-easement-consideration/.

[563] Letter from Martha Little, Deputy Dir., VOF, to Kimberly D. Bose, Sec'y, FERC (Sept. 6, 2016), included as **Attachment 40**.

Moreover, allowing Atlantic to construct a natural gas pipeline across a block of open-space easements in violation of terms of those easements and their conservation purposes would send a troubling message to utility companies nationwide, indicating that such easements need not be considered a significant obstacle when planning a pipeline route. These impacts, which may not lend themselves to quantification in a table in the draft EIS, are significant nonetheless and should be discussed in the NEPA documents and factor into the Commission's decision-making.

D. The draft EIS appears to assume prematurely that Virginia law will allow Atlantic to procure a right-of-way easement across VOF open-space easements.

The draft EIS contains an apparent misstatement—or at best a dismissive prediction—that downplays the extent to which Virginia law, the easements at issue, and VOF itself all discourage the level of intrusion on open-space easements that the Atlantic Coast Pipeline would cause. Specifically, page 4-325 states:

> Based on a review of the regulations pertaining to VOF easements, it is believed that the project would not be precluded from establishing an easement for ACP on each VOF easement crossed.

The reference to "regulations pertaining to VOF easements" presumably refers to Virginia Code Ann. § 10.1-1704 (and it is presumably the Commission, as preparer of the DEIS, who holds the referenced "belief"). However, the draft EIS provides no explanation of the reasons why the Commission holds this "belief." Significantly, under that statutory provision and the terms of most of the

easements themselves, no parcel of land or portion thereof protected by the open-space easements at issue here may be "converted" out of open-space use to allow a right-of-way easement for the Atlantic Coast Pipeline unless VOF determines that the proposed conversion is both: (i) "essential to the orderly development and growth of the locality" in which the parcel is located; and (ii) "in accordance with the official comprehensive plan for the locality" in which the parcel is located.[564] Unless and until VOF's Board of Trustees makes that determination for a particular parcel, Atlantic is precluded from establishing a right-of-way easement on that parcel under Virginia law. And the VOF Board has not made that determination for any of the parcels at issue.[565]

Atlantic originally submitted draft applications for conversions to VOF in May 2016, and it submitted revised applications in January 2017. Atlantic then presented its applications to the VOF Board of Trustees at the Board's February 9,

[564] Va. Code Ann. § 10.1-1704.

[565] In VOF's March 10, 2017 comment letter to the Commission on the draft EIS, *supra* note 546, VOF explains that its Board of Trustees voted at the Board's February 9, 2017 meeting to defer a decision on Atlantic's conversion applications and also directed VOF's Executive Director to provide FERC with the staff reports VOF assembled on the conversion applications. Those staff reports contained a list of conditions that VOF's staff recommended the Board include as part of the conversions "*[i]f* the Board of Trustees finds that Atlantic Coast Pipeline applications meet the requirements of Section 10.1-1704." *See supra* note 562(emphasis added). Of course, the Board did not determine that the applications met those statutory requirements, and it instead voted to defer a decision indefinitely. VOF's draft EIS comment letter now lists those same conditions and requests the Commission to include them in any Final EIS and Certificate of Public Convenience and Necessity *if* the Commission ultimately decides to issue those items for this proposal. However, this request to the Commission to include certain conditions *if* the pipeline route is approved should not be misinterpreted as the VOF Board's granting of the conversion applications. Nor it should be viewed as a change in VOF's consistent position that the Atlantic Coast Pipeline should avoid crossing or intersecting VOF open space easements in the first place.

2017 meeting, which also included a general public comment session. In the weeks leading up to the meeting, VOF received written comments from over 200 people and organizations urging the Board to deny the § 10.1-1704 conversion applications. Then, dozens of landowners, easement donors, farmers, representatives of land conservation organizations, and local government officials voiced their opposition in person at the Board's February 9, 2017 meeting, highlighting the damage that a VOF vote to approve the conversions would do to the public's trust in VOF and the open-space easement program, among other serious concerns. The VOF Board voted at that meeting to defer a decision to allow for consideration of the large volume of input and information they were continuing to receive relating to whether the statutory requirements could be met. As a result, currently Atlantic is precluded by Virginia law from establishing right-of-way easements on each of the ten properties protected by VOF easements.

Looking ahead, there is reason to believe the current status will not change. As set forth in the two filings that our organizations have made to the Commission on this issue,[566] the two statutory findings referenced above that VOF must make in order to grant a conversion application are not satisfied here. With regard to the first prong, the speculative and indirect benefits Atlantic cites in its applications as potentially accruing to each of the four localities at issue if the pipeline is built are

[566] Motion to Reject Proposed Route through Conservation Easements in Virginia, *supra* note 545; Comments Concerning Conservation Easements in Virginia, *supra* note 545.

not essential to their orderly development and growth.[567] As for the second prong, the proposed conversions are inconsistent with numerous provisions in the official comprehensive plans of the four localities.[568] Further, although the draft EIS refers to Atlantic's applications "for *minor* conversions,"[569] VOF has made clear that "the proposed 'conversions' under this code section are not minor and, in fact, would represent the largest conversion of open space land in VOF's 50-year history."[570]

These statutory hurdles, as well as the considerable public outcry over the proposed conversions and the very real threat they pose to public trust in VOF and Virginia's open-space easement program, make any presumption that the VOF Board will vote to approve the conversion requests a risky one. Consequently, the "belief" asserted in the draft EIS that the project would not be precluded by the regulations pertaining to VOF easements is, at worst, a misstatement that indicates a misunderstanding of Virginia law and the current status of Atlantic's conversion requests. At best, it sounds like a dismissive prediction that runs counter to "the Commission's goal to include state and local authorities to the maximum extent possible in the planning and construction activities"[571] because it downplays the

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[567] *Id.*

[568] *Id.*

[569] DEIS at 4-325 (emphasis added).

[570] Letter from Martha Little, Deputy Dir., VOF, to Kimberly D. Bose, Sec'y, FERC (Dec. 5, 2016), included as **Attachment 41**.

[571] *Transcontinental Gas Pipe Line Company, LLC*, 141 FERC P 61091 (F.E.R.C.) 61501 (Nov. 2, 2012).

value and legitimacy of the decision-making process in which the VOF Board, the affected localities, an engaged public, and Atlantic are all still participating. Either way, this apparent "belief" should not form the basis for any type of NEPA-based determination regarding the significance of the impacts the project would have on the VOF easements at issue or the broader open-space easement program, and a proper NEPA evaluation of those impacts must be included in a revised draft EIS.

IX. GREENHOUSE GASES AND CLIMATE CHANGE

A. The Commission fails to fully analyze the lifecycle greenhouse gas emissions of the Atlantic Coast Pipeline project.

In the draft EIS, the Commission fails to adequately evaluate the potential impacts of the Atlantic Coast Pipeline project, alternatives to the project, or the mitigation of the resulting increases in Greenhouse Gas (GHG) emissions. As discussed in further detail below, the Commission must revise the draft EIS to properly evaluate the lifecycle GHG emissions of the Atlantic Coast Pipeline project, as follows:

- The Commission must utilize the most recent values for methane global warming potential;
- The Commission must quantify the projected upstream and downstream direct and indirect GHG emissions where possible, and conduct a strong qualitative assessment where a quantitative analysis is not warranted; and
- The Commission must fully analyze all of the direct, indirect, and cumulative GHG emissions resulting from the Atlantic Coast Pipeline project and use this analysis to compare alternatives to the Atlantic Coast Pipeline project and develop mitigation measures to address such emissions. Recent NEPA case law supports the need for the Commission to

evaluate the upstream and downstream impacts and climate change implications resulting from its certificate approvals.

Recent case law has held that agencies evaluating energy infrastructure projects must analyze the indirect effects of their construction and operation under the National Environmental Policy Act (NEPA),[572] and that the reviewing agency does not take the requisite "hard look" under NEPA when it fails to consider downstream emissions from the combustion of fossil fuels, specifically coal.[573] For example, the Ninth Circuit has held that the impacts of GHG emissions on climate change are precisely the sort of impacts NEPA requires agencies to consider in a cumulative impacts analysis.[574] At least one federal district court has

[572] *Mid States Coal. for Progress v. Surface Transp. Bd*., 345 F.3d 520, 549-50 (8th Cir. 2003)(finding that NEPA required consideration of the adverse air quality effects of burning coal as an indirect effect of building a railroad that provided a more direct route for coal transport to coal-burning electricity generating units); *Border Power Plant Working Grp. v. Dep't of Energy*, 260 F. Supp. 2d 997, 1017, 1028-30 (S.D. Cal. 2003) (requiring consideration of the emissions from a power plant in Mexico, which would export electricity to the U.S., in the NEPA review of the transmission line).

[573] Michael Burger, *et al*., Columbia Law School Sabin Center for Climate Change Law, *Working Paper – Downstream and Upstream Greenhouse Gas Emissions: The Proper Scope of NEPA Review*, 1-33 (2016), https://web.law.columbia.edu/sites/default/files/microsites/climate-change/downstream_and_upstream_ghg_emissions_-_proper_scope_of_nepa_review.pdf (citing *High Country Conservation Advocates v. United States Forest Service*, 52 F.Supp.3d 1174 (D.Colo. 2014); *Diné Citizens Against Ruining Our Environment v. U.S. Office of Surface Mining Reclamation & Enforcement*, 82 F. Supp. 3d 1201 (D. Colo. 2015) (*order vacated in part; appeal dismissed in part*, 643 Fed.Appx. 799 (10th Cir. 2016); *WildEarth Guardians v. OSM*, 104 F. Supp. 3d 1208, 1230 (D. Colo 2015)(*order vacated in part, appeal dismissed in part*, 643 Fed.Appx. 799 (10th Cir. 2016), *but see WildEarth Guardians v. OSM*, No. 12-CV-85-ABJ (D. Wyo. 2015) (holding that the agency's analysis of downstream emissions was adequate, in part because the agency had already disclosed emissions from coal combustion).

[574] *See, e.g., Center for Biological Diversity v. National Highway Traffic Safety Administration*, 538 F.3d 1172, 1217 (9th Cir. 2008) ("the fact that 'climate change is largely a global phenomenon that includes actions…outside of [the agency's]

expressly required the federal government to analyze the climate change impacts of its decisions under NEPA.[575] Plaintiffs alleged that the federal government failed to disclose the social, environmental, and economic impacts of the GHG emissions resulting from its decisions.[576] The agency did not dispute that it was required to analyze the indirect effects of GHG emissions; however, it failed to include a discussion of the impacts caused by these emissions,[577] arguing that such an analysis was "impossible."[578] The court found that the social cost of carbon protocol was an available tool that could have been used to quantify the climatic impacts. The protocol was designed to assist federal agencies with cost-benefit analyses to quantify a project's contribution to costs associated with global climate change.[579] The court found that the federal government should have taken a "hard look" at whether this tool could have contributed to a more informed assessment of the impacts, and that the agency's explanation for omitting the

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control…does not release the agency from the duty of assessing the effects of its actions on global warming'").

[575] *High Country Conservation Advocates v. U. S. Forest Serv.*, 52 F.Supp.3d 1174 (D.Colo. 2014).

[576] *Id.* at 1187.

[577] *Id.* at 1188-90.

[578] *Id*. at 1190.

[579] *Id*. (citing Sarah E. Light, *NEPA's Footprint: Information Disclosure as a Quasi–Carbon Tax on Agencies*, 87 Tul. L.Rev. 511, 545-46 & n.160 (Feb. 2013)) (noting the EPA recommendation to the State Department to "explore... means to characterize the impact of the GHG emissions, including an estimate of the 'social cost of carbon' associated with potential increases of GHG emissions" in connection with the State Department's review of the Keystone XL pipeline).

social cost of carbon protocol in its final EIS was arbitrary and capricious in violation of NEPA.[580]

That same year, the D.C. Circuit ruled that the Commission must conduct a consolidated environmental review of natural gas pipeline segments, because the approvals of these segments were connected actions within the meaning of NEPA.[581] The court also found that the Commission's EA was deficient in its failure to include any meaningful analysis of the cumulative impacts of the pipeline segments at issue.[582] Specifically, the Commission failed to assess the additive effect of the projects together with the effects of existing or reasonably foreseeable gas development activities in the project area, including compressor stations, and other infrastructure.[583] Therefore, the Commission must evaluate the cumulative effects of its certificate approvals, including GHG emissions, rather than reviewing individual projects in isolation.

Two years later, the D.C. Circuit Court held that the Commission reasonably declined to consider upstream domestic natural gas production in its NEPA review of the indirect effects of the Cove Point LNG facility in Maryland.[584] The

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[580] *Id*. at 1191, 1193.

[581] *Delaware Riverkeeper Network v. Fed. Energy Reg. Comm'n*, 753 F.3d 1304, 1308-09 (D.C. Cir. 2014).

[582] *Id.* at 1309.

[583] *Id.* at 1311.

[584] *EarthReports, Inc., d/b/a/ Patuxent Riverkeeper, et al. v. Fed. Energy Reg. Comm'n,* 828 F.3d 949, 952 (D.C. Cir. 2016) (citing *Sierra Club v. FERC,* 2016 WL 3524262 (D.C. Cir. June 28, 2016)).

Commission declined to consider upstream domestic natural gas production in its NEPA review because it alleged that it was "not sufficiently causally related" to the Cove Point conversion project and was "speculative and not reasonably foreseeable," utilizing the same reasoning to rationalize its failure to evaluate the potential GHG emissions.[585] The D.C. Circuit noted that in another case that it had decided only weeks prior, it held that the Commission did not have to address the indirect effects of the anticipated export of natural gas because the U.S. Department of Energy, not the Commission, has the sole authority to license the export of any natural gas through LNG facilities.[586] The court also cited another recent case where it reached the same conclusion, rejecting nearly identical contentions regarding the indirect effects of increasing a different LNG terminal's production capacity.[587] However, these cases did not address whether NEPA reaches the effects of emissions arising from the transport and consumption of exported natural gas, and the D.C. Circuit held that the petitioners remained free to raise these issues in a challenge to the Department of Energy's NEPA review of its export decision.[588]

The D.C. Circuit found that one aspect of the petitioners' challenge did not stem from increased natural gas exports under the Department of Energy's purview, namely the Commission's failure to use a social cost of carbon protocol

[585] *Id.*

[586] *Id*. at 955-56 (citing *Sierra Club*, 2016 WL 3524262 at *7).

[587] *Id*. (citing *Sierra Club v. FERC*, 2016 WL 3525562 (D.C. Cir. June 28, 2016)).

[588] *Id*. at 956.

or other similar analytical tool to analyze the environmental impacts of GHG emissions from the construction and operation of the Cove Point facilities.[589] The Commission acknowledged the availability of the social cost of carbon protocol, but, asserted that it was not appropriate or informative to use for the Cove Point facilities due to the lack of consensus on the appropriate discount rate, which leads to "significant variation in output" because the tool "does not measure the actual incremental impacts of a project on the environment" and asserting that "there are no established criteria identifying the monetized values that are to be considered significant for NEPA purposes."[590] The Commission contended that "there is no standard methodology to determine how a project's incremental contribution to [GHG emissions] would result in physical effects on the environment, either locally or globally."[591] The D.C. Circuit found no reason to doubt the reasonableness of the Commission's conclusion about the use of the social cost of carbon protocol,[592] and denied the petition for review, finding that the petitioners failed to show that the Commission's NEPA analysis was deficient due to its failure to consider indirect effects of the Cove Point conversion project, or that the Commission thus acted arbitrarily and capriciously.[593] However, the

[589] *Id.*

[590] *Id.*

[591] *Id.*

[592] *Id*. (citing *WildEarth Guardians v. Jewell*, 738 F.3d 298, 309-12 (D.C. Cir. 2013)).

[593] *Id.* at 959.

White House Council on Environmental Quality (CEQ) has since recommended that where quantification of emissions is not possible, agencies should at least provide a qualitative analysis of the climate change implications of projects.[594]

B. Recently issued CEQ final guidance supports the need for the Commission to evaluate the lifecycle GHG emissions resulting from its approvals and the impacts on climate change.

CEQ recently issued its long awaited final guidance explaining how federal agencies' NEPA analyses and related documentation should evaluate the GHG emissions resulting from agency action and the impacts on climate change.[595] While we recognize that President Trump recently issued an Executive Order rescinding the CEQ final guidance, this does not preclude the Commission from utilizing the tools contained therein to consider the impacts of its actions on climate change in order to mitigate litigation risk when conducting environmental reviews). The CEQ final guidance acknowledges that "…climate change is a fundamental environmental issue, and its effects fall squarely within NEPA's purview."[596] CEQ recommends that federal agencies "use the projected GHG

[594] The White House Council on Environmental Quality, *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*, 1, 13 (2016) [hereinafter CEQ Final Guidance], https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance.pdf (last visited April 3, 2017).

[595] *Id*. at 6.

[596] *Id*.at 2.

emissions associated with proposed actions as a proxy for assessing proposed actions' potential effects on climate change in a NEPA analysis…together with providing a qualitative summary discussion of the impacts of GHG emissions based on authoritative reports such as the USGCRP's [United States Global Change Research Program] National Climate Assessments and the Impacts of Climate Change on Human Health in the United States…"[597] CEQ recommends that federal agencies quantify an agency action's projected direct and indirect GHG emissions, using available data and GHG quantification tools that are suitable for and commensurate with the proposed agency action.[598]

Additionally, CEQ recommends the consideration of alternatives to mitigate GHG emissions, stating that it is fundamental to the NEPA process.[599] "Agencies should consider reasonable alternatives and mitigation measures to reduce action-related GHG emissions or increase carbon sequestration in the same fashion as they consider alternatives and mitigation measures for any other environmental effects."[600] In the natural gas context, the U.S. Department of Energy has

[597] *Id*. at 9-10.

[598] *Id*. at 11-12; *see also* White House Council on Environmental Quality, *Greenhouse Gas (GHG) Accounting Tools*, https://ceq.doe.gov/guidance/ghg-accounting-tools.html (last visited April 3, 2017).

[599] *Id*. at 14 (citing §§ 42 U.S.C. 4332(2)(C), 4332(2)(E); 40 CFR 1502.14, 1508.9(b)).

[600] *Id.* at 15.

suggested the consideration of increasing utilization of existing pipeline capacity and re-routing natural gas flows as alternatives to new natural gas infrastructure.[601]

The Commission has asserted that it limits its NEPA review to avoid chasing "remote, speculative or unreasonable connections to upstream production zones or the final use of the gas."[602] However, CEQ addresses this very situation in its final guidance, explaining that "when an agency determines that quantifying GHG emissions would not be warranted because tools, methodologies, or data inputs are not reasonably available, the agency should provide a qualitative analysis and its rationale for determining that the quantitative analysis is not warranted."[603] Thus, if the Commission asserts that it is unable to quantify the GHG emissions resulting from its certificate approvals, it should, at a minimum, provide a qualitative analysis of the climate change implications of its certificate approvals.[604] Because the construction and operation of new interstate natural gas infrastructure approved by the Commission ultimately contribute to, or facilitate, increased lifecycle GHG emissions to the atmosphere, the Commission should

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[601] U.S. Dep't of Energy, *Natural Gas Infrastructure Implications of Increased Demand from the Electric Power Sector*, 1, 31 (2015), http://energy.gov/sites/prod/files/2015/02/f19/DOE%20Report%20Natural%20Gas%20Infrastructure%20V_02-02.pdf.

[602] Sean Sullivan, *New climate guidance a 'starting point' as FERC weighs expanding reviews*, SNL Financial, August 4, 2016, https://www.snl.com/InteractiveX/article.aspx?ID=37307606.

[603] CEQ Final Guidance, *supra* note *594*, at 12-13.

[604] *Id*. at 13.

utilize NEPA to evaluate these impacts and to compare alternatives and mitigation measures to address such emissions.[605]

Further, implementation of the CEQ final guidance is consistent with the legislative intent of the Natural Gas Act,[606] which could be read as harmonious with consideration of environmental factors, including the evaluation of GHG emissions and impacts on climate change.[607] The Natural Gas Act declares that "the business of transporting and selling natural gas for ultimate distribution to the public is affected with a public interest, and that Federal regulation in matters relating to the transportation of natural gas and the sale thereof in interstate and foreign commerce is necessary in the public interest."[608] The public interest orientation of this language suggests a compatibility with a regulatory approach to consider not only the private costs and benefits of interstate natural gas transmission, but also the environmental externalities that would be borne by the

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[605] Katherine Lee, *CEQ's Draft Guidance on NEPA Climate Analyses: Potential Impacts on Climate Litigation*, 45 Envtl. L. Rep. News & Analysis 10925 (2015).

[606] *Id.*

[607] *See* Christopher J. Bateman, *Toward Greener FERC Regulation of the Power Industry*, 38 Harv. Envtl. L. Rev. 275 (2014) (Note this article pertains to the Federal Power Act (FPA). It is applicable, however, because the FPA and NGA have been "interpreted consistently" because of their similarities. *See Transmission Access Policy Study Grp. v. Fed. Energy Reg. Comm'n*, 225 F.3d 667, 686 (D.C. Cir. 2000) (citing *Environmental Action v. Fed. Energy Reg. Comm'n*, 996 F.2d 401, 410 (D.C.Cir.1993); *Tennessee Gas Pipeline Co. v. Fed. Energy Reg. Comm'n*, 860 F.2d 446, 454 (D.C.Cir.1988)); *see also Arkansas La. Gas Co. v. Hall*, 453 U.S. 571, 577 n. 7 (1981); *see also Kentucky Utilities Co. v. Fed. Energy Reg. Comm'n*, 760 F.2d 1321, n. 6 (D.C. Cir. 1985) ("It is, of course, well settled that the comparable provisions of the Natural Gas Act and the Federal Power Act are to be construed in pari materia")).

[608] 15 U.S.C. § 717(a).

public as a whole, including GHG emissions and their impacts on climate change.[609]

C. The Commission failed to evaluate the lifecycle GHG emissions resulting from the Atlantic Coast Pipeline project.

1. The Commission utilized an outdated methane GWP in the draft EIS.

In the draft EIS, the Commission used outdated tools to calculate the Atlantic Coast Pipeline projects' GHG emissions and their impacts on climate. Specifically, the Commission used an outdated 100-year global warming potential (GWP) value for methane of 25[610] to compare the global warming impacts of different GHGs that will be emitted by the project.[611] However, the Intergovernmental Panel on Climate Change (IPCC) has released a newer 100-year GWP for fossil methane of 36.[612] The Commission must therefore use the most current methane GWP, and GHG emissions should be calculated using both

[609] Christopher J. Bateman, *Toward Greener FERC Regulation of the Power Industry*, 38 Harv. Envtl. L. Rev. 275, 301 (2014).

[610] DEIS at 4-441.

[611] *See* U.S. Environmental Prot. Agency, *Understanding Global Warming Potentials*, https://www.epa.gov/ghgemissions/understanding-global-warming-potentials (last visited January 7, 2017).

[612] Intergovernmental Panel on Climate Change, *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (2013) [hereinafter AR5], http://www.ipcc.ch/report/ar5/wg1/.

the 20-year GWP of 87 and the 100-year GWP of 36.[613] This is because methane has greater radiative forcing, but a shorter atmospheric lifetime than carbon dioxide (CO_2).[614] Thus, relative to CO_2, methane has much greater climate impacts in the near term than the long term, and, therefore a short-term measure of climate impacts would be most effective in considering policies to avoid significant global warming within the timeframe stated in the United Nations Framework Convention on Climate Change Paris Agreement Paris Agreement.[615] For easy reference, the table below depicts the updated methane GWP.

[613] *Id*. at 87-88; *see also* U.S. Dep't of Energy, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas*, 1, 8 (2014), https://www.energy.gov/sites/prod/files/2014/05/f16/Life%20Cycle%20GHG%20Perspective%20Report.pdf (last visited January 7, 2017) (using a 20-year GWP to calculate the lifecycle GHG emissions from LNG exports to European and Asian markets).

[614] *Id.* (citing Gunnar Nyhre & Drew Shindell et al., *Anthropogenic and Natural Radiative Forcing in IPCC, Climate Change 2013: The Physical Science Basis, Contribution of Working Group 1 to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (2013)), http://www.climatechange 2013.org/images/report/WG1AR5_Chapter08_FINAL.pdf.

[615] *Id*. at 88 (citing the United Nations Framework Convention on Climate Change Paris Agreement, FCC/CP/2015/L.9 (Dec. 12, 2015)).

Figure IX(a). Table 8.7 from the IPCC Fifth Assessment Report[616]

Table 8.7 | GWP and GTP with and without inclusion of climate–carbon feedbacks (cc fb) in response to emissions of the indicated non-CO_2 gases (climate-carbon feedbacks in response to the reference gas CO_2 are always included).

	Lifetime (years)		GWP_{20}	GWP_{100}	GTP_{20}	GTP_{100}
CH_4[b]	12.4[a]	No cc fb	84	28	67	4
		With cc fb	86	34	70	11
HFC-134a	13.4	No cc fb	3710	1300	3050	201
		With cc fb	3790	1550	3170	530
CFC-11	45.0	No cc fb	6900	4660	6890	2340
		With cc fb	7020	5350	7080	3490
N_2O	121.0[a]	No cc fb	264	265	277	234
		With cc fb	268	298	284	297
CF_4	50,000.0	No cc fb	4880	6630	5270	8040
		With cc fb	4950	7350	5400	9560

Notes:
Uncertainties related to the climate–carbon feedback are large, comparable in magnitude to the strength of the feedback for a single gas.
[a] Perturbation lifetime is used in the calculation of metrics.
[b] These values do not include CO_2 from methane oxidation. Values for fossil methane are higher by 1 and 2 for the 20 and 100 year metrics, respectively (Table 8.A.1).

Using the most current available science, the correct 100-year GWP for fossil methane with carbon climate feedback is 36.[617] The Commission must recalculate the GHG emissions utilizing the most current value for the methane GWP.

The Commission must also calculate GHG emissions using the 20-year GWP of 87. The Commission states in the draft EIS that the 100-year GWP was selected because "these are the GWPs that the EPA has established for reporting of GHG emissions and air permitting requirements. This allows for a consistent comparison with these regulatory requirements."[618] However, the calculation of GHG emissions using both the 100- and 20-year GWPs will not diminish the Commission's ability to make consistent comparisons amongst regulatory

[616] AR5, *supra* note 612, at 714.

[617] As shown in the table, the 100-year GWP for methane with carbon climate feedback is 34, and as stated in footnote b of the table, the value is higher by 2 for fossil methane due to CO_2 from methane oxidation.

[618] DEIS at 4-441.

requirements. As stated above, the Commission must calculate the GHG emissions using both GWPs because methane has greater radiative forcing, but a shorter atmospheric lifetime, than carbon dioxide.[619]

D. The Commission failed to adequately assess the emissions and impacts resulting from the ACP project.

The Commission acknowledges in the draft EIS that CEQ's final guidance outlines how NEPA analyses and documentation should address GHG emissions and the impacts of climate change.[620] In the Commission's recent guidance manual released in February of 2017, the Commission acknowledges that GHG emissions estimates "should include the emission categories and/or methodologies described in the most current version of the CEQ's guidance on GHG emissions and climate change, as applicable."[621] However, the Commission's GHG analysis in the draft EIS falls short of the CEQ final guidance.

The Commission implies that the CEQ final guidance does not apply to the draft EIS because the NEPA process was already on-going when the CEQ final

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[619] Gunnar Nyhre & Drew Shindell et al., *Antropogenic and Natural Radiative Forcing in IPCC, Climate Change 2013: The Physical Science Basis, Contribution of Working Group 1 to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (T.F. Stocker et al., eds., 2013), http://www.climatechange2013.org/images/report/WG1AR5_Chapter08_FINAL.pdf.

[620] *See, generally,* CEQ Final Guidance, *supra* note *594*.

[621] Federal Energy Regulatory Commission, *Guidance Manual for Environmental Report Preparation for Applications Filed under the Natural Gas Act* (2017) (last visited Mar. 7, 2017), https://www.ferc.gov/industries/gas/enviro/guidelines/guidance-manual-volume-1.pdf.

guidance was issued.[622] However, the CEQ final guidance states that agencies should "exercise judgment"[623] when considering whether to apply this guidance to an on-going NEPA process. Here, the Commission must exercise sound judgment by evaluating and disclosing the lifecycle GHG emissions that will result from the Atlantic Coast Pipeline project to inform the public of its impacts. The Commission cannot fully disclose and consider the environmental and climactic costs to the public in balancing the public benefits of a project against its adverse effects in its test for determining the public convenience and necessity without this analysis.

The Commission further concludes in the draft EIS that "[b]ecause we cannot determine the projects' incremental physical impacts on the environment caused by climate change, we cannot determine whether the projects' contribution to cumulative impacts on climate change would be significant."[624] However, the CEQ final guidance explicitly states that this purported reasoning – that a particular project has only incremental impacts relative to global cumulative impacts on climate change – is not appropriate to avoid fully assessing the GHG impacts of a project, where it states as follows:

> Climate change results from the incremental addition of GHG emissions from millions of individual sources, which collectively have a large impact on a global scale. CEQ recognizes that the totality of climate change impacts is not attributable to any single

[622] DEIS at 4-512.

[623] CEQ Final Guidance, *supra* note *594*, at 33.

[624] DEIS at 4-511.

> action, but are exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA. Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations because this approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large impact.[625]

The Commission goes on to state that "GHG emissions from the proposed projects and other regional projects would not have any direct impacts on the environment in the projects area. Currently, there is no scientifically-accepted methodology available to correlate specific amounts of GHG emissions to discrete changes in average temperature rise, annual precipitation fluctuations, surface water temperature changes, or other physical effects on the environment in the Midwest region."[626] This assertion runs completely counter to the Commission's recently published guidance manual, which states that "[a]lthough climate change is a global concern, the CEQ has indicated that NEPA analyses regarding climate change should focus locally or regionally. You should provide the data needed to support our NEPA analysis (e.g., the project's contribution to GHG emissions;

[625] CEQ Final Guidance, *supra* note *594*, at 10-11.

[626] DEIS at 4-511.

local or state GHG emissions; and any local, state, or regional goals for GHG emissions or climate change)."[627]

The CEQ final guidance also lists various appropriate methodologies that could be utilized to analyze the climate change impacts of a project, stating that "[q]uantification tools are widely available, and are already in broad use in the Federal and private sectors, by state and local governments, and globally."[628] In fact, CEQ provides a compilation of GHG accounting tools, methodologies, and reports.[629] Additionally, even if no widely accepted methodology is available, the CEQ final guidance states that this is not a valid reason for failing to assess impacts and that, at a minimum, a qualitative analysis must be performed, where it states as follows:

> When an agency determines that quantifying GHG emissions would not be warranted because tools, methodologies, or data inputs are not reasonably available, the agency should provide a qualitative analysis and its rationale for determining that the quantitative analysis is not warranted.[630]

The CEQ final guidance states that agencies should quantify a proposed agency action's projected direct *and indirect* GHG emissions and explains how the scope of the proposed action should be considered:

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[627] *Id.* n.9 at 4-9.

[628] CEQ Final Guidance, *supra* note *594*, at 12.

[629] *See* Executive Office of the President of the U.S., *Greenhouse Gas Accounting Tools* (last visited December 20, 2016), https://ceq.doe.gov/current_developments/GHG-accounting-tools.html.

[630] CEQ Final Guidance, *supra* note *594*, at 13.

> In order to assess effects, agencies should take account of the proposed action – including "connected" actions – subject to reasonable limits based on feasibility and practicality. (Actions are connected if they: (i) Automatically trigger other actions which may require environmental impact statements; (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously, or; (iii) Are interdependent parts of a larger action and depend on the larger action for their justification). Activities that have a reasonably close causal relationship to the Federal action, such as those that may occur as a predicate for a proposed agency action or as a consequence of a proposed agency action, should be accounted for in the NEPA analysis.[631]

In the draft EIS, the Commission fails to follow the CEQ final guidance. The Commission states that "the upstream production and downstream combustion of gas is not causally connected because the production and end-use would occur with or without the projects. Therefore, the circumstances in this case do not warrant the inclusion of production or end-use as an indirect effect of the projects."[632] The Commission's conclusion that production and end-use would occur with or without the projects is completely unsupported. As such, its reasoning for not quantifying indirect emissions is also not supported. This reasoning directly contradicts the CEQ final guidance, given that producing, processing, and distributing natural gas are clearly actions that "occur as a predicate for a proposed agency action or as a consequence of a proposed agency action," and therefore must be accounted for in the NEPA analysis. In fact, the

[631] *Id*.

[632] DEIS at 4-512.

CEQ final guidance provides an example of the types of impacts that should be considered specifically for resource extraction projects:

> For example, NEPA reviews for proposed resource extraction and development projects typically include the reasonably foreseeable effects of various phases in the process, such as clearing land for the project, building access roads, extraction, transport, refining, processing, using the resource, disassembly, disposal, and reclamation.[633]

Here, the Commission only includes estimates of GHG emissions from the following sources in the draft EIS:

1. Construction of pipelines, compressor stations, and Meter and Regulation (M&R) stations;
2. Operation of compressor stations and M&R stations; and
3. "Downstream emissions."

"Downstream emissions" are estimated by assuming that "all of the gas to be transported is eventually combusted" and that "ACP [Atlantic Coast Pipeline] and SHP [Supply Header Project] would deliver 1.5 Bcf/d of firm and interruptible natural gas service."[634] However, the Commission states that only "[a]bout 79 percent of the capacity for ACP [Atlantic Coast Pipeline] would be used for fuel to generate electricity" and that "[t]he remaining capacity for ACP [Atlantic Coast Pipeline] and that of SHP [Supply Header Project] would be served by local distribution companies that deliver gas supplies to residential, commercial, and

[633] CEQ Final Guidance, *supra* note *594*, at 14.

[634] DEIS at 4-512.

industrial customers."[635] The Commission goes on to state that "the precise end-uses of all of the natural gas that would be transported by the projects is unknown, and the GHG emission figure provided here represents a conservative estimate."[636] The conclusion that the end-use combustion GHG emissions figure is conservative because it is assumed that all the gas is combusted is completely unsupported. The Commission has not demonstrated that the other identified potential end-uses result in lower GHG emissions than combustion. The Commission should estimate GHG emissions based on actual anticipated end-use, or, at the very least, provide a range of emissions estimates for various reasonable end-use scenarios.

The Commission states that the draft EIS contains estimates of direct emissions from blowdowns and fugitive methane (CH_4) emissions from natural gas piping leaks for each of the compressor and M&R stations, natural gas fugitive releases from pneumatic valves, and pig launchers/receivers.[637] However, the Commission did not provide its calculated emissions from leaks. The Commission claims that this estimate was included in the total emissions estimates for the compressors and M&R stations, but without providing the emissions estimate for leaks separately, it is not possible to confirm that it was included in the total, or to assess the accuracy of the Commission's estimate. In addition, no methodology for calculating any of

[635] *Id*. at 4-513.

[636] *Id*.

[637] *Id.* at 4-452.

these emissions was provided, making it impossible for the public to independently evaluate the adequacy of these calculations.

The Commission's analysis also omits a significant number of potential indirect emissions sources. Indirect emissions sources that the Commission should have included in the draft EIS – such as from the wells supplying the gas to equipment and processes used to prepare the gas for transport and deliver it to customers – include but are not limited to both CH_4 and CO_2 emissions from:

- Drilling;
- Completion, including hydraulic fracturing;
- Wells;
- Wellsite equipment, e.g. heaters, separators, dehydrators, etc.;
- Gathering and boosting stations;
- Pipeline leaks;
- Pneumatic devices;
- Tanks;
- Malfunctions and upsets;
- Processing plants; and
- Distribution pipeline and M&R station leaks.

As justification for not including these upstream and downstream activities that can cause both direct and indirect impacts, the Commission states in the draft EIS that "[e]ven if we were to find a sufficient connected relationship between the proposed project and upstream development or downstream end-use, it would still be difficult to meaningfully consider these impacts, primarily because emission

estimates would be largely influenced by assumptions rather than direct parameters about the project."[638]

The Commission fails to identify which "direct parameters" it believes would be necessary to have in order to meaningfully consider the impacts of upstream and downstream activities. Nonetheless, it is not necessary to know all the precise details of these activities in order to analyze the potential impacts. The Commission provides the total capacity of the pipeline in the draft EIS. The region from which gas will be supplied can be estimated based on the location of the pipeline. Average production rates and production methods from wells in that potential supply region can be obtained from State databases,[639] and could then be used to estimate the number of wells and the type of equipment and production methods necessary to supply the full pipeline capacity. The Commission could also obtain information from producers and marketers who have contracts to supply gas or have expressed interest in supplying gas to the pipeline. The results of this analysis could then be used to analyze the potential lifecycle GHG impacts of the Atlantic Coast Pipeline project and to develop alternatives and mitigation strategies necessary to offset the emissions.

[638] DEIS at 4-512.

[639] *See* The Pennsylvania Department of Environmental Protection, Office of Oil and Gas Management Oil & Gas Reporting Website, https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Welcome/Welcome.aspx.

The Commission cites a 2014 National Energy Technology Laboratory (NETL) report about life cycle GHG emissions from natural gas extraction and power generation to support its broad conclusion "that ACP [Atlantic Coast pipeline] and SHP [Supply Header Project] would not significantly contribute to GHG cumulative impacts or climate change."[640] This is wholly inadequate to satisfy the Commission's duties under NEPA and the recommendations made in the CEQ final guidance. A significant volume of new research on GHG emissions from natural gas production has been published since the NETL report was released in mid-2014.[641] Much of that research indicates that methane emissions

[640] DEIS at 4-513.

[641] *See, e.g.*, Allen, D. T., Pacsi, A. P., Sullivan, D. W., Zavala-Araiza, D., Harrison, M., Keen, K., ... & Seinfeld, J. H. (2014). Methane emissions from process equipment at natural gas production sites in the United States: Pneumatic controllers. *Environmental science & technology*, *49*(1), 633-640.

Allen, D. T., Sullivan, D. W., Zavala-Araiza, D., Pacsi, A. P., Harrison, M., Keen, K., ... & Seinfeld, J. H. (2014). Methane emissions from process equipment at natural gas production sites in the United States: Liquid unloadings. *Environmental science & technology*, *49*(1), 641-648.

Brantley, H. L., Thoma, E. D., Squier, W. C., Guven, B. B., & Lyon, D. (2014). Assessment of methane emissions from oil and gas production pads using mobile measurements. *Environmental science & technology*, *48*(24), 14508-14515.

Mitchell, A. L., Tkacik, D. S., Roscioli, J. R., Herndon, S. C., Yacovitch, T. I., Martinez, D. M., ... & Omara, M. (2015). Measurements of methane emissions from natural gas gathering facilities and processing plants: Measurement results. *Environmental science & technology*, *49*(5), 3219-3227.

Marchese, A. J., Vaughn, T. L., Zimmerle, D. J., Martinez, D. M., Williams, L. L., Robinson, A. L., ... & Herndon, S. C. (2015). Methane emissions from United States natural gas gathering and processing. *Environmental science & technology*, *49*(17), 10718-10727.

Subramanian, R., Williams, L. L., Vaughn, T. L., Zimmerle, D., Roscioli, J. R., Herndon, S. C., ... & Sullivan, M. R. (2015). Methane emissions from natural gas compressor stations in the transmission and storage sector: Measurements and comparisons with the

from natural gas production are larger than previously thought, to the point that the climate benefits of natural gas over coal have been called into question, which is contrary to the conclusion made by the Commission in the draft EIS that "lifecycle emissions of electricity from natural gas are less than half that of coal." Moreover, citing a conclusion from a single, generalized analysis of GHG emissions from

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EPA greenhouse gas reporting program protocol. *Environmental science & technology*, *49*(5), 3252-3261.

Lamb, B. K., Edburg, S. L., Ferrara, T. W., Howard, T., Harrison, M. R., Kolb, C. E., ... & Whetstone, J. R. (2015). Direct measurements show decreasing methane emissions from natural gas local distribution systems in the United States. *Environmental science & technology*, *49*(8), 5161-5169.

McKain, K., Down, A., Raciti, S. M., Budney, J., Hutyra, L. R., Floerchinger, C., ... & Phillips, N. (2015). Methane emissions from natural gas infrastructure and use in the urban region of Boston, Massachusetts. *Proceedings of the National Academy of Sciences*, *112*(7), 1941-1946.

Lamb, B. K., Cambaliza, M. O., Davis, K. J., Edburg, S. L., Ferrara, T. W., Floerchinger, C., ... & Lyon, D. R. (2016). Direct and indirect measurements and modeling of methane emissions in Indianapolis, Indiana. *Environmental Science & Technology*, *50*(16), 8910-8917.

Pétron, G., Karion, A., Sweeney, C., Miller, B. R., Montzka, S. A., Frost, G. J., ... & Helmig, D. (2014). A new look at methane and nonmethane hydrocarbon emissions from oil and natural gas operations in the Colorado Denver-Julesburg Basin. *Journal of Geophysical Research: Atmospheres*, *119*(11), 6836-6852.

Harriss, R., Alvarez, R. A., Lyon, D., Zavala-Araiza, D., Nelson, D., & Hamburg, S. P. (2015). Using multi-scale measurements to improve methane emission estimates from oil and gas operations in the Barnett Shale region, Texas. *Environ. Sci. Technol*, *49*(13), 7524-7526.

Zavala-Araiza, D., Lyon, D. R., Alvarez, R. A., Davis, K. J., Harriss, R., Herndon, S. C., ... & Marchese, A. J. (2015). Reconciling divergent estimates of oil and gas methane emissions. *Proceedings of the National Academy of Sciences*, *112*(51), 15597-15602.

Harriss, R., Alvarez, R. A., Lyon, D., Zavala-Araiza, D., Nelson, D., & Hamburg, S. P. (2015). Using multi-scale measurements to improve methane emission estimates from oil and gas operations in the Barnett Shale region, Texas. *Environ. Sci. Technol*, *49*(13), 7524-7526.

natural gas production and use is no substitute for a complete analysis of the actual expected direct and indirect GHG emissions from this specific pipeline project.

E. The Commission's proposed mitigation to offset the GHG emissions is inadequate.

The mitigation proposed to offset the limited GHG emissions sources that the Commission analyzed in the draft EIS (construction, operation, and "downstream emissions") is insufficient. The draft EIS contains a GHG Best Available Control Technology (BACT) analysis for the Mockingbird Hill Compressor Station with a list of three technologies and practices that could supposedly be used to reduce GHG emissions. However, no attempt was made to actually quantify emissions reductions and the Commission only provided a very generalized rationale to demonstrate that these mitigation measures do indeed represent BACT. For example, one of the three mitigation measures listed is "selection of low carbon fuel," which the Commission goes on to describe as meaning that "[p]ipeline quality natural gas, which has the lowest GHG emissions compared to other fossil fuels, would be used to fuel the combustion turbines." No other potential emissions reduction measures are discussed. The same is true for the other two technologies and practices, where only generalized examples are given for how these measures could reduce emissions instead of providing a thorough and meaningful analysis of emissions mitigation. Aside from the Mockingbird Hill Compressor Station GHG BACT discussion, the draft EIS does not contain any

detailed or specific mitigation plans to reduce the lifecycle GHG emissions from the Atlantic Coast Pipeline project.

A full suite of mitigation measures should have been analyzed to offset emissions and determine the ultimate impact of the Atlantic Coast Pipeline project. The Commission must therefore revise the draft EIS to include specific actions that will be taken to reduce or prevent GHG emissions and develop detailed plans, including proposed timelines, for carrying out those actions. The draft EIS must also be revised to include a detailed lifecycle analysis of the ultimate impacts of the Atlantic Coast Pipeline project. The Commission must study and consider a much broader range of direct, indirect, and cumulative impacts, and use this information to develop appropriate alternatives and mitigation strategies for those impacts in order to fully comply with NEPA, prior to authorizing the Atlantic Coast Pipeline project.

F. The Commission should utilize NEPA to fully evaluate lifecycle GHG emissions.

More broadly, the Commission must analyze and fully consider the possibility that the its approvals of additional natural gas infrastructure will lock-in fossil fuel use for decades to come and discourage or prevent the construction of carbon-free energy sources, which has significant implications for the climate. Because the construction and operation of new interstate natural gas infrastructure approved by the Commission ultimately contributes to, or facilitates, increased lifecycle GHG emissions into the atmosphere, the Commission should utilize NEPA and the tools

identified in the CEQ final guidance to fully evaluate these impacts and to compare alternatives and develop mitigation measures to address such emissions.[642] The Commission's duty under NEPA to analyze the lifecycle GHG emissions and the climate change implications of such emissions is supported by recent case law interpreting NEPA in the context of climate change and CEQ's recently issued final guidance.[643]

X. ENVIRONMENTAL JUSTICE

A. The Commission failed to gather or analyze readily available data to inform the required environmental justice analysis in the draft Environmental Impact Statement.

By enacting NEPA, Congress declared that "each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment."[644] When federal agencies fail to adequately consider how their decisions can harm environments inhabited by low-income communities, Native Americans, and communities of color, this central goal of NEPA is thwarted. In the scant three pages of the draft EIS devoted to environmental justice and demographic and economic data, the Commission did not take a hard look at how pipeline construction and operation—particularly the

[642] Katherine Lee, *CEQ's Draft Guidance on NEPA Climate Analyses: Potential Impacts on Climate Litigation*, 45 Envtl. L. Rep. News & Analysis 10925 (2015).

[643] *See* CEQ final guidance, *generally; see, e.g. High Country Conservation Advocates v. United States Forest Service*, 52 F.Supp.3d 1174 (D.Colo. 2014); *EarthReports, Inc., d/b/a/ Patuxent Riverkeeper, et al. v. FERC*, 2016 WL 3853830 at *1 (D.C. Cir. July 15, 2016) (citing *Sierra Club v. FERC*, 2016 WL 3524262 (D.C. Cir. June 28, 2016)).

[644] 42 U.S.C. § 4331(c).

operation of the compressor stations—will degrade the "healthful environment" for environmental justice communities in close proximity to the Atlantic Coast Pipeline route and the pipeline's related industrial infrastructure.

Federally mandated environmental justice review is not satisfied by mechanically checking off the box on rote, procedural steps. It is not enough to make documents available on-line or take tentative steps to provide notice to affected communities. It is not enough to list general demographic data.[645] Executive Order 12898 and related guidance from the Council on Environmental Quality instead mandate that federal agencies work to minimize potentially adverse effects on minority and low-income communities.[646] The voices of these communities must be incorporated into the decision-making process. Federal actions should be carefully scrutinized to avoid disproportionate adverse environmental effects on people of color, low-income populations, and Native Americans. Agencies are required to consider whether projects that have environmental impacts will place disproportionate risks or burdens on these vulnerable communities.[647] The terse section of the draft EIS relating to

[645] DEIS at 4-411-413.

[646] Council on Environmental Quality, Environmental Justice Guidance under the National Environmental Policy Act 4 (1997), https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf [hereinafter CEQ, Environmental Justice NEPA Guidance].

[647] Summary of Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629 (February 16, 1994), https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice.

environmental justice leaves out critical information that is necessary to make these crucial determinations.

The draft EIS makes plain that the Commission did not take a hard look at the impacts that the Atlantic Coast Pipeline will have on vulnerable populations. But even with the information at its disposal, the Commission did not consider potentially harmful or compounding effects resulting from the proposed pipeline route, one that traverses through many predominantly minority and low-income communities. The conclusion in the draft EIS that environmental justice populations would not be disproportionately affected by the Atlantic Coast Pipeline is not supported by the facts presented in the draft EIS itself.

In this section of our comments, we first point out the lack of necessary information and flaws in the environmental justice analysis in the draft EIS as a whole. We then address the particular environmental justice concerns with the Buckingham Compressor station, which would be located in the historic, predominantly African American Union Hill community.

B. The Commission's demographic information is incomplete, unfocused, and underused.

1. The demographic information in the draft EIS is at once too broad and too narrow to aid in required environmental justice review.

The demographic data in the draft EIS is too broad—because it looks only at large census tracts, including many who are far removed from the pipeline—and

too narrow—because the Commission limited comparisons of the demographic data in those census tracts to the county where the tract is located.

a. Census tract data is generally too broad and unfocused.

Census tracts, particularly in rural areas, can encompass large geographical areas with thousands of people, many of whom are well removed from the pipeline. This choice makes it impossible to see the more direct and localized impacts felt by those communities closest to the pipeline and its related infrastructure.

The Commission should have provided more refined proximity analyses for those communities most impacted by the pipeline, particularly for those near compressor stations, valve sites, metering and regulation stations, and pig launcher/receiver sites. Outside of leaks, such sites are more prone to releases of methane and other pollutants than the pipeline as a whole.[648] Without any particular data about who lives close to these permanent, above-ground pieces of pipeline infrastructure, the Commission lacked the information necessary to complete an environmental justice analysis of the pipeline.

In several instances, census block groups—smaller geographic units—that are closest to or intersect with the pipeline route have significantly larger proportions of racial or ethnic minorities or larger percentages of people living in poverty than

[648] DEIS at 4-453 to 4-454 (noting that estimated blowdown and fugitive emissions from metering and regulating (M&R) stations are included in overall projected emissions from those M&R facilities in Table 4.11.1-8 and providing information about anticipated "fugitive releases from pneumatic valves," valve sites, and pig launchers/receivers).

the broader census tract. Consider census tract 108 in Nash County, North Carolina. Of the 7,087 people who reside in that census tract, only a fraction live within a mile of the pipeline route. The draft EIS indicates that 79.1 percent of those living in census tract 108 are white and 20.2 percent are African American. The overall poverty rate in that census tract is 9.9 percent. Given this data, which is close to state averages, the Commission concluded that there were no potential environmental justice populations through this part of Nash County.[649] But a closer look at census block group data within that tract—a smaller area within a mile radius of the pipeline route—tells a different story. Of the 1,410 people who live in census block group one (within census tract 108), 48.1 percent are African American and 30.3 percent live at or below the federal poverty line—far above the percentages of African Americans and those in poverty in the state as a whole.[650]

In another example, the Commission found no potential environmental justice concerns with the pipeline route through census tract 209.04 in the City of Chesapeake, Virginia. The Commission found that demographics of that tract roughly matched the population of the city as a whole, 59.9 percent white and 31.7 percent African American. But census block group one in that same tract, itself within a mile of the pipeline route, is 8.6 percent white and 79.3 percent African

[649] DEIS at Table U-1.

[650] Data Retrieved from: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates, Data Set S1701, https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml, [hereinafter Atlantic Coast Pipeline Census Data], included as **Attachment 42**.

American. In addition, about three times the percentage of census block group one is in poverty as compared to the census tract as a whole.[651]

The direct impacts of pipeline construction and maintenance and the potential risk of catastrophic pipeline failure will be felt most directly by those closest to the route. Considering only census tract data often results in missing environmental justice concerns along much of the route through Virginia and North Carolina.

b. The Commission's decision to compare census tract data only to its parent county or city is too narrowly focused.

By the same token, the Commission's decision to limit comparisons of the demographics of the affected census tracts only to the counties where those tracts are located—rather than to the state or region—distorts the disproportionate impacts of this major industrial project. Federal environmental justice guidance for the NEPA process does not limit the Commission to such a narrow interpretation of an affected environmental justice community. Instead, the Commission can consider whether "the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis," such as the state as a whole.[652] Given that the pipeline would traverse through counties and cities with higher than average minority populations and populations at or

[651] *Id.*

[652] CEQ, Environmental Justice NEPA Guidance, *supra* note 646, at 25.

below the poverty line, the Commission's limited comparison is too narrow in scope.

Comparisons to statewide demographics better reveal the racial disparities that result from the pipeline route disrupting a disproportionate number of minority and low-income communities. As a result of the Commission's decision to only compare census tracts to their respective county, it concluded that there are no potential environmental justice concerns in census tract 111.01 in Nash County, North Carolina. However, 43.7 percent of that affected tract is African American, more than double the statewide percentage. The same distortion shows up in the Commission's evaluation of census tract 754.03 in the City of Suffolk, which has a population that is 46 percent African American. Even though this is double the Commonwealth's overall percentage of African Americans, the Commission did not consider there to be any environmental justice concerns in this area because the percentages are close to the city as a whole.[653]

2. The Commission's failure to disaggregate minority communities causes it to overlook impacted environmental justice communities.

In its demographic analysis, the draft EIS lumps all "minorities" together when determining whether environmental justice concerns are present in a given census tract. This approach masks the impacts the pipeline will have on particular racial or ethnic groups. For example, in one of the impacted census tracts in Wilson County (CT 15), the total "minority" population is under the county average and

[653] Atlantic Coast Pipeline Census Data, *supra* note 650.

thus, raised no potential environmental justice concerns in the draft EIS. But 17 percent of the population of that tract is Latino, approximately double the county's (and the state's) Latino population generally.[654] One of the census block groups within that same census tract (Block Group 1) has an even larger proportion of Latino residents, nearly 20 percent. Similarly, the Commission concluded that there were no environmental justice concerns regarding impacts on "minorities" in census tract 113 or 114 of Nash County even though the Latino population in each of those tracts of 23.6 and 24.6 percent, respectively, is about three times the statewide percentage and four times the county percentage. Looking more closely at a subset of tract 113 in Nash County—census block group 3—reveals that of those who are closest to the pipeline route in that smaller area, 37.7 percent are Latino, nearly six times the percentage in the county as a whole.[655]

3. The Commission failed to make use of the limited data compiled in the draft EIS showing disproportionate impact on environmental justice communities.

Even more troubling than the Commission's use of overly broad data, overly narrow comparisons, and aggregated minority population data was the Commission's reluctance to consider the implications of the data it did compile. Of the 105 census tracts within a mile of the Atlantic Coast Pipeline that are listed in draft EIS within Virginia and North Carolina, 67 of those—64 percent of the total—are flagged for potential environmental justice concerns. In some instances,

[654] DEIS at Table U-1.

[655] Atlantic Coast Pipeline Census Data, *supra* note 650.

every single census tract identified in a particular county is flagged for potential environmental justice concerns because of significantly larger percentages of minority or impoverished communities (or both) within one mile of the pipeline route. For example, every identified census tract in the following counties are flagged in the draft EIS as containing percentages that exceed thresholds for being designated as "an environmental justice population": Johnston, Halifax, and Robeson Counties in North Carolina and Brunswick, Buckingham, Cumberland, Greensville, Isle of Wight, Nottoway, Rockbridge, and Southampton Counties in Virginia.[656] But at no point in the draft EIS does the Commission consider the implications of the pipeline directly impacting communities that already experience the injustice of poverty at significantly high rates or that have significantly higher percentages of communities of color.

The frequency of "environmental justice populations" along the pipeline route is a result of Atlantic's decision to traverse regions of Eastern North Carolina and Tidewater Virginia that are among the most ethnically and racially diverse and among poorest regions in their respective states. The entire region will experience additional, compounding burdens as a result of this decision to have the pipeline cut through these already vulnerable communities. Atlantic and other utilities plan to build connector lines to the transmission pipeline that will likely serve new, proposed gas plants and other industrial facilities that the utilities plan to build in

[656] DEIS at U-1.

this region.[657] Those environmental justice implications of those other connections and facilities were not considered in the draft EIS.[658]

4. The Commission did not consider the particular risks of diminished land values for landowners of color along and near the pipeline route.

The Commission rejected concerns that the Atlantic Coast Pipeline will diminish property values along its route.[659] But the Commission and the studies it relied on did not take into account the unique situation of landowners of color in rural communities along the pipeline route. Some families have managed to keep property in the family for generations. Land for these families is a source of stability, refuge, and income.

One African American family in Halifax County, North Carolina reported to us that it continues to own and operate a farm that has been in the family for over 100 years. The Otto and Mary Williams Farm is also a Certified Wildlife Habitat with the Wildlife Federation. The farm was established by Osborn and Mamie Williams in 1916. The family farm is now under threat from being bisected by the pipeline. The family is worried about the risks of the pipeline, even if it is routed around their land, because construction could cause run-off onto their land. Their family would not see any benefit from the pipeline. Valerie Williams, daughter of Mary Williams, said:

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[657] *Id.* at 2-54, Table W-1.

[658] *Id.* at 4-484 to 4-514 (no mention of environmental justice concerns in cumulative impact analysis).

[659] *Id.* at 4-404 to 4-406.

> *What has benefitted us is our land. Our land has been our survival. We have a certified Century Family Farm – land that has been in the family for over 100 years. We don't want the pipeline to go through our land and feel like Dominion is not listening to us. Our granddad, dad, and siblings dug ditches with horses and plows to make it suitable for farming. We rely on revenue from forestry, an agricultural use that wouldn't be allowed on the pipeline route through our farm. This land is part of our family history, part of our tradition. We don't want our land taken, it should not be for public use. It is private property. Property means ownership and the right to keep people off your land. We use purple paint and put up 'no trespassing signs.' But the company wants to interfere with all of that. We've had it for over 100 years and they come along now and want to interfere with our farm, our sustenance, our place for recreation, our refuge. The pipeline would also interfere with our plans to open the land for religious and spiritual retreats to help teach stories from the Bible in a natural setting. Our farm is on a dead end road. During the struggle for civil rights, we could come back and be safe from reprisals. What they are trying to do is not right. We will keep our land. We have no intentions of allowing industrialization on our land.*

This history of land-ownership by African American families in eastern North Carolina has been under pressure for years. Organizations such as Land Loss Prevention have recognized the unique difficulties faced by people of color and low-resource families who try to hold onto their farm land. [660] There is no

[660] The Land Loss Prevention Project was founded in 1982 by the North Carolina Association of Black Lawyers to curtail epidemic losses of Black owned land in North Carolina. The Land Loss Prevention Project also recognizes the threats of environmental injustice to landowners of color: "Minority landowners have borne the burden of many

indication in the draft EIS that the studies of property values took into account the unique characteristics of or threats to land ownership by communities of color along the pipeline route.

5. The Commission did not consider the compounding issues facing racially isolated communities that subsist at or below the poverty line.

Moreover, the Commission did not consider the correlations between race and poverty, and instead considered those demographic categories in isolation. This choice masks the disproportionate burdens already faced by African American, Latino, and Native American communities throughout the region impacted by the Atlantic Coast Pipeline. In Buckingham County, for example, 29 percent of the African American population lives at or below the poverty line as compared to only 18.9 percent of whites who experience the burdens of poverty. In Halifax County, North Carolina, 35.7 percent of the African American community is at or below the poverty level, far above the state average of 17.6 percent.[661] Racially isolated communities who live in areas of concentrated poverty are particularly vulnerable to additional environmental stresses.[662] These kinds of disparities are

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years of racism, in social, political, and economic forms as well as direct physical forms. The basic human rights to life and health are violated by the perpetually polluting industries that operate with seeming impunity in communities made up of residents that are people of color or have low income levels. Environmental racism often forces people off the land (if they have money to move), and it often freezes local economic development." https://www.landloss.org/environmentaljustice.html.

[661] Atlantic Coast Pipeline Census Data, *supra* note 650.

[662] *See, e.g.*, Probst, Janice C. et al., *Person and Place: The Compounding Effects of Race/Ethnicity and Rurality on Health," American Journal of Public Health* 94.10

the result of a generational legacy of segregation, discrimination, and exclusion from opportunities for economic advancement that were not eased until the 1970s, creating few opportunities to build assets that can be passed along to future generations.[663]

6. Environmental justice communities will face disproportionate exposure to risk of catastrophic accident along the pipeline route.

Environmental justice concerns are not restricted to the disturbances from construction and maintenance along the route, the potential loss in land value to African American or other minority groups whose land will be bisected by pipeline easements and construction, or to methane leaks or other emissions from the pipeline (which are explored in more detail below). A hard look at environmental justice is required because of the risk of catastrophic accidents that are inherent in this kind of transmission pipeline. The Commission was required to consider "[w]hether the risk or rate of hazard exposure by a minority population, low-income population, or Indian tribe to an environmental hazard is significant (as employed by NEPA) and appreciably exceeds or is likely to

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(2004): 1695–1703, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1448519/; Daniel T. Lichter and Domenico Parisi, *Concentrated Rural Poverty and the Geography of Exclusion*, Carsey Institute Policy Brief, University of New Hampshire (2008) (finding that "[p]oor racial minorities are much more geographically concentrated than rural whites. Only 37 percent of poor nonmetro whites lived in high-poverty block groups in 2000. For blacks, 75 percent lived in high-poverty areas"), http://www.human.cornell.edu/pam/outreach/upload/PB-Lichter-Parisi1.pdf.

663 *See, e.g.,* Melvin Oliver & Thomas Shapiro, *Black Wealth/White Wealth: A New Perspective on Racial Inequality* (1995).

appreciably exceed the risk or rate to the general population or other appropriate comparison group."[664]

The entire pipeline route, including the compressor stations, creates a risk of hazard exposure for those who live near the pipeline that appreciably exceeds the general population. Gas explodes. Accidents may be rare, but when they occur, they can be deadly. For the twenty years of 1997-2016, Pipeline and Hazardous Materials Safety Administration recorded 1,719 incidents (averaging 114 incidents a year for the last ten years) on onshore gas transmission pipelines, with 48 fatalities and 179 injuries.[665] 166 people—both members of the public and industry workers—have been killed and 721 have been injured in serious pipeline incidents from all gas pipeline types since 2005.[666] Below are just a few examples of deadly or dangerous gas transmission pipeline accidents:

- EL Paso Natural Gas Pipeline explosion kills twelve: "A 30-inch natural gas pipeline owned by El Paso Natural Gas (EPNG) exploded around 5:30 a.m. on Saturday August 19, 2000, leaving a crater about 86 feet long, 46 feet wide and 20 feet deep. The released gas ignited and burned for 55 minutes. It reportedly was visible about 20 miles to the north in Carlsbad, New Mexico. Twelve persons who were camping under a concrete-decked steel bridge that supported the pipeline across the river were [killed in] the inferno

[664] CEQ, Environmental Justice NEPA Guidance, *supra* note 646, at 26.

[665] U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA), Serious Incidents, http://www.phmsa.dot.gov/pipeline.

[666] *Id.*

when the gas ignited, producing a 1,200-degree fireball. Their three vehicles were destroyed."[667]

- "On September 9, 2010…a 30-inch-diameter segment of an intrastate natural gas transmission pipeline known as Line 132, owned and operated by the Pacific Gas and Electric Company (PG&E), ruptured in a residential area in San Bruno, California….The rupture produced a crater about 72 feet long by 26 feet wide. The section of pipe that ruptured, which was about 28 feet long and weighed about 3,000 pounds, was found 100 feet south of the crater….The released natural gas ignited, resulting in a fire that destroyed 38 homes and damaged 70. Eight people were killed, many were injured, and many more were evacuated from the area."[668]

- "On December 11, 2012…a buried 20-inch-diameter interstate natural gas transmission pipeline, owned and operated by Columbia Gas Transmission Corporation, ruptured in a sparsely populated area, about 106 feet west of Interstate 77 near Route 21 and Derricks Creek Road, in Sissonville, West Virginia. About 20 feet of pipe was separated and ejected from the underground pipeline and landed more than 40 feet from its original location. The escaping high-pressure natural gas ignited immediately. An area of fire damage about 820 feet wide extended nearly 1,100 feet along the pipeline right-of-way. Three houses were destroyed by the fire, and several other houses were damaged. There were no fatalities or serious injuries.[669]

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[667] National Association of Corrosion Engineers, *CORROSION FAILURES: El Paso Natural Gas Pipeline Explosion*, http://www.nace.org/CORROSION-FAILURES-El-Paso-Natural-Gas-Pipeline-Explosion.aspx.

[668] National Transportation Safety Board, Pacific Gas and Electric Company Natural Gas Transmission Pipeline Rupture and Fire, https://www.ntsb.gov/investigations/AccidentReports/Pages/PAR1101.aspx.

[669] National Transportation Safety Board, Columbia Gas Transmission Corporation Pipeline Rupture, https://www.ntsb.gov/investigations/AccidentReports/Pages/PAR1401.aspx.

- Accidents involving fires and explosions have also occurred at gas compressor stations in Texas: in Godley, a fire destroyed the compressor station where the fire started and also the compressor station next to it; a fire at a Madison County compressor station required volunteer firefighters from four towns to control the blaze and evacuate nearby homes; and in Corpus Christi, a fire spread to local brush before being extinguished.[670]

Though Atlantic has said that it will comply with Department of Transportation safety requirements,[671] those safeguards have proven insufficient to prevent catastrophic accidents in gas transmission pipelines. Nor did the Commission consider the disproportionate risk that communities of color and low-income communities face as a result of the pipeline route.[672] Rural residential communities along the Atlantic Coast Pipeline route may face greater risks of future accidents because federal regulations allow for different standards for pipelines in these "class 1" areas.[673]

7. State recognized Indian tribes.

The draft EIS did not consider the disproportionate impacts of pipeline construction, operation, and maintenance on state recognized Native American tribes. The Lumbee Tribe in particular would face disproportionate impacts from

[670] New York State Madison County Health Department, Comments to the Federal Energy Regulatory Committee concerning docket no. CP14-497-000, Dominion Transmission, Inc. 14 (2014), https://www.madisoncounty.ny.gov/sites/default/files/publicinformation/madison_county_doh_comments_-_docket_no._cp14-497-000.pdf.

[671] DEIS at 4-471 to 4-479 (discussion of pipeline safety issues does not consider disproportionate risk to environmental justice communities).

[672] DEIS at 4-471 to 4-484.

[673] 49 CFR § 192.5; DEIS at 4-472.

the pipeline. Over half of the census tracts impacted by the pipeline in Robeson County, North Carolina have populations over 50 percent Native American, some over 80 percent, far higher than their total population in the county or state as a whole. Other native groups recognized by North Carolina will also be affected, including the Coharie and Haliwa-Saponi. In Virginia, the pipeline would threaten the Monacan, Chickahominy, Eastern Chickahominy, Nansemond, Nottoway nations, all recognized by the Commonwealth of Virginia.

The National Environmental Justice Advisory Council's Indigenous People's Subcommittee Committee issued guidance on consultation and collaboration with non-federal tribes:

> Although such groups lack recognition as sovereigns, they may have environmental and public health concerns that are different from other groups or from the general public…. Agencies should seek to identify such groups and to include them in the decision-making processes.[674]

The Commission made no effort to do so here.[675] Further study and consultation with the Lumbees and other state recognized tribes must be undertaken before the Commission will be in a position to satisfy its obligations to Native Americans who live along and near the pipeline route.

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[674] *Guide on Consultation and Collaboration with Indian Tribal Governments and the Public Participation of Indigenous Groups and Tribal Members in Environmental Decision Making*, National Environmental Justice Advisory Council's Indigenous People's Subcommittee Committee (Nov. 2000). https://www.epa.gov/sites/production/files/2015-03/documents/ips-consultation-guide_0.pdf.

[675] DEIS at 4-434 to 4-435 (summarizing Commission's outreach to federally recognized tribes only).

8. The Commission did not conduct an environmental justice review of the compressor stations.

Despite mentioning environmental justice in broad terms in the draft EIS, the Commission does not address the particular environmental justice concerns relating to the most polluting pipeline infrastructure—compressor stations. The compressor stations in both Virginia and North Carolina have been slated for predominantly African American communities in both states.

The Commission failed to consider the particular demographics of those who live closest to proposed Compressor Station Two in Buckingham County, Virginia and Compressor Station Three in Northampton County, North Carolina.

The census tract closest to the proposed Northampton County compressor station covers about 190 square miles and is home to about 6,180 people. That census tract is approximately 75 percent African American, much higher than the African American population in the state as a whole, which is about 22 percent. The most potentially harmful environmental health impacts from that compressor station, however, will be suffered most intensely by those who live in the areas closest to and downwind of the compressor station. But the draft EIS does not offer any information about the people or communities who live closest to that compressor station.[676] The Northampton compressor station is within census block group 6 (a subset of census tract 9203). Within that census block group, 79.2 percent are African American. But even this narrower subset of the population

[676] Demographics Near the Proposed Northampton Compressor Station, included as **Attachment 43**.

does not reveal who neighbors the proposed compressor station. Without that information, no meaningful environmental justice review can proceed.

By the same token, Atlantic has decided to place the sole Virginia compressor station—a 68 acre industrial facility—in the populated Union Hill community in Buckingham County. The census tract data used by the Commission reveals the presence of a higher than average African American community and higher than average percentage of people in poverty near the Buckingham Compressor Station than is present in Virginia as a whole. But those numbers do not reflect the full environmental justice implications of placing the compressor station in the Union Hill community, as set forth in more detail below.

In the draft Environmental Impact Statement, the Commission failed to take a hard look at the harmful effects that the proposed Buckingham Compressor Station would have on the predominantly African American community that lives closest to this proposed compressor station. The Commission needs more information before it can assess the environmental justice impacts on this historic community. An elderly African American from Union Hill, whose property Atlantic plans to seize by eminent domain, said, “Because Dominion is bigger and stronger, it can take it if they want to. Again, if it's for the good or the safety of the community, that's a different story. But, for economic reasons that you're not going to be actually directly benefiting from, I feel it's wrong.” The Commission has not considered the voice of the community that will be most affected in its

decision-making and failed to consider the disproportionate risk of harm faced by this vulnerable community.

C. The Commission ignored the cultural and environmental justice impacts of allowing the Buckingham compressor station to be thrust onto the historic, predominantly African-American Union Hill community.

Union Hill is being considered for Historic District status by the Department of Historic Resources of the Commonwealth of Virginia. Preservation Virginia listed this community as a "Most Endangered Historic Place" in May 2016.[677] Many of the African American members of this community trace their heritage back to the Freedmen who settled this area following emancipation after the Civil War. The compressor station itself is slated to be built on the property of a former plantation called Variety Shade.[678]

The communities built by freed slaves before and after Emancipation and during Reconstruction, post-Reconstruction, and the era of Jim Crow segregation that followed contain important cultural resources. Racial segregation and discrimination have resulted in the undervaluing of these historic communities throughout the south. Loss of buildings on the ground by fire, discriminatory historic recording practices, and loss of burial sites and cemeteries by development

[677] *2016 Virginia's Most Endangered Historic Places*, Preservation Virginia (May 3, 2016), https://preservationvirginia.org/press-room/release/2016-virginias-most-endangered-historic-places.

[678] Union Hill/Wood's Corner Rural Historic District: Most Endangered Historic Place in Virginia Application (filed Feb. 16, 2016), prepared by Lakshmi Fjord, Ph.D., included as **Attachment 44**.

all contribute to historians' concerns to protect and preserve what remains of communities that were founded by Freedmen following the Civil War. In the case of Union Hill, its unbroken history as an agricultural district is particularly threatened by Atlantic's proposed compressor station. Many in the community continue to use their land for agricultural purposes, such as farming, orchards, and livestock, and are concerned that the pollution from the compressor station will harm or disrupt those activities. In this A1 Agriculture district, the many of the landowners in closest proximity to the proposed compressor station are the descendants of people enslaved here, where once the number of slaves was twice that of whites.[679]

Historic structures established following Emancipation by African-Americans in the Union Hill area include Union Hill Church, Union Grove Church, Shelton's Store, numerous houses, and many mapped and unmapped cemeteries. All of these are located on previous plantation lands. Three African American churches are located within the proposed historic district: Saint Joy Baptist Church, Union Hill Baptist Church, and Union Grove Baptist Church. Union Hill and Union Grove have congregations that date to 19th century. Mulberry Grove Baptist Church, a white church organized in 1786, served black members and is the second-oldest surviving church in Buckingham County. Union Hill was established as a brush arbor church in 1868 after Freedmen separated from Mulberry Grove. At least twenty-one slave, or African-American, cemeteries are located within the

[679] *Id.*

proposed district boundaries. Caesar Perkins, a formerly enslaved man who became a member of Virginia's General Assembly, lived in the district boundaries, and some of his descendants remain in the Union Hill area. [680]

In preparing the draft EIS, the Commission was required to consider impacts not just on the environment, but on related social and cultural aspects of the community as well.[681] The Commission made no mention of the historic Union Hill area or the unique culture or history of these communities in the draft EIS. There are no cultural resource reports for the historic African American neighborhood of Union Hill in Dominion Resource's Atlantic Coast Pipeline application documents. The draft EIS continues this omission by supplying no information on the archaeological or architectural survey results for the 68-acre parcel applied for the compressor station facility.

The Commission's silence on the Union Hill community stands in stark contrast to the consideration given to the Norwood-Wingina Rural Historic District—a predominantly white area in neighboring Nelson County. Following concerns raised by that community, the Commission planned alternative pipeline routes to avoid that historic district. The draft EIS notes that, following comments, "the companies incorporated a route modification that would avoid the Norwood-Wingina Rural Historic District" so that there would be no effects on

[680] *Id.*

[681] 40 C.F.R. § 1508.14.

cultural resources in the district.[682] The Commission considered other alternatives to avoid any additional impact on the district.[683] The census tract (Nelson County, CT 9501) where the Norwood-Wingina Rural Historic District is located is less racially diverse than the Commonwealth as a whole. That census tract is approximately 80 percent white, and only about 18.5 percent African American.[684]

In contrast, when summarizing comments received about impacts on historic districts and related cultural resources, the draft EIS makes no mention of the Union Hill area, which contains a historically significant African American community.[685] The Commission's conclusion that the Buckingham "compressor station is located near previously developed residential and commercial areas and is consistent with the existing visual conditions in the area" is not accurate.[686] This industrial facility is instead located in a largely residential, historic, and agricultural community that is ill-suited to an industrial compressor station.

The Commission's failure to recognize the Union Hill community and its historical significance runs counter to federal guidelines for incorporating environmental justice in the NEPA process: "[a]gencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may

[682] DEIS at 4-425.

[683] *Id.* at 3-26.

[684] U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates, Data Set S1701, https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

[685] DEIS at 5-21, 4-425.

[686] *Id.* at 4-341.

amplify the natural and physical environmental effects of the proposed agency action."[687] Local residents voiced concern over impacts to the Union Hill neighborhood and loss of cultural and historical resources as a result of the pipeline and Buckingham compressor station during early stakeholder meetings with Atlantic.[688] Yet these issues remain unaddressed in the draft EIS. The Commission needs to gather and consider additional information about the historic and cultural factors that define the Union Hill area.

D. Threat to land values in Union Hill from proximity to compressor station.

An asset that families in the Union Hill Road have been able to pass along to their descendants is land, as is evident by the number of community members who can trace their ancestry back to Freedmen who settled in the area following emancipation. The value of this asset, however, is threatened by the pipeline and the planned construction of the compressor station in this community. Though the Commission concludes as a general matter that land values will not be affected by the pipeline, the draft EIS does not provide any information or analysis for such a conclusion for the Union Hill area that is closest to the proposed compressor station.[689] Instead, the Commission considered the possible effect on land values

[687] CEQ, Environmental Justice NEPA Guidance, *supra* note 646, at 9.

[688] Meeting Summary of the Preliminary Company-sponsored Community Advisory Group (Sept. 30, 2015), https://www.dom.com/about-us/news-center/natural-gas-projects-and-initiatives/atlantic-coast-pipeline/library/42DC228323404F47B4C29F0557DC5291.pdf.

[689] DEIS at 4-404 to 406, 4-410.

only for those properties where natural gas pipeline easements would be acquired. The Commission concludes that the "effect that a pipeline easement may have on property value is a damage-related issue that would be negotiated between the parties during the easement acquisition process."[690]

But that process is not available for the hundreds of households that live near major pipeline infrastructure, such as compressor stations, but on whose land no easement is taken. One elderly African American resident who lives close to the proposed compressor station said "Dominion has not listened to us or our community – they just want to get it built." Another reported that she moved to the community in 2010 to retire because she enjoys the peace and quiet of the natural landscape: "I moved here to enjoy the freedom and atmosphere. I love nature, love looking at the animals that cross through here—the deer, the wild turkey. I moved here to enjoy the rest of my life, but the compressor station is going to scare away the animals, ruin my quality of life. Would you want to live next to a noisy, polluting industrial facility right next your house?"

E. Incomplete demographic data in the draft EIS does not reflect the community.

As is the case generally in the draft EIS, the census tract data relied on by the Commission does not accurately reflect the demographics of the relatively densely populated Union Hill community. According to the draft EIS, 4,200 people live in the census tract where the proposed Buckingham compressor station would be

[690] *Id.* at 5-20.

sited, tract 9301.01.[691] Of those, 68.3 percent are White and 27.9 percent are African American. 26.9 percent are below the poverty level, more than double the poverty rate in the Commonwealth of Virginia.

Census block group data for those living within three miles of the compressor station provides a marginally better sense of the disproportionate impacts that the compressor station's ongoing air pollution and noise pollution will have on poor and African American communities. The census block group where Atlantic plans to build and operate the compressor station is about 33 percent African American, 13.7 percentage points higher than the Commonwealth as a whole.[692] 33 percent of those in the census block group are at or below the poverty line – nearly three times the state's poverty level.[693]

F. Volunteer community survey reveals disproportionate impacts on African American community.

But even census block data does not tell the true story of who will be most directly impacted by the construction and continuous operation of the compressor station. Door-to-door surveys[694] of those who live between five hundred feet and roughly one and half miles from the proposed gas-fired compressor station

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[691] *Id.* at Table U.

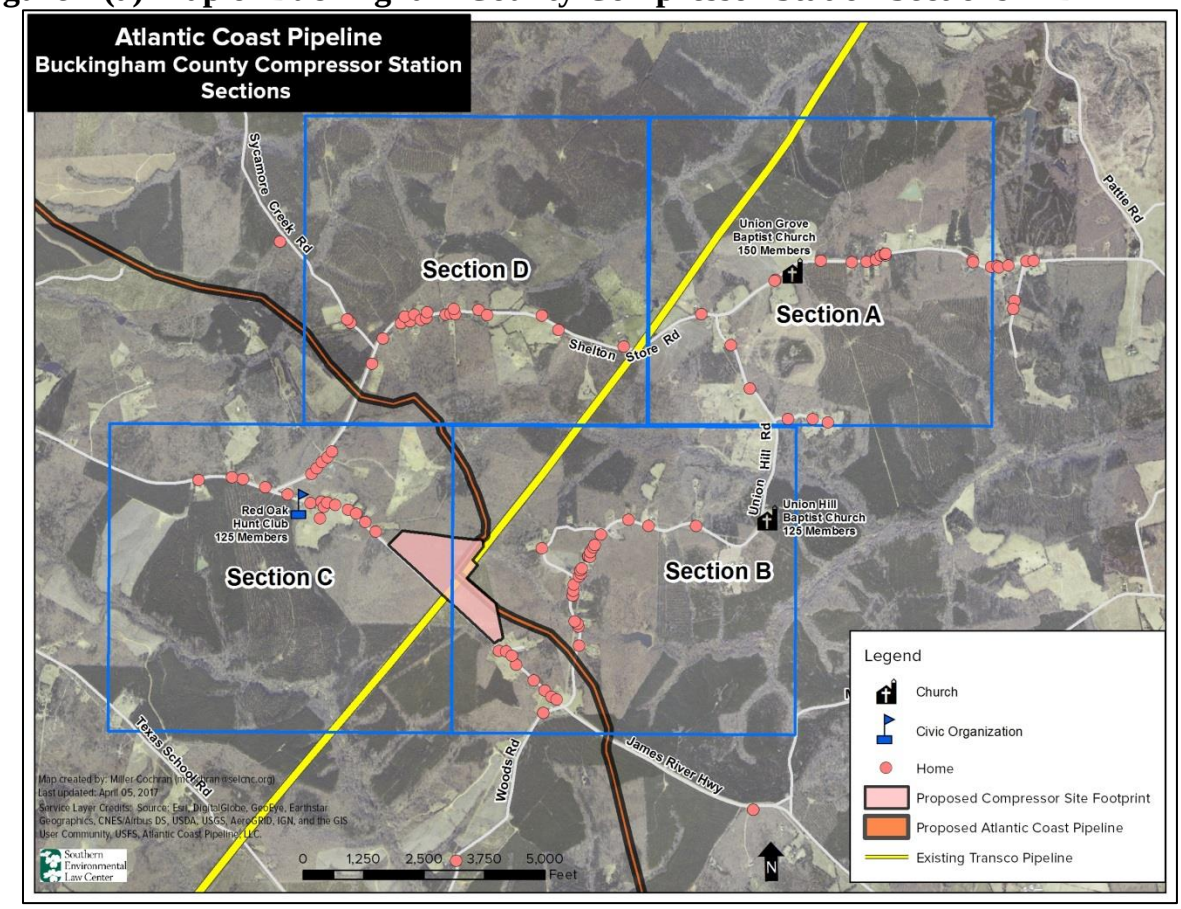
[692] Demographics Near the Proposed Buckingham Compressor Station, included as **Attachment 45**.

[693] Atlantic Coast Pipeline Census Data, *supra* note 650.

[694] *Union Hill/Woods Corner Virginia Door-to-Door Household Data Survey Project* (2016-17), designed, supervised, and preliminary data analyses by Lakshmi Fjord, Ph.D., Scholar-in-Residence, Dept. of Anthropology at the University of Virginia [all individual health and race data is protected for anonymity by HIPAA regulations].

demonstrate that the harmful effects of the compressor station will be most concentrated in a predominantly African American community.

Figure X(a) Map of Buckingham County Compressor Station Sections A-D[695]

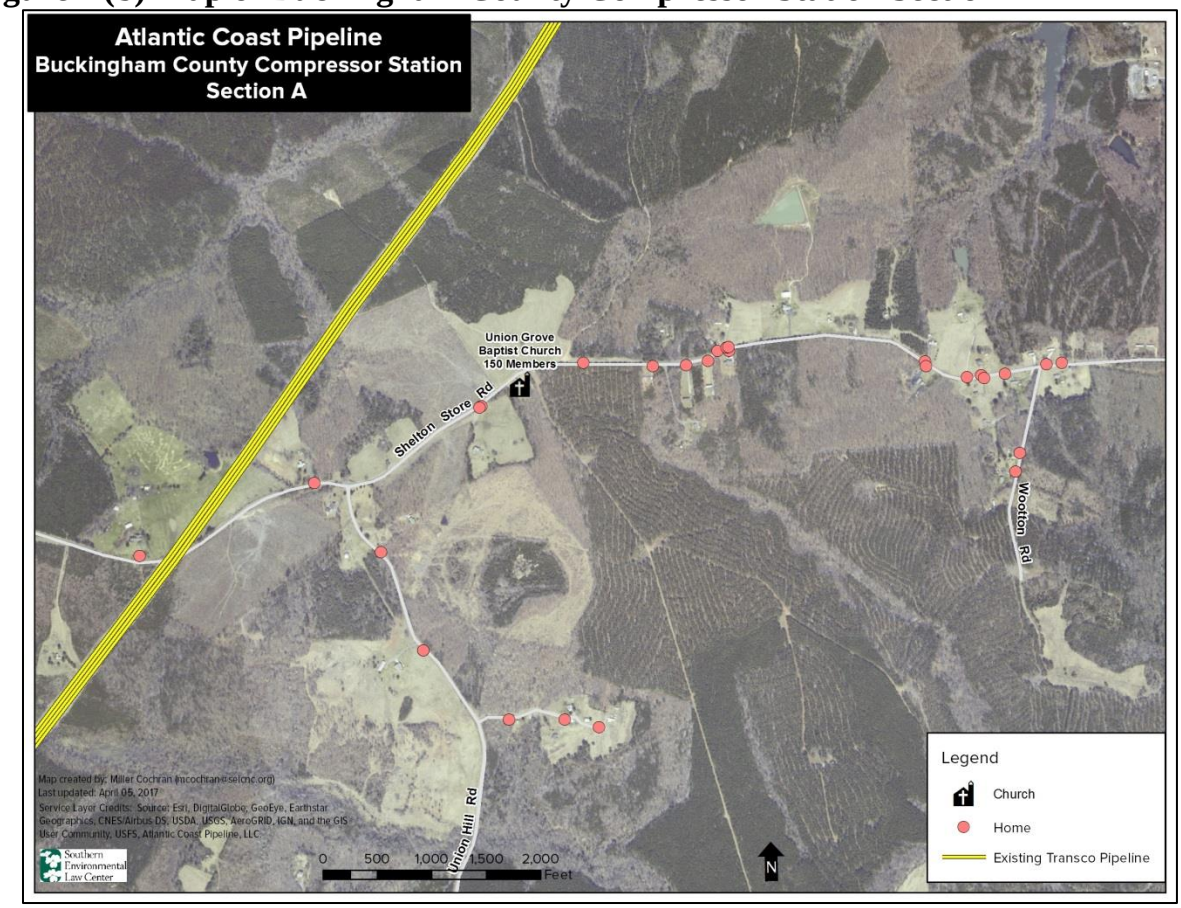


Volunteer teams collected information from participating households, documenting: the number of residents, racial identification, ages, number of children in the home, reported disabilities and health issues, information about frequent visitors to the home, information about land use (farming, gardening, etc.), cemeteries and unsurveyed burial sites, ancestry, and any information related to historic preservation. These surveys have been conducted along the roads

695 Included as **Attachment 46**.

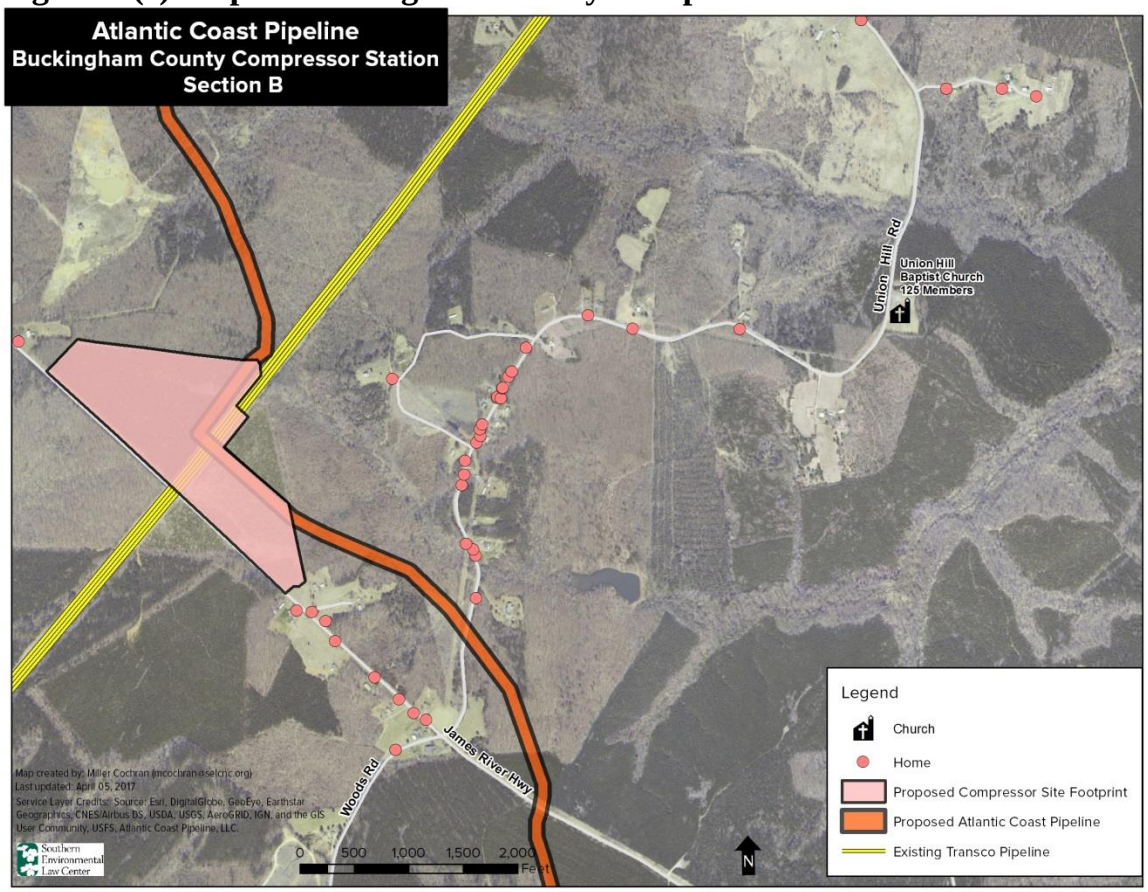
closest to the compressor station: Union Hill Road, Saint James River Highway, and Shelton Store Road. Of the nearly 100 homes identified in this area so far, volunteers have conducted 63 surveys to date. The preliminary survey results demonstrate that the Commission did not have the kind of information it needed about the people living near the proposed compressor station to conduct an environmental justice or environmental health study.

Figure X(b) Map of Buckingham County Compressor Station Section A[696]



[696] Included as **Attachment 46A**.

Figure X(c) Map of Buckingham County Compressor Station Section B[697]



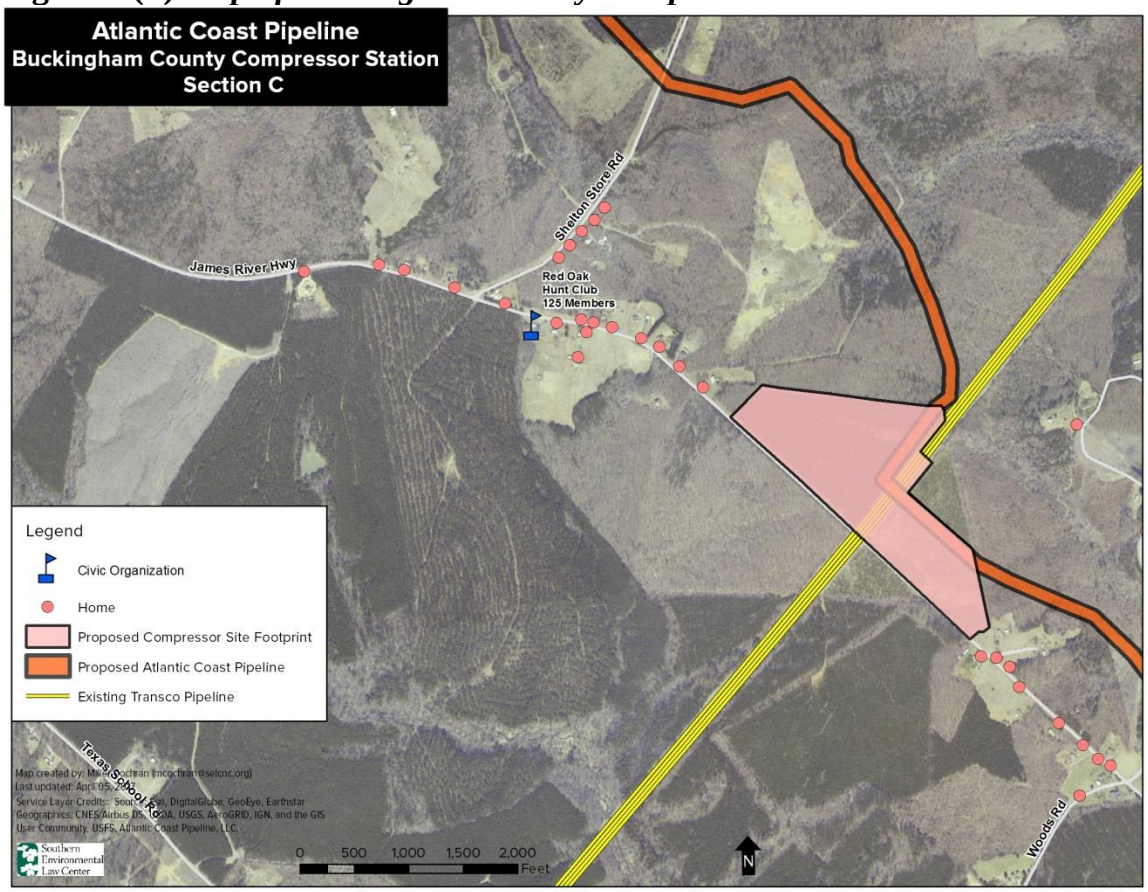
Of the 30 households along or near Union Hill Road identified as closest to the proposed compressor station by Friends of Buckingham, 21 have participated in the volunteer survey to date.[698] Of those 66 residents who live on Union Hill Road, Route 663, and Laury Lane, and who participated in the survey so far, 56 (84.8 percent) identified as African American, seven (10.6 percent) as biracial, and 3 (4.5 percent) as white. In other words, 95.4 percent of those reached so far are Black or biracial, a reflection of historic patterns of segregation. Thirteen of these

[697] Included as **Attachment 46B**.

[698] *See* maps of Atlantic Coast Pipeline Buckingham County Compressor Station Sections A and B, included as **Attachments 46A and 46B.**

individuals can trace their ancestry to Freedmen who settled in this area following the Civil War. 33 are below the age of 18. 24 are over the age of 65. Union Hill Baptist Church, an African American congregation with roots that go back to nineteenth century is about 3,000 feet from the proposed compressor station and has about 125 members. The sanctuary was constructed in 1887. Several of these families raise gardens, fruit orchards, or raise animals.

Figure X(d) ***Map of Buckingham County Compressor Station Section C.***[699]



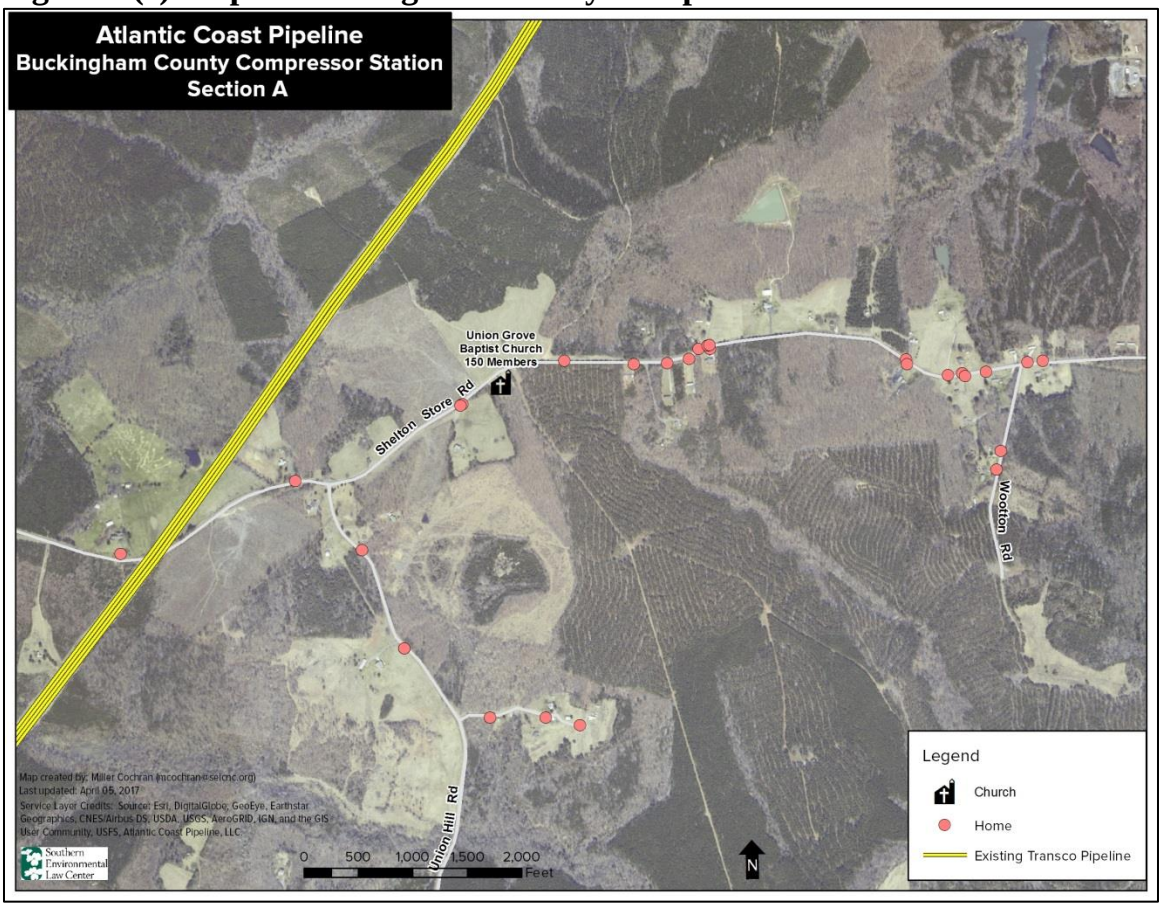
Of the 23 households along Saint James River Highway and two households on Woods Road that have been identified as closest to the proposed compressor

[699] Included as **Attachment 46B**.

station by Friends of Buckingham, 15 have participated in the volunteer survey so far.[700] Of those 35 residents who responded with their racial identification, 19 (54.3 percent) identified as African American, three (8.6 percent) as Native American, one as Asian American (2.8 percent), and 12 (34.3 percent) as white. This area is also home to the Red Oak Hunt Club that has 125 African American members and that is about 1,750 feet from the edge of the proposed compressor station property. Fifteen of these residents are over the age of 65 and four are below the age of 18. At least seven of the African American residents are descendants of Freedmen who settled in the area following emancipation. Several families farm, garden, or raise animals.

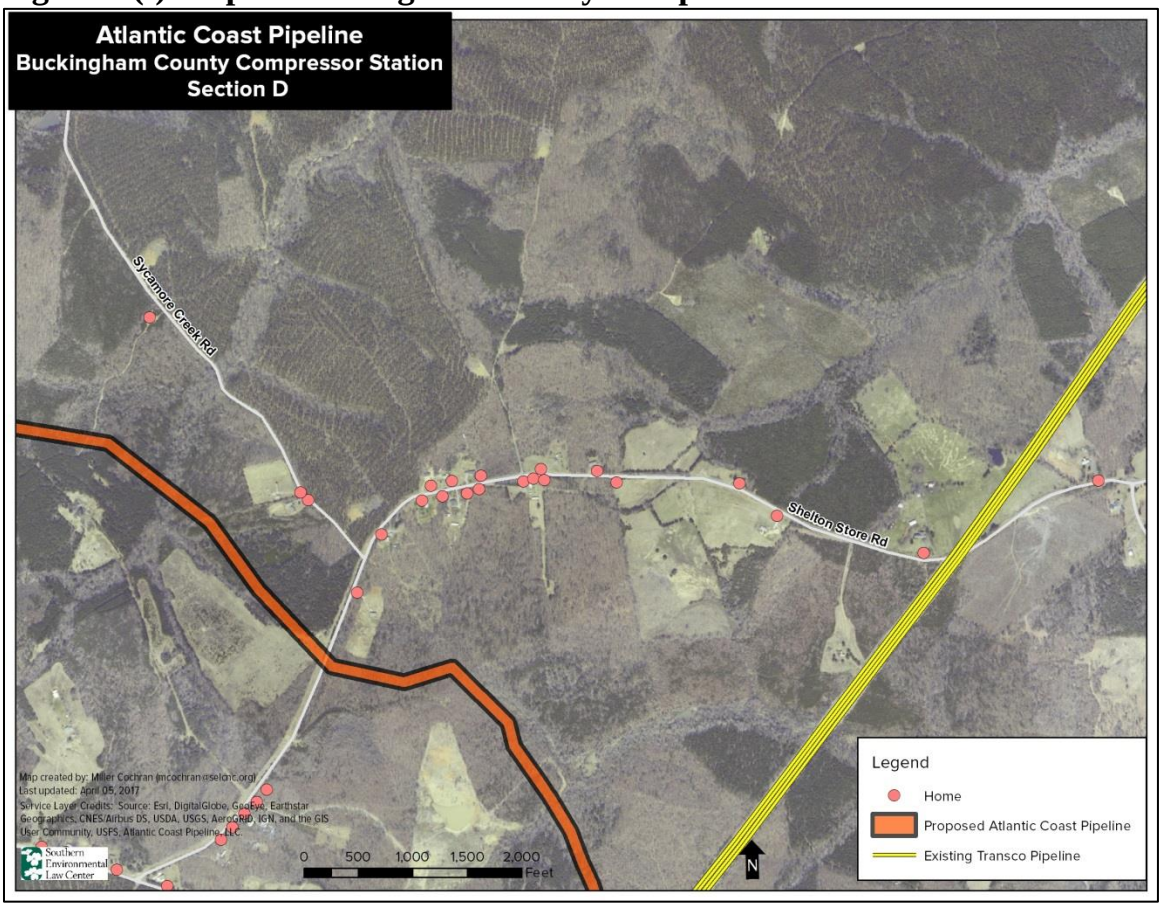
[700] *See* maps of Atlantic Coast Pipeline Buckingham County Compressor Station Sections C and B, included as **Attachments 46C and 46B.**

Figure X(e) Map of Buckingham County Compressor Station Section A[701]



[701] Included as **Attachment 46A**.

Figure X(f) Map of Buckingham County Compressor Station Section D[702]



Of the approximately 45 households along Shelton Store Road that have been identified as closest to the proposed compressor station by Friends of Buckingham (DN5D), 27 have participated in the volunteer survey so far.[703] Of those 60 residents who responded with their racial identification, 47 (78.3 percent) identified as African American, 1 as biracial (1.7 percent), 4 as White/Latino (6.7 percent) and 8 (13.3 percent) as white. Twenty-two of these residents are over the age of 65 and 18 are below the age of 18. At least 18 of the African-American

[702] Included as **Attachment 46D**.

[703] *See* maps of Atlantic Coast Pipeline Buckingham County Compressor Station Sections A and D, included as **Attachments 46A and 46D.**

households are known descendants of Freedmen who settled in the area following emancipation. Union Grove Baptist Church split off from the Union Hill Baptist Church in the early twentieth century. This African American congregation is home to about 150 members and is located on Shelton Store Road. One of the African American families hosts reunions on their property where as many as 30 relatives come to visit. Several families farm, garden, or raise animals.

The large number of households that lie close to the proposed Buckingham compressor station contradict the Commission's conclusion that Atlantic Coast Pipeline "compressor stations are primarily surrounded by forested land." [704] Friends of Buckingham have already identified approximately 100 households within about 5,000 feet of the compressor station. Most of these homes are closer than that to either the existing Transco Pipeline or the proposed Atlantic Coast Pipeline. Yet Atlantic plans to use class one pipeline for this section of the project,[705] meaning that there will be reduced safety factors in pipeline design, including thinner pipeline walls and less stringent safety testing. In addition, there will be longer stretches of pipeline before reaching a "sectionalizing block valve."[706]

[704] DEIS at 4-167.

[705] *Id.* at 4-473 (Table 4.12.1-1 shows that Atlantic plans to use class 1 pipeline from mile 164.1 to mile 199.8 of AP-1); B-58 (showing that the portion of the pipeline through the Buckingham compressor station is along mile 190 through 193 of AP-1).

[706] *Id.* at 4-472.

The Commission lacked meaningful information about the Union Hill community. This omission impairs its ability to conduct the required environmental and environmental justice review. Without a cultural resource report or specific demographic information, the Commission cannot evaluate the appropriate safety requirements for pipeline construction. As noted above, specifications for safety depend on whether a community is slated for class one pipeline engineering. This kind of information is also required before the Commission can determine appropriate requirements for community alerts and warnings, for communication measures, and for safe and reliable monitoring of the compressor station, both on-site and remotely. The Commission needs to take a harder look at this densely populated area in light of Atlantic's decision to use the least safe pipeline design.

In total, the survey results reveal so far that 80.7 percent of the neighboring community that lives closest to the proposed compressor station is African American or biracial. In addition to demonstrating that the compressor station will have a much more disproportionate impact on the basis of race, this survey found many instances of respiratory ailments that would likely be exacerbated by the construction and operation of the compressor station in such close proximity to their neighborhood. Many elderly residents reported suffering from chronic respiratory ailments such as asthma, Chronic Obstructive Pulmonary Disease (COPD), bronchitis, allergies, and other unspecified heart and lung ailments. In addition, many of these residents report high blood pressure, heart disease,

diabetes, and other ailments that would make them particularly susceptible to the pollution of the compressor station. A number of parents reported that their children suffer from asthma or other chronic lung diseases.

Multiple studies have found that African Americans are more than twice as likely as white Americans to live near sources of harmful air pollution and suffer disproportionate respiratory sickness as a result.[707] Putting the compressor station in this predominately African American community will further this shameful legacy of concentrating environmental harms in poorer communities and communities of color. One of the chief reasons for Executive Order 12898 and federal Environmental Justice review are to identify vulnerable populations who are at risk of disproportionate and cumulative harm from polluting facilities. The Commission made no effort to do so here, and failed to identify the community that would be directly harmed by the compressor station. There is also no information about prevailing winds, which would provide information about which communities are most at risk from pollution at the compressor station. Without a more robust analysis of the people directly affected by the compressor

[707] Gamble, J.L., et al, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*. Ch. 9: Populations of Concern, U.S. Global Change Research Program, Washington, DC (2016). http://dx.doi.org/10.7930/J0Q81B0T (citing Frumkin, *Urban sprawl and public health*. Public Health Reports, pp. 117, 201-217 (2002)); Robert Bullard, *et al*, *Toxic Wastes and Race at Twenty: Why Race Still Matters After all of These Years*, 38 Environmental Law 371, 379 (2007) (citing David Pace, *More Blacks Live with Pollution*, Associated Press (2005) (noting that most pollution inequities result from historical land use decisions that were based on racial segregation and the prevalence of regulators focusing on one plant or one pollutant without regard to the potential cumulative impact of multiple sources of pollutants).

station, the Commission does not have the information it needs to conduct an environmental justice review.

G. There are increased risks of adverse health impacts from pollution at the Buckingham compressor station.

The Commission did not have sufficient information to support a finding that there are no increased health risks from the operation of this compressor station. The estimated "potential emissions" in tons per year of criteria pollutants is not an appropriate measure to determine health risks from the operation of this industrial facility. Health risks increase during episodes of high exposures, and cannot be determined by estimated averages or total tons per year. Nevertheless, the potential increase emissions reported in the draft EIS raise concerns about harmful environmental health impacts on the surrounding community. Before the Commission can evaluate the potential impacts of this increased pollution, it should collect information on the local, baseline health conditions that will be degraded by exposure to this pollution.

The four largest of the proposed turbines at the Buckingham compressor station range in output from 6,642 to 21,765 horsepower and would be accompanied by ten 268 horsepower gas-fired micro turbines, a boiler, and line heaters.[708] This machinery would run nearly continuously throughout the year to maintain pressure in the proposed Atlantic Coast and existing Transco Pipelines.

[708] Atlantic Coast Pipeline, LLC Atlantic Coast Pipeline and Dominion Transmission, Inc. Supply Header Project, Supplemental Filing to Virginia Department of Environmental Quality, Air Permits Form 7 Application.

According to the draft EIS, operating the Buckingham Compressor Station will result in the emission of an additional 11.7 micrograms per cubic meter of air volume (μg/m3) of fine particulate matter ($PM_{2.5}$) in a 24 hour period. When combined with the existing background particulate pollution, these gas-fired turbines would result in annual mean concentrations of 9.5 μg/m3 and 28.7 μg/m3 in a 24 hour period. The Commission found that this level of exposure is below the National Ambient Air Quality Standard of 12 μg/m3 (annual) 35 μg/m3 (24 hour), and thus, there will be "no health impacts" to the surrounding community.[709]

Yet the Commission's modeling analysis projects a 40 percent increase in $PM_{2.5}$ exposure in a 24 hour period—a significant level of increased exposure to a dangerous category of pollutants. This increased pollution is above the World Health Organization's threshold of 25 μg/m3 in a twenty-four hour period and almost to the limit of its threshold for annual mean concentrations. [710] At these levels, long-term exposure can cause an increase in mortality and increased serious health problems, such as respiratory ailments and cardiovascular disease, as set forth in more detail below.[711] Even short-term exposure can cause health

[709] DEIS at 4-455.

[710] World Health Organization, Fact sheet: Ambient (outdoor) air quality and health (Sept. 2016), http://www.who.int/mediacentre/factsheets/fs313/en/ ("WHO Fact Sheet") ("There is a close, quantitative relationship between exposure to high concentrations of small particulates (PM_{10} and $PM_{2.5}$) and increased mortality or morbidity, both daily and over time").

[711] Frank J. Kelly and Julia C. Fussell, *Air Pollution and Public Health: Emerging Hazards and Improved Understanding of Risk*, Environ Geochem Health, Vol. 37(4) 631–649 (2015), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4516868/.

problems, particularly in sensitive populations like those with respiratory problems or heart disease—like many of those who live near the proposed compressor station.[712]

The Buckingham Compressor Station would also dramatically increase Nitrogen dioxide (NO_2) pollution, both a harmful pollutant in its own right and a key precursor to particulate pollution and ozone (or smog). The additional NO_2 pollution generated by the compressor station in a 24 hour period would represent an increase of 54.5 percent over the existing background NO_2 pollution.[713] The likely resulting increase in ozone pollution on sunny warm days will be particularly hard on those residents who already suffer from respiratory diseases.

As previously set forth, the Commission has no information about preexisting health conditions of the many people who live close to the proposed compressor station and thus have no basis for its conclusion that the reported increased pollution will not impact the health of those who live nearby. But it is well known that ozone and fine particulate matter contribute to over 200,000 premature deaths in the United States each year.[714] Their effects are felt most severely by children,

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[712] *Id.*

[713] U.S. EPA, Fact Sheet: Final Revisions to the National Ambient Air Quality Standards for Ozone (2008), https://www.epa.gov/sites/production/files/2015-08/documents/ozone_fact_sheet.pdf.

[714] *See* Steven R.H. Barrett et al., *Air Pollution and Early Deaths in the United States Part I: Quantifying the Impact of Major Sectors in 2005*, Atmospheric Environment Vol. 79, p. 198 (Nov. 2013) (modeling particulate matter and ozone emissions from combustion sectors and concluding that these pollutants result in approximately 200,000 premature deaths in the United States annually).

the elderly, people with pre-existing conditions including asthma, and otherwise healthy adults engaged in strenuous or frequent outdoor activity or work.[715] In other words, this increased pollution will be felt severely by many of the surrounding residents.

Ozone exposure "can result in health effects that are observed in broad segments of the population, including respiratory symptoms, reduced lung function, and airway inflammation, as well as more serious effects such as increased hospital admissions and increased daily mortality. Respiratory symptoms can include coughing; throat irritation; pain, burning, or discomfort in the chest when taking a deep breath; chest tightness, wheezing, or shortness of breath."[716] Ozone forms when nitrogen oxides react with volatile organic compounds.[717] Because the reaction is catalyzed by heat and sunlight, high ozone days occur most frequently during hot stagnant summers.[718] "Ironically, people living in many rural areas suffer from ozone overexposure more than many people living in cities . . . because ozone levels are generally higher downwind of ozone

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[715] *See* EPA, *Health Effects of Ozone Pollution*, https://www.epa.gov/ozone-pollution/health-effects-ozone-pollution.

[716] EPA, *Ozone and Your Patients' Health: Course Outline/Key Points*, https://www.epa.gov/ozone-pollution-and-your-patients-health.

[717] NASA, *Chemistry of Ozone Formation*, http://earthobservatory.nasa.gov/Features/ChemistrySunlight/chemistry_sunlight3.php (describing tropospheric ozone production).

[718] *See id*.; *see also* Jeannie Allen, *The Ozone We Breathe*, NASA (Apr. 19, 2002), http://earthobservatory.nasa.gov/Features/OzoneWeBreathe/.

precursor sources, at distances of hundreds or even thousands of kilometers, so ozone concentrations in rural areas can be higher than in urban areas."[719]

Fine particles also cause health problems such as heart attacks, aggravated asthma, decreased lung function, and irregular heartbeats.[720] Exposure to fine particle concentrations as low as ten micrograms per cubic meter ($\mu g/m^3$)—which is lower than the current federal standard—is associated with a two percent increase in premature deaths for exposures as brief as two days, and a seven to Nine percent increase in the long term.[721] Decreases in fine particle concentrations add months, if not years, onto people's lives.[722]

There is no evidence of a safe level of exposure for either of these pollutants, and both have health effects even below the current National Ambient Air Quality Standards (NAAQS).[723] In response to evidence of health problems caused by

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[719] *Id.*

[720] *See generally* EPA, *Particulate Matter (PM) Health*, https://www3.epa.gov/pm/health.html.

[721] Liuhua Shi et al., *Low-Concentration $PM_{2.5}$ and Mortality: Estimating Acute and Chronic Effects in a Population-Based Study*, Envtl. Health Persp. (Jan. 2016), http://ehp.niehs.nih.gov/1409111/.

[722] *See* C. Arden Pope III et al., *Fine-Particulate Air Pollution and Life Expectancy in the United States*, 360(4) New Eng. J. Med. 2009 376, 382–84 (Jan. 22, 2009), http://www.nejm.org/doi/pdf/10.1056/NEJMsa0805646.

[723] *See Am. Trucking Ass'ns., Inc. v. EPA*, 283 F.3d 355, 360 (D.C. Cir. 2002) (internal quotation marks and alterations omitted) (recognizing the "lack of a threshold concentration below which [particulate matter and ozone] are known to be harmless."); EPA, *NAAQS for Particulate Matter*, 78 Fed. Reg. 3086, 3098 (Jan. 15, 2013) (explaining that there is "no population threshold, below which it can be concluded with confidence that $PM_{2.5}$ related effects do not occur").

these pollutants at lower and lower levels, EPA has repeatedly strengthened both the fine-particle and ozone NAAQS in recent years. [724]

H. There is new evidence of additional harmful pollution from compressor stations.

A recent report from Physicians for Social Responsibility compiled new scientific studies that indicate additional potential pollution from natural gas infrastructure, including compressor stations. [725] According to this report, a "growing body of scientific evidence documents leaks of methane, toxic volatile organic compounds and particulate matter throughout this infrastructure. These substances affect [human] health."

Physicians for Social Responsibility found that people living near compressor stations have suffered from a "range of symptoms ranging from skin rashes to gastrointestinal, respiratory, neurological and psychological problems."[726] Air samples collected around compressor stations have revealed elevated concentrations of many of the dangerous substances associated with gas extracted from hydraulic fracturing operations, or fracking. The Atlantic Coast Pipeline is

[724] *See* National Ambient Air Quality Standards for Particulate Matter, 78 Fed. Reg. 3086, 3088 (Jan. 15, 2013); National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65,291, 65,292 (Oct. 26, 2015) https://www.gpo.gov/fdsys/pkg/FR-2015-10-26/pdf/2015-26594.pdf; Environmental Protection Agency, *NAAQS Table*, https://www.epa.gov/criteria-air-pollutants/naaqs-table#3.

[725] *Too Dirty Too Dangerous: Why Health Professionals Reject Natural Gas, Physicians for Social Resonsibility* (Feb. 2017), http://www.psr.org/assets/pdfs/too-dirty-too-dangerous.pdf.

[726] *Id.* (citing Brown, D.R., Lewis, C., Weinberger, B.I., *Human exposure to unconventional natural gas development: A public health demonstration of periodic high exposure to chemical mixtures in ambient air*, Journal of Environmental Science and Health, Part A, 50:5, 460-472 (2015), https://www.ncbi.nlm.nih.gov/pubmed/25734822).

being built to transport such gas into Virginia and North Carolina from the Marcellus shale. These dangerous substances include "volatile organic compounds, particulate matter, and gaseous radon."[727] The federal Agency for Toxic Substances and Disease Registry examined air quality near a natural gas compressor station in Pennsylvania and discovered $PM_{2.5}$ at dangerous levels.[728]

A recently published analysis of methane emissions from compressor stations in New York and Pennsylvania found highly elevated levels of methane coming from those facilities.[729] The study concluded that communities that are downwind and downhill from compressor stations likely suffer from elevated exposure to methane and related pollutants from the operation of those stations at higher levels than is permitted. In one example, the study authors found:

> This data indicates that the areas downwind of compressor stations during periods with winds…will be exposed to methane plumes, and any other co-emitted pollutants released by compressor stations. Residents and properties downwind under prevailing wind conditions will likely be subjected to a disproportionate burden of contaminants from

[727] New York State Department of Health. (2014). A public health review of high volume hydraulic fracturing for shale gas development. http://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf.

[728] *Id.* (citing Agency for Toxic Substances and Disease Registry, *Health Consultation: Exposure Investigation, Natural Gas Ambient Air Quality Monitoring Initiative Brigich Compressor Station, Chartiers Township, Washington County, Pennsylvania* (Jan. 29, 2016); Agency for Toxic Substances and Disease Registry, *Health Consultation: Brooklyn Township PM2.5, Brooklyn Township, Susquehanna County, Pennsylvania. U.S.* Department of Health and Human Services, Atlanta, GA. (April 22, 2016).

[729] Bryce Payne, Jr., et al, *Characterization of methane plumes downwind of natural gas compressor stations in Pennsylvania and New York*, Science of the Total Environment, Vol. 580, pp. 1214–1221 (Feb. 2017).

> compressor stations, especially those closer to the station under light prevailing wind conditions.[730]

Given this recent evidence of additional pollution from natural gas transmission pipeline compressor stations, the Commission should conduct further study on the potential health impacts from the Buckingham compressor station.

[730] *Id.*

I. Risks of dangerous emissions from blowdowns.

The Commission did not have adequate information about the added potential exposure to pollutants from blowdowns. A blowdown involves concentrated release of gas from a pipeline from compressor stations or other valve sites into the air to relieve pressure for maintenance or testing. They can also be accidental. These are of particular concern because they can emit high concentrations of methane gas and other pollutants. A typical blowdown releases a thirty to sixty meter plume of gas into the air and can last as long as three hours. Because of their intensity, blowdowns can emit pipeline contents at much higher concentrations than annual emissions data suggests.[731] According to the Madison County Health Department, "people living near compressor stations report episodic strong odors as well as visible plumes during venting or blowdowns. Residents often report symptoms that they associate with odors such as burning eyes and throat, skin irritation, and headaches."[732]

In the draft EIS, the Commission indicated that blowdown emissions were included in the overall figures provided for pollution from the compressor station.[733] As with the emerging picture regarding pollution from compressor stations, the Commission needs to investigate the potential for additional pollution

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[731] New York State Madison County Health Department, *Comments to the Federal Energy Regulatory Committee concerning docket no. CP14-497-000, Dominion Transmission, Inc.* 13 (2014) https://www.madisoncounty.ny.gov/sites/default/files/publicinformation/madison_county_doh_comments_-_docket_no._cp14-497-000.pdf.

[732] *Id.* at 12.

[733] DEIS, Vol. I, at p. 4-452.

from blowdowns at the Buckingham compressor station. Without that information, it the Commission cannot conduct a reasonable health or environmental justice assessment.

J. Industrial compressor station is incompatible with the agriculture uses still relied on by the community.

Higher ozone concentrations are also detrimental to agriculture, since ozone is one of the most toxic air pollutant to crops and our natural ecosystems. [734] When plants, including trees, are exposed to ozone pollution, it reduces photosynthesis, growth, and other plant functions.[735] Many studies have found a reduction of crop yield following exposure to ozone pollution.

Appalachian Mountain Advocates has initiated a lawsuit against the Buckingham Board of Supervisors for voting to allow a special use exemption for the Atlantic Coast Pipeline Virginia compressor station.[736] This large industrial facility does not comply with Buckingham's state-required county Comprehensive Plan and is not an allowed use in this A1 Agriculture District. Permissible land uses are restricted to those related to residential or agricultural purposes. The lawsuit has been brought on behalf of a dairy farmer whose land borders the

[734] United States Department of Agriculture, Agriculture Research Service, *Effects of Ozone Air Pollution on Plants*, https://www.ars.usda.gov/southeast-area/raleigh-nc/plant-science-research/docs/climate-changeair-quality-laboratory/ozone-effects-on-plants/.

[735] Benjamin S. Felzer et al, *Impacts of Ozone on Trees and Crops*, C. R. Geoscience 339, 784-798 (2007).

[736] *Carlos Arostegui v. Buckingham Cty. Bd. of Supervisors and Atlantic Coast Pipeline, LLC*, Complaint for Declaratory Relief, Circuit Court for Buckingham County (filed Feb. 2, 2017), http://www.appalmad.org/wp-content/uploads/2017/02/2017-02-Complaint-for-Declaratory-Relief-Buckingham.pdf.

proposed pipeline on the north end and whose dairy operations would be severed by eminent domain for a pipeline easement across this property.

But the disruption to agricultural uses extends beyond this one dairy farmer who neighbors the proposed compressor station. The history of growing food crops in this area has its roots in the Monacan Indian culture that predated settlement by Europeans and African slaves. The continued agricultural use in the land behind the houses in this neighborhood also fits with the needs of low-income people to grow some of their own food. Many in this community have carried on farming traditions for generations, from growing tobacco as a cash crop to cattle, vegetable gardens, forestry, and fruit orchards today. The heritage agricultural lands most impacted by the compressor station and the pipeline belong to those of African Americans who are descendants of the Freedmen who remained on this land after the Civil War.

The Commission did not consider this disruption to agricultural land uses and those attendant environmental justice concerns in the draft EIS.

K. Electric motor-driven compressors alternative analysis is incomplete.

Atlantic's choice to use gas-fired turbines for the Buckingham compressor station introduces significant air pollution to the Union Hill community. The Commission's electric motor-driven compressors alternative analysis is not sufficient.[737] The additional load on the electric grid would be dispersed—not

[737] DEIS at 3-56.

concentrated in one community as are these turbines. Moreover, electricity for those turbines would come in part from non-emitting sources, such as solar, wind, or nuclear.

L. Alternatives analysis for Buckingham compressor station made no reference to environmental justice or demographics of alternative location.

The Commission considered and rejected one alternative location for compressor station two, approximately two miles to the southwest of the proposed Buckingham compressor station.[738] The Commission did not consider any demographic information for the area surrounding the alternative site for compressor station two. Without that information, and without any meaningful proximity analysis regarding the communities that would be most affected, the Commission did not have the information it needed to consider the environmental justice implications of the alternative site. Instead, the Commission only considered that the alternative site would "require additional pipeline and would increase the construction footprint." There is insufficient information to evaluate whether the alternative or preferred site would affect already over-burdened communities.

M. Conclusion.

Under NEPA, the identification of a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Native American tribe "should heighten agency attention to

[738] *Id.* at 3-54 to 3-56.

alternatives (including alternative sites), mitigation strategies, monitoring needs, and preferences expressed by the affected community or population."[739] The draft EIS reveals that the Commission's attention to these fundamental environmental justice concerns was absent. Given the lack of attention to appropriate data, relevant comparisons, or consideration of potential environmental health concerns of vulnerable communities, the draft EIS lacks sufficient information for the public to understand the Commission's conclusion that there are no environmental justice concerns from the construction or operation of the Atlantic Coast Pipeline.[740] The Commission needs additional information for the public to understand the many layered and interrelated environmental justice risks of this massive project.[741]

XI. NATIVE TROUT WATERS

A. Trout waters and headwater streams.

Trout streams are some of the most valuable and fragile natural features in the central Appalachian region. The Atlantic Coast Pipeline threatens to harm dozens of these waterbodies. The draft EIS fails to include any detailed analysis of the risks involved, particularly of the cumulative impacts of multiple pipeline-related

[739] CEQ, Environmental Justice NEPA Guidance, *supra* note 646, at 10.

[740] *Id*. at 14.

[741] *Id.* at 15 ("This statement [whether a disproportionately high and adverse human health or environmental impact on minority populations, low-income populations, or Indian tribe is likely to result from the proposed action] should be supported by sufficient information for the public to understand the rationale for the conclusion.").

activities and other factors within small headwater drainages. The submittals from Atlantic provide an incomplete and misleading picture of the ways the project could affect watersheds in which trout exist. The draft EIS ignores or barely addresses numerous mechanisms through which activities associated with construction and maintenance of the pipeline may damage the chemical, physical, and biological integrity of these sensitive waterbodies.

The vague and generalized plans and proposals for construction methods and pollution control measures that Atlantic and the Commission describe for use in watersheds all along the pipeline's proposed route are far from adequate to ensure protection of streams in general, and these inadequacies have even more serious implications for trout waters and other sensitive headwater streams. Neither the Commission nor the Forest Service may rely on the incomplete record so far assembled to assess impacts to trout waters or to justify conclusions in the draft EIS that damages to these streams and watersheds will be adequately mitigated.

B. The Commission fails to consider the unique regional context and conservation sensitivity of the trout streams it proposes to route the pipeline across.

The states of West Virginia and Virginia each have designated waters in which trout are known to survive or where suitable habitat for trout is known to exist. These designations are found in water quality standards regulations adopted by the states.[742] Some waters harbor reproducing populations of one or more species of

[742] W. Va. Code of State Rules §§ 47.2.1. *et seq.*; 9 Va. Admin. Code §§ 25-260-5. *et seq.*

trout, while others may support only stocked trout, which generally cannot survive year-round in the streams.

The three trout species that live in waters of this region are: the native Eastern Brook Trout (*Salvelinus fontinalis*), Rainbow Trout (*Oncorhynchus mykiss*), and Brown Trout (*Salmo trutta*). Each of these species is a valuable target for recreational fishing, providing economic benefits for communities throughout the regions along the proposed pipeline route. On the National Forests, the provision of these recreational opportunities fulfills one of the highest purposes for which public lands are to be preserved. And to have access to trout waters through private land ownership or rights is very highly valued and of significant monetary value. Importantly, the presence of healthy and sustainable trout populations is an indicator of high water quality and these species exist alongside other sensitive species that are generally intolerant of pollution and habitat degradation.

Of the three species named above, only the Eastern Brook Trout is native to the eastern U.S. and to waters in this project area. Its range has been drastically reduced, and the species is under dire threat of further decline in populations and long-term viability. In Virginia, Brook Trout have been designated a "Species of Greatest Conservation Need"[743] by the Virginia Department of Game and Inland

[743] *Special Status Faunal Species in Virginia*, Virginia Department of Game and Inland Fisheries, https://www.dgif.virginia.gov/wp-content/uploads/virginia-threatened-endangered-species.pdf (last visited Apr. 4, 2017).

Fisheries. Other resource agencies, including the Forest Service, assign high value to measures aimed at Brook Trout habitat preservation and restoration.

Due to this history of degradation and the need to preserve the very limited suitable habitat still available, enormous collaborative efforts are being made by federal and state government entities, non-profit groups, and academic institutions. One such effort is described in a publication by the Chesapeake Bay Program, which sets priorities for action and names priority watersheds throughout the Bay's drainage area.[744] Many of the trout waters along the Atlantic Coast Pipeline's proposed path are within the Chesapeake Bay drainage, making this effort directly applicable here.

The Chesapeake Bay Program's Brook Trout Outcome report explains that out of 1,443 sub-watersheds throughout the brook trout's historic range in the Bay watershed, populations were qualified to be designated "intact" in only 16% (231) of those areas.[745] As a next step, the report assigned priority ratings to the sub-watersheds, resulting in only 103 of those "intact" drainages having high values and being highlighted for preservation efforts. Of those 103 highly rated "intact" sub-watersheds for brook trout, seven lie along the pipeline's proposed path. Each would be impacted by the combination of a number of activities associated with the project.

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[744] Chesapeake Bay Program, *Brook Trout Outcome, Management Strategy: 2015-2025, v. 1.*, http://www.chesapeakebay.net/documents/22040/2d_brook_trout_6-24-15_ff_formatted.pdf (last visited Apr. 4, 2017).

[745] *Id.* at 2.

In its submittals to the Commission, Atlantic provides tables describing locations where they propose to install the pipeline through streams.[746] Reading through this table and the listing of crossings of designated trout waters, one could be misled into thinking that the pipeline would impact only a relatively small number of trout streams scattered along the construction path. To the contrary, a review of maps depicting the pipeline right-of-way and proposed access roads shows that in many cases the project poses a serious threat to dozens of trout streams.

It is imperative that the Commission and the Forest Service perform cumulative impacts analyses in such small watersheds to account for combinations of upland and instream work related to the pipeline and access roads with other factors. It should be noted that the cumulative impacts analyses for water impacts described the draft EIS all wholly inappropriate because they define the areas for review as those represented by 10-digit Hydrologic Unit Codes ("HUCs"); a scale that hides the degree to which multiple impacts of pipeline activities as well as other factors will seriously affect watersheds.

[746] Atlantic Coast Pipeline, LLC & Dominion Transmission, Inc., Supplemental Filing app. I, Res. Rep. 2, tbl. 2A-1 (Jul. 18, 2016).

The Warwick Run watershed, in which "high hazard" areas identified by the Forest Service exist, is just one example. The materials Atlantic has provided and the analyses the Commission has included in the draft EIS fail to acknowledge the likely impacts or to provide any credible support for assurances that great damage will not occur in these valuable waterbodies.

In the Warwick Run watershed, hemlock are one of the tree species that shade streams and protect them from elevated temperatures – a factor that is of great importance for trout waters. Hemlock are also extremely effective at modulating the flows of stormwater runoff, preventing damage to streams from erosion and hydrologic modifications in a watershed.

Because the hemlock wooly adelgid is causing widespread mortality of these trees throughout the region, and will almost certainly remove them from the Warwick Run watershed, these protections will be lost to Warwick Run and the tributaries that feed it. The addition of forest clearing, land disturbance, and instream habitat alterations (likely through blasting of bedrock streambeds) is certain to multiply the effects of processes already occurring on the land. The Commission has not studied these processes nor their cumulative impacts in combination with the effects of pipeline construction and operation.

C. The Commission has failed to set meaningful standards or goals for water quality impacts.

Any review of potential environmental impacts must begin with a definition of the quality standards and goals against which the data and analyses are to be

compared. Any conclusion as to the acceptability of those impacts, to be valid, must be based on a comparison of predictable environmental conditions with those defined quality parameters. In the Commission's draft EIS analysis this step is omitted. Instead, the draft EIS and the documents supposed to support that document's conclusions provide only vague and undefined promises: that discharges of sediments and pollution impacts will be "minimized," that negative impacts will be only "temporary" or "insignificant." The Commission procedures which Atlantic is commanded to follow,[747] the plans Atlantic has submitted[748] to reflect plans to comply with the Commission's procedures, and regulatory requirements by other agencies, such as the U.S. Army Corps of Engineers, all fail to include systematic analyses to provide assurance that measurable, standards of environmental quality will be met. The basic "law of the land" for protection of water quality is the Clean Water Act, and a primary tool under the Act is the adoption of state water quality standards. And while neither the Commission nor the Forest Service has primary regulatory authority under the Clean Water Act, both are bound to adhere to its requirements.[749] Therefore, the water quality

[747] The two primary documents containing water pollution protection guidelines are: FERC Office of Energy Projects, *Wetland and Waterbody Construction and Mitigation Procedures* (May 2013); and FERC Office of Energy Projects, *Upland Erosion Control, Revegetation, and Maintenance Plan* (May 2013).

[748] There are numerous documents that address these issues in the same manner. One example is: Atlantic Coast Pipeline, LLC, Supplemental Filing app. C, (Jan. 27, 2017).

[749] *See Oregon Nat'l Res. Council v. U.S. Forest Serv.*, 834 F.2d 842 (9th Cir. 1987) ("The CWA requires each state to develop and implement 'water quality' standards to protect and enhance the quality of water within the state. 33 U.S.C. § 1313. The Act also requires all federal agencies to comply with all state requirements. 33 U.S.C. § 1323.")

standards adopted by West Virginia and Virginia must be applied to this project. Additional requirements specific to the Forest Service must also be applied and should be explained in the EIS.

Both West Virginia and Virginia water quality standards for surface waters, in conformance with the minimum requirements in federal regulations, include three major components, which are designed to meet the CWA's objective, to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[750] These components of the water quality standards include: 1) designated uses, 2) narrative and numeric criteria, and 3) antidegradation provisions. In addition to these federally-mandated surface water standards, both states have adopted groundwater quality standards.

Water quality standards assign designated uses for all waters in each state. For example, Virginia's water quality standards state that "[a]ll state waters, including wetlands, are designated for the following uses: recreational uses, e.g., swimming and boating; the propagation and growth of a balanced, indigenous population of aquatic life, including game fish, which might reasonably be expected to inhabit them."[751] West Virginia standards also require support of recreational uses and maintenance of conditions suitable for aquatic life.

To support the designated use of "trout waters," a higher standard of pollution control and habitat protection is applied than in other waters. Yet the basic

[750] 33 U.S.C. § 1251(a).

[751] 9 Va. Admin. Code § 25-260-10.

methods that Atlantic proposes and the Commission deems sufficient show no recognition of this fact. The one special condition that resource agencies have suggested for trout waters is a time of year restriction on construction in streams. However, even this restriction is subject to variances by the Commission after all regulatory reviews are completed.

As applied to trout waters, narrative criteria in Virginia state water quality standards require that "State waters, including wetlands, shall be free from substances . . . in concentrations, amounts, or combinations which . . . interfere directly or indirectly with designated uses of such water or which are inimical or harmful to human, animal, plant, or aquatic life" and "[s]pecific substances to be controlled include, but are not limited to: floating debris . . . substances that produce color, tastes, turbidity, odors."[752] Numeric criteria for surface waters in both states, which may be violated by the activities proposed for this project, include those for heavy metals, temperature, pH, etc.

Antidegradation requirements for surface waters, also adopted to meet federal requirements, require, at a minimum, full support of all "existing uses." Existing uses are defined as "those uses actually being attained in or on the water, on or after November 28, 1975, regardless of the designated uses."[753] As stated in the Water Quality Standards Handook at section 4.2, even though variances to designated uses may be granted under certain circumstances, such variances may

[752] 9 Va. Admin. Code § 25-260-20.

[753] 40 C.F.R. § 131.3(e)).

be allowed only if "it can be proven . . . that water quality exceeds that necessary to fully protect the existing use(s). . . ."[754]

Proper application of antidegradation provisions in the water quality standards of the relevant state will be especially important in the trout waters that could be affected by this project. The survival of viable populations of trout is evidence of high water quality, which should be preserved. The sensitivity of these species to pollution and habitat degradation makes strict controls essential.

D. The Commission has failed to adequately assess impacts and propose effective mitigation measures.

The release of sediments to streams during excavation and installation of pipe in streams and in runoff from activities up-slope from the waterbodies is a major risk to trout waters. The Commission has published documents titled "Wetland and Waterbody Construction and Mitigation Procedures" and "Upland Erosion Control, Revegetation, and Maintenance Plan." The documents give general descriptions of the types of construction methods the Commission suggests and of measures designed to lessen environmental impacts. Implicit in these documents is the idea that the standard "best management practices" are adequate or capable of ensuring compliance with water quality standards, including antidegradation - but this assumption is not supported by the scientific literature.

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[754] *Water Quality Standards Handbook, Chapter 4: Antidegradation*, United States Environmental Protection Agency No. EPA-823-B-12-002 at 4 (2012), https://www.epa.gov/sites/production/files/2014-10/documents/handbook-chapter4.pdf (last visited Apr. 4, 2017).

Assertions that open cut stream crossings can be completed, without unacceptable impacts to water quality, are poorly supported. There is abundant evidence in the scientific literature demonstrating that the types of pollution control practices allowed by the Commission and included in Atlantic's proposals will cause unacceptable impacts to streams.

One such reference, prepared for the Interstate Natural Gas Association of America, indicates that aquatic life impairment will persist for extended periods. That document explains that effects of in-stream pipeline construction on downstream waters are "typically short-term and recovery to pre-construction conditions is generally apparent within a year."[755] Asserting that impacts will "generally" abate within one year carries the obvious implication that effects will last longer in some cases. Further, there is no basis in the water quality standards for allowing impairment of aquatic life uses for up to a year or more in any state waters.

The Interstate Natural Gas Association of America Report's finding that some impacts to aquatic life and to instream habitats will persist for extended periods is well supported by numerous technical studies. For example, Reid et al. 2002 note that "[s]ediment load increases during construction have been reported to directly and/or indirectly affect fish through modification of their habitats (e.g., increased embeddedness of substrates or infilling of pools)," describing those impacts as

[755] Interstate Natural Gas Association of America, *River and Stream Crossings Study, (Phase I)*, Executive Summary.

"temporary" because pre-construction conditions will be restored within "1 to 2 years."[756]

There is no justification in the water quality standards for allowing impairment of aquatic life uses for years or even months. The required "[b]alanced indigenous aquatic community" must be able to survive and adjust to changing conditions in addition to those imposed by the pipeline. During those years when biota are recovering from the damages done by in-stream pipeline construction, associated sediment discharges, and habitat degradation, other natural and/or human-caused stressors can be predicted to occur. Events such as droughts or extreme flood events, changes in runoff patterns from residential, industrial, or commercial developments in the same watershed (or from upland construction on the pipeline itself), and contributions of point source and non-point source pollutants are virtually certain to occur. Thus, impairments from which the stream biota might recover in the absence of other disruptions are likely to have impacts that persist for much longer periods than predicted by the above-cited researchers. These impacts may even lead to cascading effects due to changes in food web structure, nutrient cycling aided by organisms, and numerous other mechanisms.

In its plans to comply with the Commission's guidelines for upland erosion and sediment controls, Atlantic has submitted a number of documents to the

[756] Reid, Scott M., Scott Stoklosar, Serge Metikosh, and Jim Evans, Effectiveness of Isolated Pipeline Crossing Techniques to Mitigate Sediment Impacts on Brook Trout Streams, Water Qual. Res. J. Canada, Volume 37, No. 2, 2002, at 473 (internal citation omitted).

Commission, the Forest Service, and to the water quality agencies in Virginia and West Virginia. In every case, those submittals provide a menu of best management practices from which Atlantic may choose in various situations encountered during pipeline construction.

This approach is not acceptable and must not be approved by the Commission or the Forest Service. Only by reviewing site-specific information about the conditions that exist in the different areas where best management practices will be needed (*e.g.*, soil types and depths, slopes, etc.) can one devise runoff and erosion prevention measures such that the concentrations and amounts of sediments or other pollutants that will enter the stream are known. Without undertaking such analyses, one cannot assert that water quality standards will be met.

The range of variability in effectiveness at removing solids or turbidity in runoff water for common best management practices is enormous and, in some contexts, certain measures will be useless. For example, silt fences or other barriers, such as the Commission recommends for treating runoff water, simply will not remove the extremely fine solids that are present in soils with heavy clay components. Likewise, measures to slow the rate of stormwater runoff that can be effective in some circumstances will be useless in very steep terrain. These steep watersheds are exactly the habitats that wild trout are likely to inhabit.

E. Conclusion

The Commission has failed to provide meaningful analysis of the impacts of construction of the Atlantic Coast Pipeline. The Commission has also failed to present potential mitigation measures that will effectively mitigate the harms expected to be done to trout and trout waters along the pipeline corridor.

XII. CUMULATIVE IMPACTS

A. The draft EIS fails to take a hard look at cumulative impacts, including those impacts associated with gas development.

In addition to considering the direct and indirect effects of the project, the Commission must also consider cumulative impacts. A cumulative impact is the

> [I]mpact 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.[757]

Cumulative impact analyses that contain "cursory statements" and "conclusory terms" are insufficient.[758] The Commission's cumulative impact analysis for the Atlantic Coast Pipeline is insufficient because it is needlessly and impermissibly restrictive in terms of both time and geography and relies on cursory statements

[757] 40 C.F.R. § 1508.7.

[758] *See Delaware Riverkeeper Network v. F.E.R.C.*, 753 F.3d 1304, 1319-20 (D.C. Cir. 2014); *see also Nat. Res. Def. Council v. Hodel*, 865 F.2d 288, 298 (D.C. Cir. 1988) (although "FEIS contains sections headed 'Cumulative Impacts,' in truth, nothing in the FEIS provides the requisite analysis," which, at best, contained only "conclusory remarks").

and conclusory terms that understate impacts to numerous environmental resources.

B. The Commission's analysis of cumulative impacts is impermissibly restrictive and not based on natural ecological boundaries.

The Commission's cumulative impacts analysis is flawed because it unreasonably restricts the analysis area to the vicinity of the Atlantic Coast Pipeline and the Supply Header Project facilities.[759] For example, the Commission used HUC10 sub-watersheds as the analysis area for water resources and wetlands, vegetation, wildlife, fisheries and aquatic resources, and special status species.[760] While it may make sense to consider impacts on water resources and fisheries at the HUC10 sub-watershed level, the Commission fails to explain why this geographic scope is appropriate for vegetation, wildlife, and special status species. Moreover, consideration of cumulative impacts on water resources at the HUC10 sub-watershed level may be necessary but not sufficient. The Commission should have broadened the scope to consider cumulative impacts on water resources, wetlands, and fisheries. The Commission also should have selected analysis areas for vegetation, wildlife, and special status species that were rationally connected to those particular resource areas.[761]

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[759] *See* DEIS at 4-485.

[760] *See id.*

[761] It is also important to note that FERC only considered cumulative impacts to "land use and special interest areas" within the "[s]ame construction footprint as the projects." DEIS at 4-485. This is a departure from how FERC considered cumulative impacts to

CEQ's guidance on cumulative impacts recommends significantly expanding the cumulative impacts analysis area beyond the "immediate area of the proposed action" that is often used for the "project-specific analysis" related to direct and indirect effects:

> For a project-specific analysis, it is often sufficient to analyze effects within the immediate area of the proposed action. When analyzing the contribution of this proposed action to cumulative effects, however, the geographic boundaries of the analysis *almost always should be expanded*. These expanded boundaries can be thought of as differences in hierarchy or scale. Project-specific analyses are usually conducted on the scale of counties, forest management units, or installation boundaries, *whereas cumulative effects analysis should be conducted on the scale of human communities, landscapes, watersheds, or airsheds*.[762]

CEQ further says that it may be necessary to look at cumulative effects at the "ecosystem" level for vegetative resources and resident wildlife, the "total range of affected population units" for migratory wildlife, and an entire "state" or "region" for land use.[763]

Likewise, EPA guidance on cumulative impacts states that "[s]patial and temporal boundaries should not be overly restrictive in cumulative impact analysis."[764] EPA specifically cautions agencies to not "limit the scope of their

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these resources in other recent EISs. *See e.g.*, Mountain Valley Pipeline DEIS at 4-476 (Docket No. CP16-10).

[762] CEQ, Considering Cumulative Effects under the National Environmental Policy Act, p. 12 (1997) (emphasis added).

[763] *Id*. at 15.

[764] EPA, Consideration of Cumulative Impacts in EPA Review of NEPA Documents, p. 8 (1999).

analyses to those areas over which they have direct authority or to the boundary of the relevant management area or project area."[765] Rather, agencies "should delineate appropriate geographic areas including *natural ecological boundaries*" such as ecoregions or watersheds.[766]

Simply put, there is no rational relationship between HUC10 sub-watersheds and impacts to vegetation and wildlife, including non-aquatic special status species. Nor are HUC10 sub-watersheds sufficient to capture the cumulative impacts of other past, present, and reasonably foreseeable actions on water resources and wetlands. Therefore, the Commission must revise the draft EIS to include a broadened cumulative impacts analysis with these considerations in mind.

C. The Commission's reliance on current environmental conditions as a proxy for the impacts of past actions is improper.

According to the Commission, "agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions."[767] Thus, the Commission "relies on current environmental conditions as a proxy for the impacts of past actions."[768] While courts afford some discretion on this point, "an

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[765] *Id*.

[766] *Id*. (emphasis added).

[767] DEIS at 4-488 (quoting Memorandum from James L. Connaughton, Chairman, CEQ, to Heads of Federal Agencies (June 24, 2005)).

[768] *Id*.

agency must not consider the environmental effects of a proposal in a vacuum but must explain them in light of the present effects of past actions."[769] Otherwise, an agency may ignore the fact that "numerous small environmental impacts will accumulate and result in a more serious overall effect over time."[770] Contrary to that approach, the Commission conducted its analysis of past actions in a vacuum with little to no explanation about the "present effects of past actions."

For example, after a brief chronology of "human activities" that have occurred in the region of influence over the last 15,000 years, the Commission concludes that, "[a]lthough the region has been substantially affected by human activity, natural resources remain."[771] The Commission then notes that there are approximately 830,000 acres of wetlands in the HUC-10 watersheds crossed by the Atlantic Coast Pipeline and the Supply Header Project and over 4.3 million acres of upland forest in these same watersheds.[772] At no point does the Commission actually discuss the present effects of past actions in the context of the Atlantic Coast Pipeline and the Supply Header Project, such as how many acres of wetlands or upland forest have been previously impacted by human activity.

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[769] *Habitat Education Center v. U.S. Forest Service*, 593 F.Supp.2d 1019, 1032 (E.D. Wis., 2009).

[770] *Id*.

[771] DEIS at 4-488.

[772] *Id*.

The Commission claims that it "consider[ed] the impacts of past projects within the resource-specific geographic scopes" as part of the direct and indirect effects analysis.[773] A review of various parts of the draft EIS indicates that is not the case. For example, in the section on surface water resources (Section 4.3.2), there is no consideration of the present effects of past actions on surface waters. In the section on wetlands (Section 4.3.3), the Commission notes that "Pennsylvania, West Virginia, Virginia, and North Carolina have approximately 573,000, 80,000, 3.59 million, and 7.23 million acres of wetlands, respectively."[774] Simply stating the extent of existing resources does nothing to inform decisionmakers or the public about how we arrived at this point or how impacts to wetlands, streams, and forests from past human activity have affected wildlife, water quality, or other related resources. The mere compilation of statistical data regarding current resources does not satisfy the Commission's duty to consider the cumulative impacts of past actions.[775]

The Commission's failure to consider the cumulative impacts of past actions provides an incomplete and inaccurate environmental baseline that skewed the Commission's analysis. As a result, the Commission cumulative impacts analysis is insufficient and must be revised to properly account for the cumulative impacts

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[773] *Id*.

[774] *Id*. at 4-116.

[775] *See Kentucky Riverkeeper, Inc. v. Rowlette*, 714 F.3d 402, 408-09 (6th Cir. 2013) (agency's compilation of statistical surveys regarding available aquatic resources insufficient because it did not discuss the impact of prior actions).

of past actions, particularly those associated with shale gas development. These failures, in addition to the Commission's failure to adequately consider reasonably foreseeable future actions, are discussed in more detail in the following sections.

D. Water resources and wetlands.

The Commission claims that "[c]onstruction of ACP [Atlantic Coast Pipeline] and SHP [Supply Header Project] would result in temporary or short-term impacts on surface water resources (see section 4.3.2), as well as some minor long-term impacts such as loss of forested cover in the watershed and partial loss of riparian vegetation."[776] The Commission then claims that because other projects within watersheds crossed by the Atlantic Coast Pipeline and the Supply Header Project "would likely be required to install and maintain BMPs similar to those proposed by the ACP [Atlantic Coast Pipeline] and SHP [Supply Header Project]. . . most of the [cumulative] impacts on waterbodies are expected to also be of short duration."[777] "Consequently," says the Commission, "the cumulative effect on surface waterbody resources would be temporary and minor."[778] Such vague assertions do not satisfy the "hard look" requirement for considering the cumulative impacts of the projects on watersheds for multiple reasons.

For instance, the Commission offers no support for its presumption that activities within the watersheds affected by the Atlantic Coast Pipeline and the

[776] DEIS at 4-498.

[777] *Id.*

[778] *Id.*

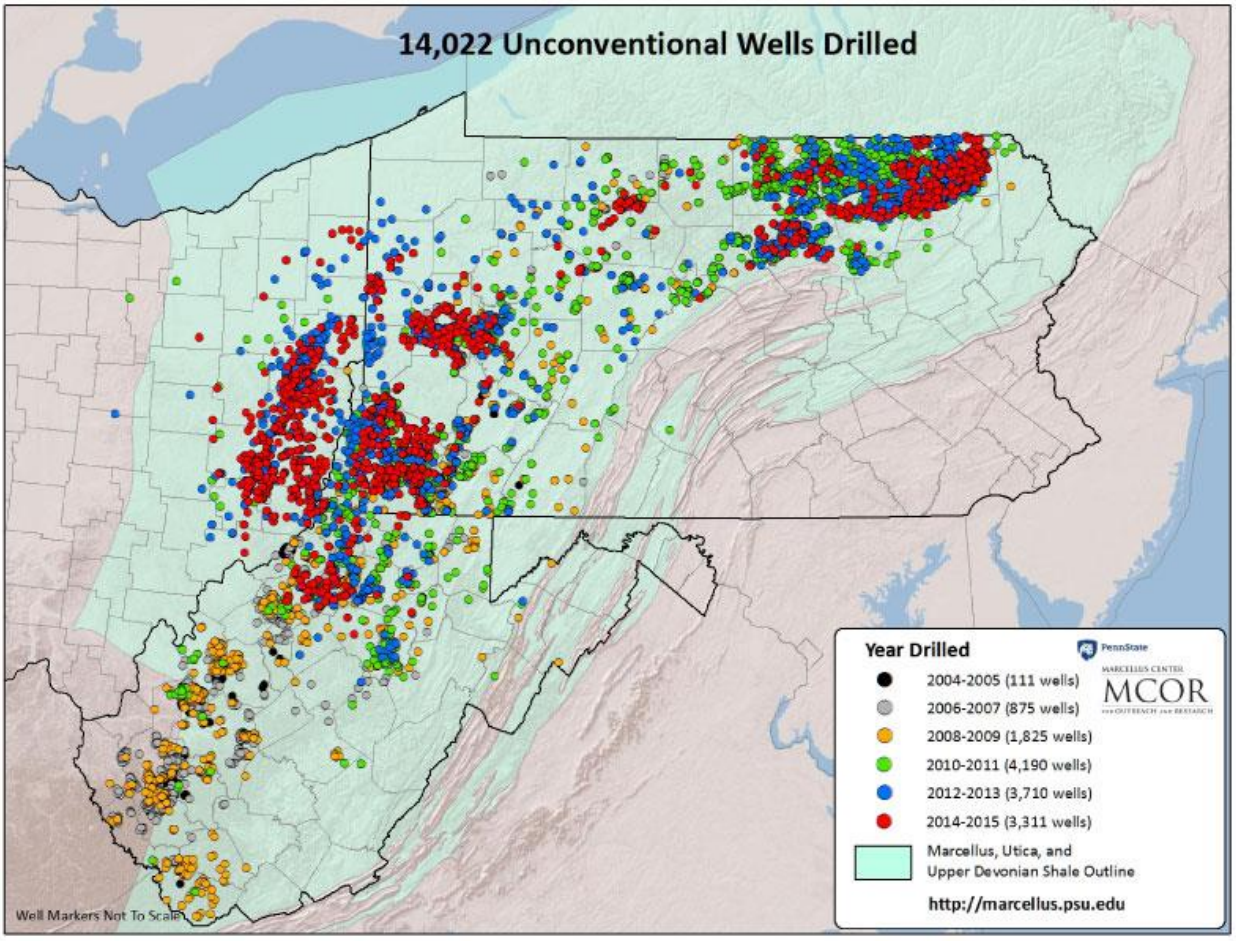
Supply Header Project would be subject to BMPs that would minimize impacts. Many activities, such as livestock grazing, that could occur within those watersheds and that would have similar sedimentation and other water quality impacts to the Atlantic Coast Pipeline and the Supply Header Project, are not subject to mandatory BMPs and can have long-term, significant impacts.[779] Additionally, as explained in more detail elsewhere in these comments, neither the Commission nor the applicants have demonstrated that the BMPs proposed by Atlantic Coast, to the extent that they have been disclosed, will in fact reduce sedimentation and other water quality impacts to short-term, insignificant levels.

The analysis in the draft EIS is further flawed because the Commission failed to consider the cumulative impacts of shale gas development. This is a critical failure because a large portion of the shale gas development that has occurred over the last decade has been in northern West Virginia and southwestern Pennsylvania,

[779] *See, e.g.*, Osmond *et al.*, *Grazing Practices: A Review of the Literature*, Technical Bulletin 325-W, April 2007, North Carolina Agricultural Research Service, North Carolina State University at 21, https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_046597.pdf ("Grazing in a pasture located near a stream can lead to cover destruction and trampling of banks. This provides sediment, associated nutrients, and bacteria with a direct route to the stream. Depending on stream morphology, livestock with direct access to a stream channel can disturb the channel bottom sediment, increasing downstream sedimentation and turbidity, smothering stream bottom life, and increasing the frequency of cleanout. Uncontrolled access is often associated with defecation and urination into streams, which can reduce dissolved oxygen levels and impair fish habitat (Doran et al., 1981).")

an area that substantially overlaps with the Atlantic Coast Pipeline and the Supply Header Project.[780]

Figure XII(a). Unconventional Wells Drilled in Ohio, Pennsylvania, and West Virginia (2004-2015).[781]



The Commission claims that although it "[was] able to estimate the amount of land that would be disturbed" by shale gas development, because it does not know the precise classification of the land affected by shale gas development, "it [was]

[780] *Compare* Fig. XII(a) (below) *with* DEIS Fig. 1-1.

[781] *See* Penn State, Marcellus Center for Outreach & Research, http://www.marcellus.psu.edu/images/tristate-Spud-Map-2014-2015---201512.jpg.

only possible to speak in general terms about the cumulative effects on specific resources."[782] That "general" discussion, however, comprises a meager six sentences that take up less than one-third of one page in a 742-page draft EIS.[783] In light of the wealth of available information detailing the impacts of shale gas drilling on the region's environmental resources,[784] such a cursory analysis does not satisfy NEPA's "hard look" requirement.

This cursory analysis is further complicated by the fact that the Commission failed to consider shale gas development as an indirect effect of the Atlantic Coast Pipeline and the Supply Header Project.[785] The Commission's rationale for not considering shale gas development as an indirect effect is that projects like the Atlantic Coast Pipeline and the Supply Header Project allegedly will not "lead to additional drilling and production."[786] According to the Commission, "the opposite causal relationship is more likely; i.e., once production begins in an area, shippers or end users will support the development of a pipeline to move the natural gas to markets."[787] If that is the case, that should have prompted the Commission to consider, at a minimum, the cumulative impacts of past and

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[782] *Id*.

[783] *Id*.

[784] *See, e.g.*, Hayes and Shonkoff, *Toward an Understanding of the Environmental and Public Health Impacts of Unconventional Natural Gas Development: A Categorical Assessment of the Peer-Reviewed Scientific Literature, 2009-2015*, PLOS One, April 20, 2016, http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0154164.

[785] *See* DEIS at 1-20.

[786] *Id*.

[787] *Id*.

present shale gas development. While the Commission tries to assure the reader that the impacts of shale gas development are "considered in the context of potential cumulative impacts,"[788] it simply directs the reader to section 4.13, which, as explained above, is devoid of any in-depth discussion of shale gas development. In other words, despite the fact that the Atlantic Coast Pipeline and the Supply Header Project are designed to transport shale gas from the Marcellus and Utica shale formations, the Commission ignores entirely the impacts of shale gas development.

As Figure XII(a) shows, the natural gas production areas of West Virginia to which the Atlantic Coast Pipeline would extend is a large area, well beyond the HUC10 sub-watershed boundary that the Commission used in the cumulative impacts analysis. Moreover, this production area extends well into Pennsylvania where the related Supply Header Project is located. The Commission, however, did not include *any* oil and gas wells in the two HUC 10 sub-watersheds used in the draft EIS. As Figure XII(a) shows, this is a significant omission in light of the large number of unconventional wells that have been drilled in this part of Pennsylvania in recent years.

Regarding wetlands, the Commission states that at least "232 acres of forested wetlands would be converted to emergent and scrub-shrub conditions, representing a permanent impact on wetland function."[789] The Commission further states that

[788] *Id*.

[789] DEIS at 4-498.

other jurisdictional projects within HUC10 watersheds "would permanently affect an estimated total of about 102 acres of wetlands."[790] However, the Commission claims that it was "unable to find quantitative data for the extent of impacts to wetlands from non-FERC regulated projects[.]"[791] The Commission provides no explanation as to why such data is not available other than stating that it unable to find it. Even if the Commission is unable to precisely quantify such future wetlands impacts, NEPA requires it to estimate and disclose those impacts. The Commission's failure to do so is significant because impacts to wetlands within HUC10 watersheds caused by non-Commission regulated projects, such as shale gas development, are likely much higher than the 334 acres permanently impacted by the Atlantic Coast Pipeline, the Supply Header Project, and other jurisdictional projects. Thus, by refusing to consider the impacts of recent shale gas development, the Commission presented a skewed baseline for assessing impacts on wetlands.

E. Vegetation and wildlife.

The Commission failed to take a hard look at the cumulative impacts of shale gas development on vegetation. While the Commission acknowledges that oil and gas development "would . . . result in cumulative impacts on vegetation[,]" instead of assessing those impacts, the Commission simply states that they would be

[790] *Id.*

[791] *Id.*

minimized by mitigation measures.[792] The Commission's approach is flawed for multiple reasons.

The Commission has an independent duty to review the environmental and human health impacts of the Atlantic Coast Pipeline and the Supply Header Project and cannot simply rely on the regulatory efforts of other agencies.[793] The issuance of a permit means that a polluting source has met a "minimum condition"; it does not establish that a project will have no significant impact under NEPA.[794] The fact that shale gas development will be subject to state permitting is in an improper basis for concluding, under NEPA, that the project will be mitigated such that it relieves the Commission of its obligation to consider those impacts in the context of the Atlantic Coast Pipeline and the Supply Header Project.

Second, as explained above, the Commission refused to consider substantial shale gas development that has already occurred in West Virginia and

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[792] *Id*.

[793] *See, e.g.*, *Idaho v. Interstate Commerce Comm'n*, 35 F.3d 585, 595-96 (D.C. Cir. 1994) (agency fails to take a "hard look" when it "defers to the scrutiny of others"); *North Carolina v. Fed. Aviation Admin.*, 957 F.2d 1125, 1129-30 (4th Cir. 1992) "[NEPA] precludes an agency from avoiding the Act's requirements by simply relying on another agency's conclusions about a federal action's impact on the environment."

[794] *Calvert Cliff's Coordinating Comm. v. U.S. Atomic Energy Comm'n*, 449 F.2d 1109, 1123 (D.C. Cir. 1971); *WildEarth Guardians v. U.S. Office of Surface Mining, Reclamation & Enf't*, 104 F. Supp. 3d 1208, 1227-28 (D. Colo. 2015) (rejecting argument that coal mine's compliance with the Clean Air Act exempts mine from review for significant impacts to the environment under NEPA because "[i]t is the duty of OSM [Office of Surface Mining] to determine where a mining plan modification would contribute to such an effect, whether or not the mine is otherwise in compliance with the Clean Air Act's emissions standards.").

Pennsylvania. A cumulative impacts analysis that properly considered these past and present impacts would provide insight as to whether the mitigation the Commission refers to is indeed "minimizing the degree and duration of the impacts of these projects."[795] Indeed, the available evidence demonstrates that such measures are not adequate, given that a recent literature review of nearly 700 peer-reviewed scientific studies of the health and environmental impacts of shale gas development found that "84% of public health studies contain findings that indicate public health hazards, elevated risks, or adverse health outcomes; 69% of water quality studies contain findings that indicate potential, positive association, or actual incidence of water contamination; and 87% of air quality studies contain findings that indicate elevated air pollutant emissions and/or atmospheric concentrations."[796] The Commission cannot relieve itself of its obligations under NEPA to assess the impacts of shale gas development by relying on regulatory controls it presumes are imposed and enforced by other agencies, particularly when the available evidence overwhelmingly shows that such controls are not adequate to prevent substantial adverse environmental impacts.

These inadequacies continue in the cumulative impacts analysis on wildlife.[797] Regarding forest-dwelling wildlife, the Commission acknowledges that these

[795] DEIS at 4-499.

[796] Hayes and Shonkoff, *supra* note XX.

[797] *See* DEIS at 4-500 – 4-501 (noting that FERC used vegetation as a "generalized proxy for wildlife habitat").

species would be impacted more than open-habitat species.[798] The Commission continues, however, that "[g]iven the large amount of wildlife habitat that would remain undisturbed within the geographic scope," and the mitigation measures utilized by Atlantic and DTI, "the ACP [Atlantic Coast Pipeline] and SHP [Supply Header Project], combined with the other identified projects, would not have a significant cumulative impact on wildlife."[799] The Commission makes similar conclusory statements regarding aquatic species and threatened and endangered species.[800]

The Commission's dismissive conclusions ignore the landscape level effects that have occurred and are likely to continue to occur from rampant shale gas well and pipeline infrastructure development. As the Supreme Court of Pennsylvania has recognized, Marcellus Shale development will inevitably impact the human and natural environments.[801] Such impacts will be as serious and extensive as the impacts of coal extraction.[802] It is critical that the Commission consider the detrimental effects of shale gas well and pipeline infrastructure developments on a much broader level than it used in the draft EIS. Various activities associated with shale gas extraction, from road and pipeline construction, to well pad development, to constructing and operating compressor stations, detrimentally

[798] *Id*. at 4-500.

[799] *Id*. at 4-501.

[800] *Id*. at 4-501 – 4-503.

[801] *Robinson Twp. v. Commonwealth of Pennsylvania*, 83 A.3d 901, 976 (Pa. 2013).

[802] *Id.*

affect terrestrial and aquatic ecosystems.[803] Together, these activities have significant adverse effects on wildlife, habitat, and aquatic life.[804]

Shale gas development alters the actual landscape as land is cleared for well pad development, access roads, the pipeline route, and compressor stations.[805] Land clearing harms habitats not only by reducing available habitat, but also by fragmenting habitats and landscape.[806] Fragmentation is a direct result of shale gas development; roads and pipelines cutting through habitats create smaller, isolated ecosystems.[807] Such fragmentation is one of the most pervasive threats to native ecosystems.[808] This impact must be considered, as it has a greater effect than well pad development alone. For example, in Bradford County, Pennsylvania, pipeline rights-of-way and access roads fragmented forests, resulting in smaller forest patches and a loss of core forest at twice the rate of overall forest loss.[809] The new forest edges created by the pipeline rights-of way and access roads change movement patterns, species interactions, and even species abundance.[810]

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[803] Brittingham, M.C., et al., Ecological Risks of Shale Oil and Gas Development to Wildlife, Aquatic Resources and their Habitats, Environmental Science & Technology, pp. 11035-11037 (Sept. 4, 2014) (citations omitted), included as **Attachment 47**.

[804] *Id.*

[805] *Id*. at 11037 (citations omitted).

[806] *Id*.

[807] *Id.*

[808] *Id*.

[809] *Id*. (citation omitted). Core forest is defined as forest > 100 m from an edge.

[810] Effect on abundance "depend[s] on whether the corridor is perceived as a barrier or territory boundary or used as an avenue for travel and invasion into habitats previously inaccessible." *Id*. (citations omitted).

According to the New York Department of Environmental Conservation, it takes over 3300 one-way trips for trucks to develop one horizontal well.[811] The impact on wildlife that correlates with these truck trips alone includes direct mortality to animals, changes in animal behavior, and increased human access to habitats.[812] Indeed, these impacts persist after well development, where pipelines and access roads allow people and recreational vehicle access, resulting in even more disturbance.[813] For example, one study in the state of Wyoming found that the migratory behavior of mule deer was influenced by disturbance associated with coal bed gas development; particularly, the deer's movement rates increased, they detoured from established routes, and their use of the habitat along migration routes diminished as well pad and road density increased.[814]

Noise from shale gas development, both short- and long-term, is another impact that the Commission must consider.[815] Short-term noise increases are caused by site clearing, well drilling, high volume hydraulic fracturing, and pipeline and infrastructure construction.[816] These disturbances are comparable to land clearing and construction associated with building a new home.[817] The long-term effects, on the other hand, can persist for a few months or multiple years

[811] *Id*. at 11038 (citation omitted).

[812] *Id*. (citations omitted).

[813] *Id*.

[814] *Id*. (citation omitted).

[815] *Id*.

[816] *Id.*

[817] *Id*. (citation omitted).

depending on the extent of development.[818] Compressor stations are one notable cause of long-term noise disturbances. Due to the adverse impacts chronic noise has been shown to have on wildlife, compressor stations potentially affect habitat quality well beyond the construction period.[819]

"For many species of wildlife, sound is important for communication, and noise from compressors can affect this process through acoustical masking and reduced transmission distances."[820] Studies have shown that songbirds will avoid habitats with noise disturbance. In addition, noise disturbance changes reproductive behavior and success, reduces pairing success, and changes predator-prey interactions.[821] For example, the greater sage-grouse demonstrated decreased attendance at "leks," where males gather and display to attract females, in areas with long-term noise disturbances from natural gas development.[822] Experimentally, sage-grouse that were exposed to noise demonstrated higher levels of stress.[823]

Shale gas development in Appalachia impacts a variety of forest species due to the overlap in gas-rich areas and core forest habitat.[824] Area-sensitive songbirds, which are an important component to forest ecosystems, are particularly

[818] *Id*.

[819] *Id*. (citation omitted).

[820] *Id*.

[821] *Id.*

[822] *Id*.

[823] *Id*. (citations omitted).

[824] *Id*. at 11040.

vulnerable to forest fragmentation.[825] These birds are area-sensitive because breeding success and abundance are highest in large sections of contiguous forest. Numerous studies have documented fragmentation negatively affecting abundance and productivity of these songbirds.[826] An estimated 10% of the potential shale gas has been developed in the Appalachian Basin. Relying on those estimates, development could increase ten-fold. The correlating impacts if the remaining 90% of gas is developed are great, especially on species such as songbirds and other core-forest wildlife whose survival depends on vast sections of undisturbed forest.[827]

Native brook trout, likewise, are experiencing habitat loss due to shale development.[828] Similar to songbirds, brook trout populations are vulnerable to fragmentation; if remaining reaches of high-quality streams become unsuitable for brook trout, their population is put at particular risk because of the stream reach fragmentation.[829] "Rare species with limited ranges are always a concern when development occurs."[830] Limited range and vulnerability to fragmentation means that any type of disturbance has a pronounced effect on these species.[831]

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[825] *Id*. (citations omitted).

[826] *Id*.

[827] *Id*. (citation omitted).

[828] *Id*. (citation omitted).

[829] *Id*.

[830] *Id.*

[831] *Id.*

Many other species groups are adversely affected by shale gas development. The entire taxonomic group of freshwater mussels is another group of particular interest because it already has a high number of listed species, and is generally sensitive to degraded water quality.[832] Likewise, the native range of the endangered Indiana Bat largely falls within areas of shale development.[833] The West Virginia spring salamander's natural habitat range overlaps 100% with the Marcellus and Utica shale layers.[834] This salamander, which is on the IUCN Red List as endangered, depends upon high-quality water and, like the brook trout, is sensitive to fragmentation.[835] Again, this sensitivity puts the spring salamander at great risk from shale gas development. In addition, there are eight Plethodontid salamanders whose habitat overlaps with shale gas deposits at least 35%. These salamanders are similarly vulnerable because of the overlap between their habitats and the shale layers, their dependence on moist environments, and their sensitivity to any disturbance.[836]

Existing threats from shale gas development, such as habitat fragmentation, deterioration of water quality and quantity, and other, cumulative effects can only be expected to increase as shale gas development continues to expand.[837]

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[832] *Id.* (citation omitted).

[833] *Id*. (citation omitted).

[834] *Id*.

[835] *Id*.

[836] *Id*. at 11040-11041.

[837] *Id*. at 11043.

According to Brittingham et al., the species most at risk from shale development are those whose native range and habitat that overlap extensively with known shale gas reserves *and* are particularly vulnerable because of their limited range, small population, specialized habitat requirements, and sensitivity to any disturbance.[838] The species and habitats at risk for those reasons include "core forest habitat and forest specialists, sagebrush habitat and specialists, vernal pond inhabitants, and stream biota."[839]

Brittingham et al. (2014) demonstrates the substantial impact that shale gas drilling is having and will continue to have on wildlife throughout the Marcellus and Utica shale region. Such impacts will only worsen if the Commission continues facilitating such drilling by authorizing infrastructure projects such as the one proposed here without analyzing the cumulative impacts on wildlife, disclosing that information to the public, and incorporating it into the Commission's decisionmaking process.

According to Souther et al. (2014):

> The few studies that consider cumulative impacts suggest that shale-gas development will affect ecosystems on a broad scale . . . As cumulative impacts' methodology and knowledge improve, research should move toward detecting synergies between shale development and other likely drivers of extinction, such as climate change, as site-

[838] *Id.*

[839] *Id.*

> specific or single variable risk assessments likely underestimate threats to ecological health.[840]

It follows that the cumulative impacts of shale development are among the "top research priorities" for likely events to contaminate freshwater.[841]

The U.S. Fish and Wildlife Service recently expressed concerns about the potential noise impacts of National Fuel's Tuscarora Lateral Project on wildlife.[842] In particular, the Fish and Wildlife Service wanted to see data and analysis for how noise levels from the increase in horsepower at one compressor station and construction of a new compressor station would affect wildlife, and what National Fuel planned on doing to mitigate excessive noise levels.[843] The Fish and Wildlife Service recognized that noise levels from the compressor stations could have a detrimental effect on the surrounding songbirds that rely on call identification for successful breeding.[844] While these comments were specific to the Tuscarora Lateral Project, the same rationale applies for other projects as well, such as the ones at issue here where Atlantic is constructing three new compressor stations.[845]

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[840] Souther et al. (2014), Biotic impacts of energy development from shale: research priorities and knowledge gaps. Frontiers in Ecology and the Environment 12(6): 334, included as **Attachment 48.**

[841] *Id*. at 337.

[842] U.S. Fish and Wildlife Service January 27, 2015 Letter to FERC (Docket CP14-112-000, eLibrary No. 20150202-0104).

[843] *Id.*

[844] *Id.*

[845] *See* DEIS at 2-7.

The Commission acknowledges that the proposed "compressor stations would generate noise on a continuous basis once in operation."[846] The Commission also acknowledges that declines in bird populations and reproductive success have been documented near oil and gas infrastructure.[847] Nevertheless, the Commission concludes that after construction of the projects is complete, "birds and other wildlife would either become habituated to the operational noise associated with compressor station facilities or move into similar available habitat farther from the noise source."[848] The Commission's conclusion is flawed for multiple reasons.

First, the Commission does not identify where the "similar available habitat" is if species are unable to habituate to the operational noise. As Figure XII(a) above shows, the landscape in West Virginia and Pennsylvania is becoming increasingly fragmented from shale gas development. The noise associated with that development in conjunction with more compressor stations means that the "similar habitat" that the Commission refers to may not be as available as it assumes.

Second, of the numerous types of wildlife that would be impacted by increased noise, only impacts to birds were discussed in any detail. There is no discussion in this section regarding noise impacts on "other wildlife." Thus, it was inappropriate for the Commission to extend its conclusion about "birds" to "other wildlife."

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[846] *Id.* at 4-167.

[847] *Id.*

[848] *Id.* at 4-168.

The failure to look at noise impacts on other wildlife species is problematic because it is likely that the dramatic increase in shale gas well and pipeline infrastructure development has already disrupted wildlife populations. For example, in 2012, the New York Department of Environmental Conservation ("NYDEC") revised its "Bobcat Management Plan" because:

> Observations by hunters and trappers, and reports from the general public suggest that bobcat populations are increasing and expanding throughout New York State outside of their historic core range in the Taconic, Catskill, and Adirondack mountains and into central and western New York. *In addition, emigration of bobcats from Pennsylvania has likely fostered growth of the bobcat population in the southern tier of the state* (Matt Lovallo, Pennsylvania Game Commission, personal communication).[849]

The plan further stated:

> The presence of bobcat in New York's Southern Tier has *increased dramatically* over the past decade. What began as occasional sightings along the New York/Pennsylvania border has progressed to large numbers of observations, trail camera photos, and incidental captures and releases by trappers. *Over the past five years* there have been 332 bobcat observations documented in the harvest expansion area[.][850]

The following figure, showing the number confirmed bobcat observations in New York from 2006-2011, reveals a concentration of observations along the Pennsylvania border:

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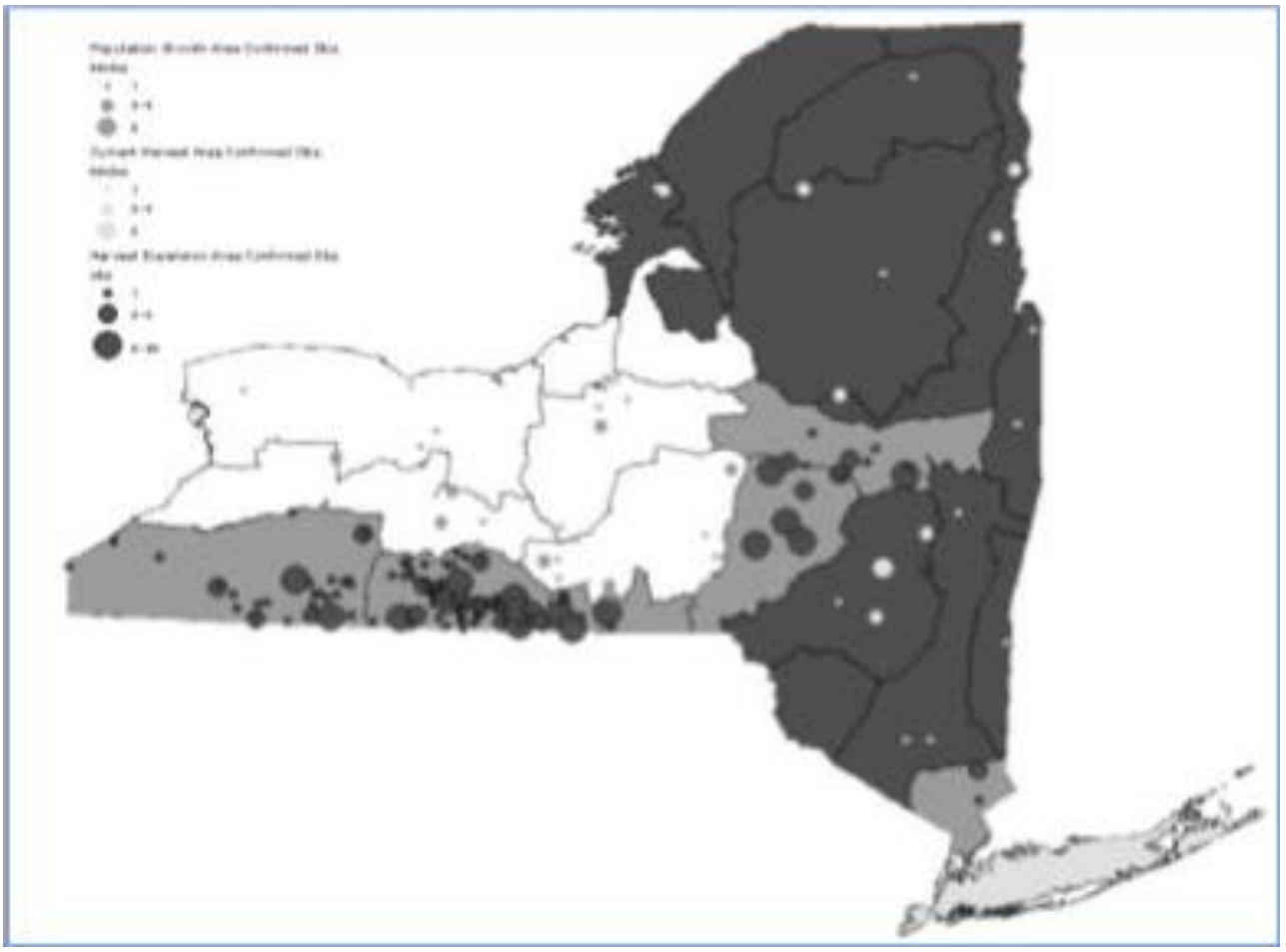
[849] New York Department of Environmental Conservation. Management Plan for Bobcat in New York State 2012-2017 8 (2012) (emphasis added), http://www.dec.ny.gov/docs/wildlife_pdf/finalbmp2012.pdf.

[850] *Id*. at 17 (emphasis added).

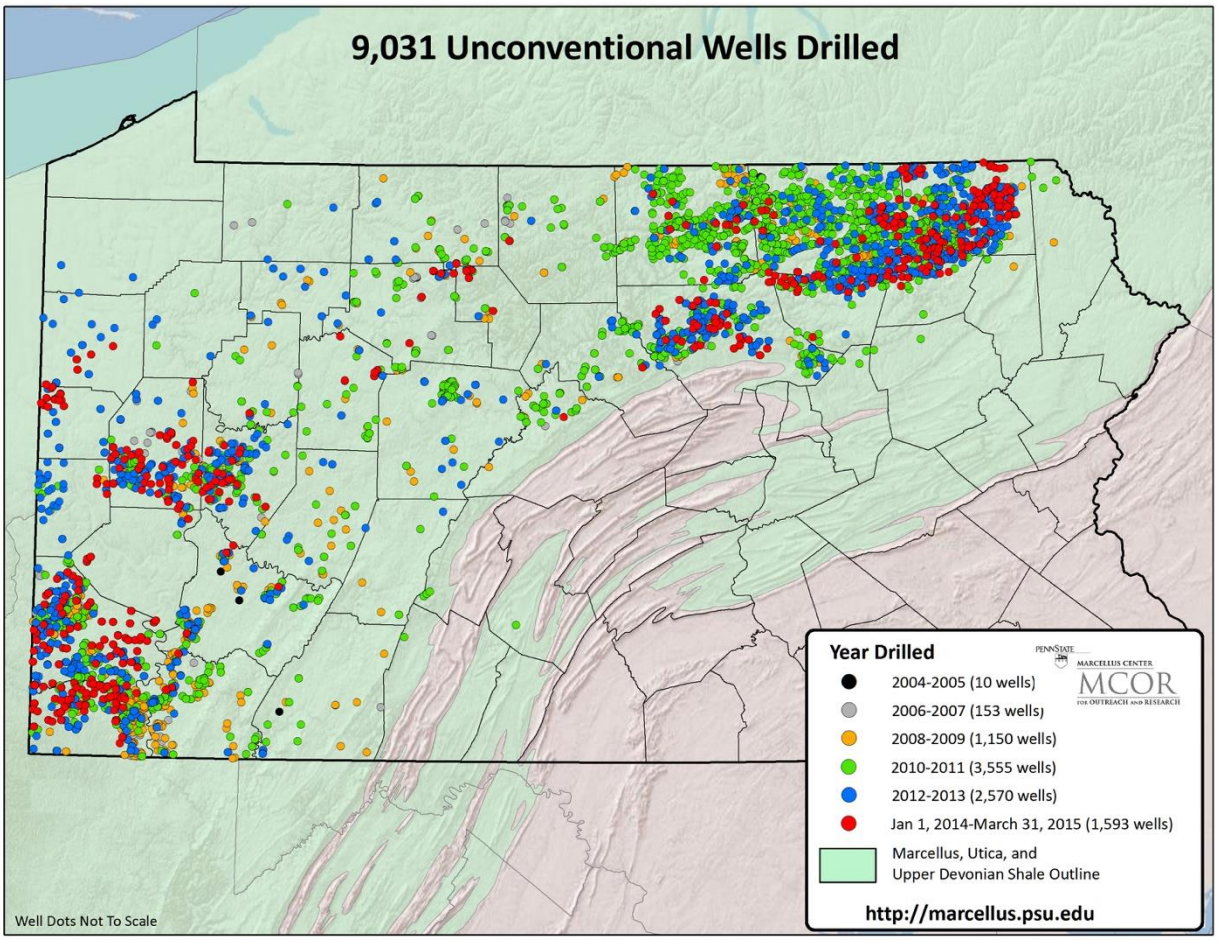
Figure XII(b): Total Confirmed Bobcat Observations, 2006-2011.[851]



While NYDEC was documenting an increase in bobcat observations in the southern tier of New York between 2006-2011, hundreds and then thousands of shale gas wells were being drilled in the northern tier of Pennsylvania. As Figure XII(b) indicates, between 2006-2011, gas companies drilled at least 4,858 shale gas wells in Pennsylvania.

[851] NYDEC Bobcat Management Plan at 17, http://www.dec.ny.gov/docs/wildlife_pdf/finalbmp2012.pdf.

Figure XII(c): Unconventional Wells Drilled in Pennsylvania (2004-2015).[852]



Many of these wells were drilled in Pennsylvania's northern tier. Thus, at the same time the gas industry began and then rapidly escalated gas drilling across the northern tier of Pennsylvania, the bobcat population in the southern tier of New York "increased dramatically." Since there has been no shale gas development in New York throughout this time period due to a moratorium (and now ban)[853] on

[852] Penn State, Marcellus Center for Outreach & Research, http://www.marcellus.psu.edu/images/PA%20Spud%20Map%202014-15%2020150331.jpg.

[853] *See* New York State Department of Conservation and Natural Resources, High-Volume Hydraulic Fracturing in NYS, http://www.dec.ny.gov/energy/75370.html.

shale gas development, this suggests that the rapid increase in shale gas development in Pennsylvania may be causing "emigration of bobcats from Pennsylvania" into southern New York.

National Fuel Gas Company's 2013 Annual Report suggests why this could be happening. According to National Fuel, the drilling operations of its exploration and production subsidiary, Seneca Resources, occur 24-hours a day.[854] If shale gas drilling companies are operating in remote, forested areas 24-hours a day, and compressor stations operate 24-hours a day in remote, forested areas, then the "similar available habitat" crutch that the Commission relies on may, in fact, be illusory as more gas infrastructure spreads across the landscape.

F. Land use, recreation, special interest areas, and visual resources.

The Commission failed to take a hard look at cumulative impacts on land use, recreation, special interest areas, and visual resources. The Commission acknowledges that "[t]he projects listed in table W-1 in appendix W combined would disturb over 50,000 acres of land, affecting a variety of land uses."[855] Of these projects, the Commission states that "those with the greatest potential for impacts" include Commission-jurisdictional pipelines, the non-jurisdictional project-related facilities, and oil and gas exploration projects.[856]

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[854] *See* National Fuel 2013 Annual Report at 3, http://s2.q4cdn.com/766046337/files/doc_financials/2013/NFG_SAR_13_Final.pdf (emphasis added).

[855] DEIS at 4-503.

[856] *Id.*

Instead of actually taking a hard look at the cumulative impacts of "oil and gas exploration projects" on land use, recreation, special interest areas, and visual resources, the Commission simply states that the impacts on these resources "would vary widely depending on the location of specific facilities and access roads" and "would be minimized to the extent possible through the federal and state agency review and permitting process."[857] Once again, the Commission cannot ignore its NEPA obligations by relying on the permitting processes of other agencies.[858]

To satisfy NEPA, the Commission must take a much broader view of cumulative impacts of shale gas development on land use, recreation, special interest areas, and visual resources because such development is encroaching upon, currently impacting, and substantially altering such areas, including public lands that provide outstanding opportunities for remote recreation. For example, according to the Pennsylvania Department of Conservation and Natural Resources (DCNR):

> The majority of [shale gas] development [on state forests] has occurred in the Devonian-aged Marcellus Shale. Approximately 1.5 million acres of state forest lands lie within the prospective limits of the Marcellus Shale. Assuming a drainage area of 120 acres per well, the [DCNR's Bureau of Forestry (Bureau)] expects that approximately *3,000 wells may be drilled* to fully develop the lands it currently has leased . . . In recent years, there has been a marked

[857] *Id*. at 4-504.

[858] *See, e.g., Idaho v. Interstate Commerce Comm'n*, 35 F.3d 585, 595-96 (D.C. Cir. 1994); *North Carolina v. Fed. Aviation Admin.*, 957 F.2d 1125, 1129-30 (4th Cir. 1992).

> increase in the development of the Ordovician-aged Utica Shale in western Pennsylvania and eastern Ohio . . . As development moves eastward from the Pennsylvania-Ohio border, the [Bureau] has seen an increased interest in the Utica Shale on state forest lands. Development of the Utica has become increasingly prevalent adjacent to state forest lands, primarily in Tioga County and the northwestern section of the state forest system.[859]

Thus, these remote, forested areas of Pennsylvania, which contain outstanding biological and recreational features, are seriously threatened by rapidly encroaching shale gas development. As DCNR explains:

> Unconventional shale-gas development can cause short-term or *long-term conversion of existing natural habitats to gas infrastructure*. The footprint of shale-gas infrastructure is a byproduct of shale-gas development. The use of existing transportation infrastructure on state forest lands, such as roads and bridges, increase considerably due to gas development . . . Shale-gas development requires *extensive truck traffic by large vehicles*, which may require upgrades to existing roads to support this use. These upgrades may affect the wild character of roads, a value that is enjoyed by state forest visitors . . . *Noise from compressors can dramatically affect a state forest user's recreational experience and generate conflict*. Unlike compressors, most sources of potential noise on state forest land are temporary in nature . . . The development of oil and gas resources requires pipelines for delivering the product to market. When compared to other aspects of gas development, *pipeline construction has the greatest potential to cause forest conversion and fragmentation* due to the length and quantity of pipelines required.[860]

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[859] DCNR, 2015 Draft State Forest Management Plan, 134-35 (emphasis added), http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20031287.pdf.

[860] *Id*. at 136-38 (emphasis added).

The U.S. Forest Service ("USFS") has also explained how oil and gas development has "industrialized" the Allegheny National Forest in Pennsylvania:

> The value of the land to provide recreation opportunities is diminished in intensively developed oil fields. The land area is *crisscrossed with roads*, which are confusing to navigate and usually not open to public travel. The *sounds of vehicles, pump engines and heavy equipment are common and pervasive*. Trail systems that traverse these fields are interrupted by *frequent road crossings*. Some trails may be converted to roads when the trail is located in an appropriate location for road building. Mineral owners may continue to expand the oil field to the extent of its geologic limit. Some of the developed oil fields cover thousands of acres. *The inherent character of the landscape is converted to an industrial atmosphere in the midst of the forest.*[861]

In the 2007 Forest Plan FEIS, the USFS cautioned that, because of the amount of oil and gas drilling in the Allegheny National Forest, "those seeking a more remote and less developed recreation experience *could be displaced to other State or National Forests where remote, semi-primitive settings and experiences are more readily available*."[862] Now, pipeline projects like the Atlantic Coast Pipeline and shale gas development are combining to rapidly fragment these other state and national forest lands.

For example, "[a]s natural gas extraction expands across the Central Appalachian region, that industrial-scale energy development is encroaching on

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[861] USFS, Allegheny National Forest Roads Analysis Report, 44 (2003) (emphasis added), http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5048405.pdf.

[862] USFS, Allegheny National Forest Land and Resource Management Plan FEIS, 3-327 (2007) (emphasis added), http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5044089.pdf.

public lands that are critically important for fishing and hunting."[863] "The impact from potential erosion and habitat fragmentation due to the construction of gas drilling pads, pipelines and access and maintenance roads could stress native brook trout populations in the Monongahela[ ] [National Forest's] streams."[864] "Road noise and drilling activities could also drive game out of traditional territories and into less desirable habitat."[865] "Natural resource impacts from gas drilling in the national forest and surrounding land could negatively impact the quality of the West Virginia sporting experience, reducing revenues generated from out-of-state hunters and anglers who may choose to hunt and fish elsewhere."[866] The Bureau of Land Management ("BLM") recently announced that it leased over 700 acres of the Wayne National Forest in Ohio.[867] An additional 38,000 acres could be auctioned in 2017.[868]

In addition to shale gas development, new pipeline infrastructure is impacting public lands in the region. The Atlantic Coast Pipeline will cut through 5.1 miles of the Monongahela National Forest in West Virginia and 15.9 miles of the

[863] Trout Unlimited, Ten Special Places – Monongahela National Forest, West Virginia, http://www.tu.org/sites/default/files/Monongahela_report.pdf.

[864] *Id*. at 2.

[865] *Id*.

[866] *Id*.

[867] *See* James F. McCarty, The Plain Dealer, Gas companies spend $1.7 million for exploration rights to Wayne National Forest in SE Ohio (Dec. 14, 2016), http://www.cleveland.com/metro/index.ssf/2016/12/gas_companies_spend_17_million.html.

[868] *Id*.

George Washington National Forest in Virginia.[869] The proposed Mountain Valley Pipeline would cut 3.4 miles of new right-of-way through the Jefferson National Forest in West Virginia and Virginia.[870] In Ohio, the proposed Leach Xpress Pipeline Project would be located within a half-mile of the Wayne National Forest in Ohio.[871] In Pennsylvania, the Atlantic Sunrise Pipeline and Susquehanna West Project would impact public lands in Sproul State Forest and Tioga State Forest, respectively.[872]

As pipeline construction and shale gas development proliferate in Appalachia, remote recreation opportunities are rapidly diminishing. As noted above, the USFS has already told the public that oil and gas development has so impacted Pennsylvania's Allegheny National Forest that "those seeking a more remote and less developed recreation experience *could be displaced to other State or National Forests where remote, semi-primitive settings and experiences are more readily available*."[873] But as pipeline construction and shale gas development continues expanding, these "other State or National Forests" might themselves become just as impacted as the Allegheny National Forest. This is a regional degradation of our public lands and it is imperative that the Commission greatly expand the scale

[869] *See* DEIS at 4-343.

[870] *See* Mountain Valley Pipeline DEIS at ES-8.

[871] *See* Columbia Gas Transmission, LLC, Leach Xpress Pipeline Project, Resource Report 8 at 8-19 (Docket No. CP15-514-000, eLibrary No. 20150608-5049).

[872] *See* Draft Environmental Impact Statement for the Atlantic Sunrise Project at 4-88 (CP15-138-000); Susquehanna West Project Environmental Assessment at 2 (CP15-148-000, eLibrary No. 20160317-4001).

[873] USFS, Allegheny National Forest Land and Resource Management Plan FEIS, 3-327.

at which it considers cumulative impacts on public lands. The Commission did not do this and, therefore, the draft EIS is legally deficient.

G. Air quality.

The Commission failed to take a hard look at the cumulative impacts of the Project and past, present and reasonably foreseeable future shale gas development on air quality. As Figure XII(a) shows, there has been substantial shale gas development in the vicinity of the project areas for the Atlantic Coast Pipeline and the Supply Header Project. Instead of trying to quantify the emissions impacts of existing and reasonably foreseeable wells, the Commission simply states that it expects that oil and gas drilling activities, among other activities, "would be required to comply with the same permit requirements, and mitigation measures as ACP [Atlantic Coast Pipeline] and SHP [Supply Header Project]."[874] Therefore, the Commission concluded that "they are not likely to significantly affect long-term air quality in the geographic scope of influence."[875] In light of the substantial evidence of adverse impacts of shale gas drilling despite regulatory efforts, such conclusory statements cannot satisfy NEPA.[876]

Again, the fact that companies drilling and operating gas wells would need to comply with federal, state, and local air regulations does not excuse the Commission from its obligation of analyzing these cumulative impacts. As stated

[874] DEIS at 4-508.

[875] *Id.*

[876] *Delaware Riverkeeper*, 753 F.3d at 1319-20.

above, the Commission has an independent duty to review the environmental and human health impacts of the Project and cannot simply rely on the regulatory efforts of other state and federal agencies.[877]

Because the Commission unreasonably restricted the extent of its cumulative impacts analysis, failed to quantify many of the effects that it does acknowledge, and repeatedly relied on conclusory statements to dismiss significant impacts, the draft EIS's cumulative impacts analysis does not meet the requirements of NEPA. The Commission must remedy those defects in a revised draft EIS and provide that analysis for public comment.

XIII. INDIRECT EFFECTS

A. The draft EIS fails to consider the indirect impacts of the reasonably foreseeable shale gas drilling that would be induced by the Atlantic Coast Pipeline.

In analyzing the potential impacts of its approval of the Atlantic Coast Pipeline, the Commission must consider the indirect effects of shale gas development. Indirect effects are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."[878] "Indirect effects are defined broadly, to 'include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth

[877] *See, e.g., Idaho v. Interstate Commerce Comm'n*, 35 F.3d 585, 595-96 (D.C. Cir. 1994); *North Carolina v. Fed. Aviation Admin.*, 957 F.2d 1125, 1129-30 (4th Cir. 1992).

[878] 40 C.F.R. § 1508.8(b).

rate, and related effects on air and water and other natural systems, including ecosystems.'"[879]

For several years, however, the Commission has categorically refused to consider induced gas development as an indirect effect of pipeline projects such as the Atlantic Coast Pipeline. The Commission's argument is usually two-fold. First, the Commission claims that gas drilling and pipeline projects are not "sufficiently causally related" to warrant a detailed analysis.[880] Second, the Commission claims that even if gas drilling and pipeline projects are "sufficiently causally related," the potential environmental impacts of the gas development are not "reasonably foreseeable" as contemplated by CEQ's NEPA regulations.[881]

The draft EIS for the Atlantic Coast Pipeline again fails to consider at all the indirect effects of shale gas development. The Commission claims that "it is not likely that [Atlantic Coast Pipeline] would lead to additional drilling and production" of natural gas.[882] "In fact," the Commission continues, "the opposite causal relationship is more likely; i.e., once production begins in an area, shippers or end users will support the development of a pipeline to move the natural gas to markets."[883]

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[879] *Natural Res. Def. Council v. U.S. Army Corps of Eng'rs*, 339 F. Supp. 2d 386, 404 (S.D.N.Y. 2005) (quoting 40 C.F.R. § 1508.8(b)).

[880] *See e.g., Nat'l Fuel Gas Supply Corp.*, 150 FERC ¶ 61,162, at P 44 (2015).

[881] *Id*.

[882] DEIS at 1-20.

[883] *Id*.

The Commission's certificate approvals could plausibly induce new natural gas production since new pipelines will be made available to transport fracked gas. Therefore, it seems reasonable for the Commission to conduct NEPA analyses of the upstream development that would likely occur due to its certificate approvals. Arguments have been made that current levels of natural gas production are adequate to supply any new natural gas infrastructure,[884] and so the construction of new pipelines does not induce new natural gas production. However, it is unlikely that current production would be sufficient to supply natural gas for the life of a pipeline, which could be up to fifty years,[885] meaning that new production could be induced to continually supply a pipeline throughout its lifespan.[886] Therefore, the indirect effects of the Commission's certificate approvals, including induced production must be included in its NEPA analysis of the Atlantic Coast Pipeline project.

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[884] Opening Br. of Pet'rs Catskill Mountainkeeper, Inc., et al. at 22-23, *Catskill Mountainkeeper, Inc., et al. v. FERC*, No. 16-345-L (2d Cir. July 12, 2016).

[885] Interstate Natural Gas Association of America, *The Interstate Natural Gas Transmission System: Scale, Physical Complexity and Business Model, Executive Summary* (2010), http://www.ingaa.org/file.aspx?id=10751.

[886] Roger Howard, *Is the Fracking Boom a Bubble?* Newsweek, July 11, 2014, http://www.newsweek.com/2014/07/18/how-long-will-americas-shale-gas-boom-last-260823.html; *see also* C. Kunkel & T. Sanzillo, Inst. for Energy Econ. & Fin. Analysis, Risks Associated with Natural Gas Pipeline Expansion in Appalachia 11 (2016), included as **Attachment 8** (finding that the pipeline capacity being proposed in the Atlantic Coast and Mountain Valley pipelines exceeds the amount of natural gas likely to be produced from the Marcellus and Utica formations over the lifetime of the pipelines).

B. There is a clear causal connection between the proposed Atlantic Coast Pipeline and shale gas development.

Courts have said that an agency must consider something as an indirect effect if the agency action and the effect are "two links of a single chain."[887] It cannot be disputed that gas development and infrastructure that transports that gas are "two links of a single chain." The gas industry certainly considers them to be so; for example, in a 2014 report, the Interstate Natural Gas Association of America ("INGAA") stated that

> midstream infrastructure development is crucial for efficient delivery of growing supplies to markets. Sufficient infrastructure goes hand in hand with well-functioning markets. *Insufficient infrastructure can constrain market growth* and strand supplies. . . . New infrastructure will be required to move hydrocarbons from regions where production is expected to grow to locations where the hydrocarbons are used. Not all areas will require significant new pipeline infrastructure, but many areas (even those that have a large amount of existing pipeline capacity) may require investment in new capacity to connect new supplies to markets. In analogous cases to date, oil and gas producers and marketers have been the principal shippers on new pipelines. These "anchor shippers" have been willing to commit to long-term contracts for transportation services that provide the financial basis for pipeline companies to pursue projects. Going forward, producers will likely continue to be motivated to ensure that the capacity exists to move supplies via pipelines. *Producers have learned from past experience that the consequences of insufficient infrastructure for gas transport are severe, and that the cost of pipeline transport is a relatively small cost compared with the revenues lost as a result of price reductions*

[887] *Sylvester v. U.S. Army Corps of Eng'rs*, 884 F.2d 394, 400 (9th Cir. 1989).

> *or well shut-ins that occur when transport from producing areas to liquid pricing points is constrained.*[888]

In other words, according to INGAA, gas producers rely on there being sufficient infrastructure capacity to continue, if not expand, production activities. If new infrastructure is not built, prices drop, new production slows, well shut-ins occur, and the attendant environmental and social impacts of drilling are reduced or eliminated.

As stated above, the Commission attempts to avoid its duty to consider induced gas drilling by claiming that "it is not likely that [the Atlantic Coast Pipeline] would lead to additional gas drilling" because, according to the Commission, "the opposite causal relationship is more likely."[889] According to the Energy Information Administration (EIA), however, pipeline projects do facilitate an increase in gas production. In a recent report on natural gas liquids (NGL) market trends, EIA stated that "[e]thane production is increasing as midstream infrastructure projects become operational and ethane recovery and transport capacities grow."[890] In other words, an increase in infrastructure to transport a product results in an increase in production of that product.

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[888] INGAA, *North American Midstream Infrastructure through 2035: Capitalizing on Our Energy Abundance, Executive Summary*, p. 1, 8-9 (Mar. 18, 2014) (emphasis added), http://www.ingaa.org/file.aspx?id=21498.

[889] DEIS at 1-20.

[890] EIA, *Hydrocarbon Gas Liquids (HGL): Recent Market Trends and Issues*, p. 6 (Nov. 2014), http://www.eia.gov/analysis/hgl/pdf/hgl.pdf.

Indeed, Atlantic claims that the Atlantic Coast Pipeline "will generally benefit [gas] producers" in West Virginia specifically and the Appalachian production region in general.[891] As the West Virginia Oil and Gas Association stated in its motion to intervene in the Certificate Application proceeding for the Atlantic Coast Pipeline, the construction of a pipeline from the Appalachian Basin to the Southeast and Mid-Atlantic markets would lead to an "increase in production" and shale gas producers would "greatly benefit from these new end-use consumption markets created by the ACP [Atlantic Coast Pipeline]."[892] Without the pipeline to move the gas from the production areas, the drilling would simply not be economical and would not occur.

Recent statements from other oil and gas industry officials corroborate this. For example, in May 2015, Dennis Xander, president of Denex Petroleum, spoke about the recent downturn in gas drilling, stating that "[d]rilling is hard to justify" due, in part, "to lack of infrastructure[.]"[893] According to Mr. Xander, "there are several infrastructure projects in progress that will change all that," including the

[891] Atlantic Coast Pipeline Application at 10.

[892] Motion to Intervene of the West Virginia Oil and Gas Association (October 22, 2015) in FERC Docket No. CP15-554 at 2.

[893] Casey Junkins, *Number of Drilling Rigs on the Decline*, The Intelligencer/Wheeling News-Register (May 19, 2015), http://wvpress.org/news/ohio-hit-harder-than-w-va-by-drilling-decline/.

Atlantic Coast Pipeline.[894] Mr. Xander continued that "[b]y 2017 and 2018, things will be very busy – count on it."[895]

According to Corky DeMarco, executive director of the West Virginia Oil and Natural Gas Association, "when drilling slows down, that is when you build pipelines" because "[i]t's just the way the industry works."[896] According to Tim Greene, owner of Mineral Management of Appalachia, "more pipelines will lead to more drilling all across [West Virginia]."[897] Indeed, according to Mr. DeMarco, "[o]nly 5 percent of the potential Marcellus wells have even been permitted[.]"[898]

In July 2016, Brian Sheppard, Dominion Transmission's vice president of pipeline operations, said the Atlantic Coast Pipeline "will increase pipeline capacity and stimulate drilling activity[.]"[899] In April 2017, Mr. Xander said that "[u]ntil new pipelines are built from West Virginia to new markets, natural gas prices will remain flat and producers will struggle[.]"[900] In the same article, Al

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[894] *Id*.

[895] *Id*. The ACP facilities were scheduled to be placed in service no later than November 1, 2018. *See* ACP Application at 3.

[896] *Id*.

[897] Casey Junkins, *Billion-Dollar Projects to 'Become the Norm'*, The Intelligencer/Wheeling News-Register (Oct. 26, 2014), http://www.theintelligencer.net/news/top-headlines/2014/10/billion-dollar-projects-to-become-the-norm/.

[898] *Id*.

[899] Lisa Troshinsky, *Oil and gas companies in north central West Virginia are optimistic despite industry decline*, The Exponent Telegram (July 17, 2016), https://www.theet.com/news/local/oil-and-gas-companies-in-north-central-west-virginia-are/article_56e0f30c-b9ee-5bf1-b144-6facb8268f26.html.

[900] Austin Weiford, *W.Va. Oil, Gas Industry Poised for Boom, Part 2*, The State Journal (Apr. 2, 2017), https://www.theet.com/statejournal/w-va-oil-gas-industry-poised-for-boom-part/article_e1933cb7-cf51-52e9-83c7-0444221cc2f9.html.

Schopp, regional senior vice president of gas producer Antero Resources, said that natural gas prices would improve once there are more "pipelines out of the basin to get the gas to other places[.]"[901] According to Mr. Schopp, "for the energy industry to see another boom like 2008 and 2009, the pricing of natural resources will have to improve, which he hopes will come with the upcoming pipeline projects [in West Virginia]."[902] The article also highlights the Atlantic Coast Pipeline as a pipeline project that is, according to Charlie Burd, executive director of the Independent Oil and Gas Association, "vitally important to [West Virginia] and to [gas] producers."[903] These industry statements make clear that major pipeline projects such as Atlantic Coast Pipeline are planned not only to transport current production but in anticipation of and to facilitate long-term increases in production.

The Commission, however, has previously claimed that it need not consider the indirect effects of shale gas development because "such development will likely continue regardless of whether the proposed projects are approved because multiple existing and proposed transportation alternatives for production from the region are available."[904] As the statements above indicate, that does not appear to be the case. The corollary to "more pipelines will lead to more drilling" is that fewer pipelines may lead to less drilling. Moreover, when the Commission says

[901] *Id.*

[902] *Id.*

[903] *Id.*

[904] *Nat'l Fuel Gas Supply Corp.*, 150 FERC ¶ 61,162, at P 45 (2015).

shale gas development will continue because there are other "proposed transportation alternatives," those other "proposed transportation alternatives" are almost certainly interstate natural gas pipelines subject to the Commission's jurisdiction. To say in one proceeding that shale gas development will continue regardless of whether that particular project is approved because there are other similar projects that will likely be authorized by the Commission itself only proves the causal connection between the Commission's decision to approve pipeline projects and shale gas development.

A recent EIS prepared by the Surface Transportation Board (Board) demonstrates why the Commission's logic is incompatible with NEPA. In April 2015, the Board published a draft EIS for the Tongue River Railroad Company's (TRRC) proposal to build a railroad to transport coal to market.[905] According to the Board, the proposed railroad would "transport low-sulfur, subbituminous coal from proposed mine sites yet to be developed in Rosebud and Powder River Counties, Montana."[906] The Board continued that, "[b]ecause the Tongue River region contains additional quantities of coal, future rail traffic could also include shipments of coal from other mines whose development could be induced by the availability of a nearby rail line."[907] As a result, the Board prepared an analysis of

[905] *See* Board, Tongue River Railroad DEIS, https://www.stb.gov/decisions/readingroom.nsf/fc695db5bc7ebe2c852572b80040c45f/e7de39d1f6fd4a9a85257e2a0049104d?OpenDocument.

[906] *Id*. App. C at C.1-2, https://www.stb.gov/decisions/readingroom.nsf/UNID/E7DE39D1F6FD4A9A85257E2A0049104D/$file/AppC_CoalProduction.pdf.

[907] *Id*.

various coal production scenarios in southeastern Montana should the Board approve the railroad. The Board's analysis included consideration of domestic and export markets, coal production costs, transportation routes, and emissions forecasts. The results of the analysis revealed that approval of the railroad was likely to induce the development of at least two additional coal mines in southeastern Montana.[908]

The Board's decision to consider induced coal production in its review of TRRC's proposed railroad is important because, just as the Commission has no jurisdiction over gas production, the Board has no jurisdiction over coal production. Nevertheless, the Board did not completely ignore its obligation under NEPA to consider indirect effects. Rather, it prepared a review of likely coal production scenarios that could occur should it approve TRRC's project. Likewise, the Commission must review likely gas production scenarios that could occur should it approve the Atlantic Coast Pipeline and Supply Header Project.

C. The impacts of shale gas development are reasonably foreseeable.

Shale gas development is not only causally related to construction of the Atlantic Coast Pipeline, but is also reasonably foreseeable. An indirect effect is "reasonably foreseeable" if it is "sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision."[909] "[W]hen the *nature* of the effect is reasonably foreseeable but its *extent* is not, [an] agency

[908] *Id.* at C.3-1.

[909] *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992).

may not simply ignore the effect."[910] "Agencies need not have perfect foresight when considering indirect effects, effects which by definition are later in time or farther removed in distance than direct ones."[911] Here, additional shale gas drilling is sufficiently likely to occur that a person of ordinary prudence would take it into account when assessing the impact of the Project on the environment. Moreover, the Commission is well aware of the nature of the effects of shale gas development and, therefore, may not ignore those effects.

The Commission, however, has consistently and erroneously claimed that even if there is a sufficient causal relationship between projects such as the one under review here and induced gas production, "such production is not reasonably foreseeable as contemplated by CEQ's regulations and case law."[912] There, the Commission said that it "need not address remote and highly speculative consequences."[913] The Commission also said that it is not required "to engage in speculative analysis" or "to do the impractical, if not enough information is available to permit meaningful consideration."[914] Finally, the Commission said that even if it knew the "identity of a supplier of gas . . . and even the general area

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[910] *Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549 (8th Cir. 2003) (emphasis in original); *see also Habitat Educ. Ctr. v. U.S. Forest Serv.*, 609 F.3d 897, 902 (7th Cir. 2010).

[911] *WildEarth Guardians v. U.S. Office of Surface Mining*, 104 F. Supp. 3d 1208, 1230 (D. Colo. 2015).

[912] *See, e.g., Nat'l Fuel Gas Supply Corp.*, 150 FERC ¶ 61,162, at P 46 (2015).

[913] *Id*. (*citing Hammond v. Norton*, 370 F. Supp. 2d 226, 245-46 (D.D.C. 2005)).

[914] *Id*. (*citing N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1078 (9th Cir. 2011)).

where the producer's existing wells are located," it does not mean that the Commission can engage in forecasting future development.[915] The draft EIS for the Atlantic Coast Pipeline adopts this flawed interpretation of "reasonably foreseeable."[916]

The Commission's claim that if it does not know the *exact* timing and location of future shale gas development, it may "simply ignore the effect" cannot be squared with the requirements of NEPA.[917] The Commission's practice "would require the public, rather than the agency, to ascertain the cumulative effects of a proposed action."[918] "Such a requirement would thwart one of the 'twin aims' of NEPA—to 'ensure[ ] that the agency will inform the public that it has indeed considered environmental concerns in its decision making process.'"[919] Compliance with NEPA "is a primary duty of every federal agency; fulfillment of this vital responsibility should not depend on the vigilance and limited resources of environmental plaintiffs."[920] Thus, the Commission's insistence that it is

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[915] *Id*.

[916] *See* DEIS at 1-20.

[917] *See Mid States Coal.*, 345 F.3d at 549.

[918] *Te-Moak Tribe of Western Shoshone of Nevada v. U.S. Dep't of the Interior*, 608 F.3d 592, 605 (9th Cir. 2010). While this case was about cumulative impacts, the same rationale holds true for indirect effects in terms of effects being "reasonably foreseeable."

[919] *Id*. (quoting *Balt. Gas & Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 97, 103 S.Ct. 2246, 76 L.Ed.2d 437 (1983)) (emphasis added by Ninth Circuit).

[920] *City of Carmel-by-the-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1161 (9th Cir. 1997) (quoting *City of Davis v. Coleman*, 521 F.2d 661, 671 (9th Cir. 1975); *see also Ctr. for Biological Diversity v. U.S. Forest Serv.*, 349 F.3d 1157, 1166 (9th Cir. 2003) ("The procedures prescribed both in NEPA and the implementing regulations are to be

incumbent upon others to produce the kind of information it claims to need is wholly inconsistent with its obligations under NEPA.

As the D.C. Circuit has explained, "[r]easonable forecasting and speculation is … implicit in NEPA, and we 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.'"[921] Here, the Commission has attempted to "shirk [its] responsibilities" by characterizing the future environmental effects of induced shale gas drilling as "crystal ball inquiry" despite abundant available information regarding the impacts of the gas drilling that would be facilitated by construction of the Atlantic Coast Pipeline, thus violating NEPA.[922]

Reasonable forecasting of the impacts of the type of future drilling that would be necessary to supply the Atlantic Coast Pipeline is being performed in other federal regulatory contexts. For example, on November 25, 2016, the U.S. Fish & Wildlife Service (FWS) announced its intent to prepare an EIS for the proposed issuance of a 50-year incidental take permit under the Endangered Species Act (ESA) for the draft "Oil & Gas Coalition Multi-State Oil and Gas Habitat

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strictly interpreted 'to the fullest extent possible' in accord with the policies embodied in the Act….'[g]rudging, pro forma compliance will not do.'") (citations omitted)).

[921] *Delaware Riverkeeper Network v. F.E.R.C.*, 753 F.3d 1304, 1310 (quoting *Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n*, 481 F.2d 1079, 1092 (D.C. Cir. 1973)); *see also N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1078-79 (9th Cir. 2011).

[922] *See Delaware Riverkeeper*, 753 F.3d at 1310.

Conservation Plan (O&G HCP).[923] The O&G HCP would "streamline environmental permitting and compliance with the ESA for nine companies in conjunction with their respective midstream and upstream" operations in Ohio, Pennsylvania, and West Virginia.[924] The companies are seeking incidental take coverage for five species of bat: Indiana bat, northern long-eared bat, little brown bat, eastern small-footed bat, and tri-colored bat.[925]

According to FWS, the covered activities would include upstream well development, production, decommissioning, and reclamation as well as construction of midstream gathering, transmission, and distribution pipelines.[926] Importantly, FWS explains that "[a] model of the proposed covered activities will be used to estimate potential impacts to the covered species by overlaying the predicted covered activity implementation (including the type and location of infrastructure build-out) on the covered species' habitats."[927] If FWS can use a model to predict how oil and gas development activities will impact five threatened and endangered bat species over the next half-century, then the

[923] *See* 81 Fed. Reg. 85,250 (Nov. 25, 2016).

[924] *Id*. at 85,251.

[925] *Id*. at 85,252.

[926] *Id*. at 85,252.

[927] *Id*. (emphasis added).

Commission cannot claim such modeling is infeasible for the Atlantic Coast Pipeline.[928]

Nor may the Commission claim that the environmental impacts of those activities cannot be reasonably predicted. The Commission is well aware of the nature of the impacts of shale gas drilling. In the final EIS for the Constitution Pipeline, for example, the Commission relied on multiple agency reports and statistics to describe the nature of the impacts caused by Marcellus shale development activities.[929] The Commission stated that "an average well requires approximately 4.8 acres during construction and 0.5 acre during operation[.]"[930] The Commission determined 13,402 acres of earth disturbance could result to supply the Constitution Pipeline.[931] Thus, the Commission is clearly aware of the nature of shale gas drilling.

Despite the Commission's awareness of these impacts, it likely underestimated them in the Constitution Pipeline final EIS.[932] For example, according to a 2012 U.S. Geological Survey (USGS) report,

> [a] recent analysis of Marcellus well permit locations in Pennsylvania found that well pads and associated infrastructure

[928] Commenters discuss the EIS for the 50-year incidental take permit for the O&G HCP only to demonstrate the feasibility of future forecasting of shale gas development, not to express any support for the issuance of such a permit.

[929] *See* Constitution Pipeline FEIS at 4-232 – 4-235 (Docket No. CP13-499-000, eLibrary No. 20141024-4001).

[930] *Id*. at 4-233.

[931] *Id*.

[932] Commenters cannot determine if FERC underestimated these impacts in the MVP DEIS because it made no such estimations.

> (roads, water impoundments, and pipelines) required nearly 3.6 hectares (9 acres) per well pad with an additional 8.5 hectare (21 acres) of indirect edge effects (Johnson, 2010). This type of extensive and long-term habitat conversion has a greater impact on natural ecosystems than activities such as logging or agriculture, given the great dissimilarity between gas-well pad infrastructure and adjacent natural areas and the low probability that the disturbed land will revert back to a natural state in the near future (high persistence) (Marzluff and Ewing, 2001).[933]

The USGS figures on surface disturbance are substantially higher than the figures the Commission relied on in the Constitution Pipeline FEIS. According to the West Virginia Department of Commerce (WVDOC), approximately 2,700 Marcellus shale wells have been drilled in West Virginia.[934] Using the USGS figures, it is reasonable to assume that approximately 24,300 acres of West Virginia's landscape have been converted to shale gas infrastructure with 56,700 acres of additional indirect edge effects.[935]

These are enormous impacts to our landscapes, watersheds, wildlife habitat, and recreation opportunities that the Commission routinely fails to fully evaluate

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[933] Slonecker, E.T., et al., *Landscape Consequences of Natural Gas Extraction in Bradford and Washington Counties, Pennsylvania, 2004-2010: USGS Open-File Report 2012-1154* 8 (2012), https://pubs.usgs.gov/of/2012/1154/of2012-1154.pdf ("USGS Report").

[934] *See* WVDOC, Fossil Energy - Marcellus Shale, http://www.wvcommerce.org/energy/fossil_energy/marcellusshale.aspx.

[935] Commenters previously submitted detailed information regarding the impacts of the type of shale gas drilling that would be induced by the ACP to the FERC docket and hereby incorporate those comments by reference. *See* Motion to Intervene and protest of Appalachian Mountain Advocates *et al*. at 30–36, FERC Docket Nos. CP15-554, CP15-555; Comments of Appalachian Mountain Advocates *et al.* on FERC's Notice to Prepare an EIS for the Planned Supply Header Project and the Atlantic Coast Pipeline Project at 25–30, FERC Docket Nos. PF15-5-000, PF15-6-000.

under NEPA. The Commission has the information required to assess the impacts of the shale gas drilling that would be induced by its approval of the Atlantic Coast Pipeline. The Commission may not shirk its responsibilities under NEPA by dismissing the environmental impacts of that future shale gas extraction in the Marcellus and Utica shale formations as too speculative.[936] The Commission has failed to analyze the reasonably foreseeable impacts of the Atlantic Coast Pipeline in the draft EIS in violation of NEPA.

Finally, Commissioner Bay recently stated that, "in light of the heightened public interest and in the interests of good government . . . the Commission should analyze the environmental effects of increased regional gas production from the Marcellus and Utica" shale formations.[937] Commissioner Bay noted that "[t]he Department of Energy has conducted a similar study in connection with the exercise of their obligations under Section 3(a) of the Natural Gas Act."[938] Commissioner Bay further stated that the Commission should also consider "analyzing the downstream impacts of the use of natural gas and [ ] performing a life-cycle greenhouse gas emissions study, both of which DOE has conducted in issuing permits for LNG exports."[939] Thus, there is no reason why the

[936] *Delaware Riverkeeper*, 753 F.3d 1304, 1310.

[937] *Nat'l Fuel Gas Supply Corp.*, 158 FERC 61,145, Commissioner Bay Separate Statement at 5 (Feb. 3, 2017).

[938] *Id.*

[939] *Id.*

Commission cannot perform such an analysis for the Atlantic Coast Pipeline and the Supply Header Project.

XIV. SOCIOECONOMICS

A. The Commission improperly dismissed significant adverse socioeconomic impacts of the proposed project, including diminished property values.

The Commission's conclusion that the Atlantic Coast Pipeline and the Supply Header Project would not have any significant adverse impact on the socioeconomic conditions of the project area is not supported by the evidence. The report Key-Log Economics *Economic Costs of the Atlantic Coast Pipeline: Effects on Property Value, Ecosystem Services, and Economic Development in Western and Central Virginia*, included as **Attachment 49**, details substantial economic costs that would be imposed on residents along the pipeline route. Among those costs are millions of dollars in lost ecosystem services, which the Commission completely fails to account for, and reductions in property values along and adjacent to the construction corridor, which the Commission improperly rejects.

The Commission's analysis of the impact of pipeline easements on property values gives improper emphasis to industry-sponsored studies and wrongly dismisses data that contradict its conclusions. Commenters attach and fully incorporate by reference the statements of real estate professionals and landowners, each of whom offer firsthand evidence of diminished property values

along the proposed Atlantic Coast Pipeline route.[940]

In addition to dismissing direct evidence of lowered property values along the Atlantic Coast Pipeline corridor, the Commission fails to critically evaluate flawed research into gas-industry-sponsored and/or promoted research, which concludes, falsely, that pipelines do not diminish property value. The Commission fails to consider external costs due to lost ecosystem service value, carbon and other greenhouse gas emissions, and impacts on regional recreation, tourism, and other amenity-dependent economic development. Additionally, the Commission unreasonably dismisses independent research into the likely economic impacts of the proposed Atlantic Coast Pipeline. The Key-Log analysis undermines the Commission's conclusion that the proposed projects would not have a significant adverse effect on the socioeconomic conditions and property values in the project area.

Further, the Commission improperly dismisses the Key-Log realtor survey data as "personal opinion" and "public opinion." It is neither. The data represents the professional judgment of real estate professionals, based upon their experience, which includes real estate sales. By dismissing firsthand evidence, the Commission is improperly ignoring the best available evidence of the impact of natural gas pipelines on property value. Beyond a firsthand account of the event, it is unclear what additional data could be provided on a potential buyer backing out

[940] Compilation of Statements of Real Estate Professionals in the Atlantic Coast Pipeline Region of Influence, included as **Attachment 50**.

of a potential land sale. Such disrupted sales constitute evidence the Commission must consider. The Commission appears to suggest that only "statistically developed and controlled studies" could constitute proof of devalued properties.[941] However, the proposed Atlantic Coast Pipeline runs through economies and terrain that are dissimilar to the areas studied and cited by the Commission, as the Commission acknowledges, including rural lands, agricultural land, and resort/tourist economies. The only manner of performing a controlled study, as the Commission seems to require, would be to analyze property values *after* construction of the Atlantic Coast Pipeline, if construction is permitted. Clearly, landowners cannot provide such a study of the affected area during public comment on an unapproved project.

The compilation of statements from real estate professionals submitted as **Attachment 50** shows that the Atlantic Coast Pipeline has already devalued properties, reduced the number of potential buyers, and disrupted purchases on the proposed route. For example, Cathy Ward, a realtor with Old Dominion Realty of Fishersville, Virginia, attests that "[b]uyers do not want to be anywhere close to the gas line. We know there are many safety precautions that will be in place, [but] it doesn't seem to change buyer's minds." Ward writes that once the gas line is disclosed to potential buyers, there is an immediate negative impact. Similarly, landowners report firsthand experience with lost sales due to the proposed pipeline. Nan Rothwell and Carter Smith of Nelson County, Virginia were due to

[941] DEIS at 4-404.

close on their property sale on May 22, 2015. Just before that date, the proposed Atlantic Coast Pipeline route was shifted to include the Rothwell/Smith property. The buyer had a contractual right to cancel the sale and did so, citing the pipeline as the sole reason for cancellation. Since then, every other potential buyer has declined to make an offer upon learning of the proposed route.[942] Additional firsthand accounts in other counties further demonstrate the impact that has already occurred, and would surely continue to occur if the Atlantic Coast Pipeline is approved.

For a landowner, no decision on property value is more conclusive than a jury verdict. Juries have repeatedly found that natural gas pipelines do have a negative impact on property values, including on property outside the right of way. In *Peregrine Pipeline Company, L.P. v. Eagle Ford Land Partners, L.P.*, a Texas jury awarded $1.6 million to a landowner and found that the evidence proved the land outside the easement lost value.[943] In 2013, the Texas Supreme Court denied review of a $650,000 verdict against LaSalle Pipeline LP. The majority of the jury

[942] **Attachment 50** at 3.

[943] No. E200700046, In the County Court at Law No. 2, Johnson County, Texas (2014); *see Texas Landowners Win $2.1 Million Judgment Against Pipeline Company Over Lower Property Value*, PR Newswire, March 24, 2014, a*vailable at* http://www.prnewswire.com/news-releases/texas-landowners-win-21-million-judgment-against-pipeline-company-over-lower-property-value-251945191.html. Additional press coverage at https://www.law360.com/articles/521203/texas-pipeline-co-hit-with-2m-verdict-in-land-seizure-row.

award was for devaluation of property outside the easement.[944] Also in 2013, Texas' Second District Court of Appeals denied reconsideration of its decision upholding an award of $800,000 to a landowner.[945] Again, most of the award against Crosstex DC Gathering Company was for property devaluation outside the right-of-way. In a similar case from California, the appellate court upheld the trial court's finding that a natural gas pipeline devalued property.[946] The landowner proved that the property was devalued by $1.5 million due to factors such as environmental threat and loss of privacy. Such devaluation was above and beyond the devaluation caused by the loss of use of property within the easement itself. Each of these cases demonstrates that landowners can and do conclusively prove that natural gas pipelines have a significant negative impact on property value. The Commission must include such jury verdicts and appellate court decisions in its review of literature on the question of property devaluation. Each such verdict is supported by competent appraisal evidence and many such decisions have withstood appellate challenges.

This evidence, in addition to the Key-Log report, clearly shows that in circumstances such as the Atlantic Coast Pipeline, the presence of a major gas

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[944] Heallen, Jeremy, *Texas Pipeline Company Hit with $2m Verdict in Land Seizure Row*, Law360.com (Mar. 24, 2014), https://www.law360.com/articles/521203/texas-pipeline-co-hit-with-2m-verdict-in-land-seizure-row.

[945] *Crosstex DC Gathering Co., J.V. v. Button*, No. 02-11-00067-CV, 2013 WL 257355 (Tex. App. 2013) (rehearing overruled).

[946] *Gaviota Holdings, LLC v. Chicago Title Ins. Co.*, 2013 WL 7332429 (Cal. App. 2014).

pipeline can have significant adverse effects on property values. The Commission may not ignore these impacts by relying on industry-funded studies that are either methodologically flawed or have no relevance to the current project area. Likewise, the Commission cannot avoid its obligation to consider those impacts by stating that "the effect that a pipeline easement may have on property value is a damage-related issue that would be negotiated between the parties during the easement acquisition process."[947] As explained above, much of the lost value is to property outside of the right-of-way that would be included in an easement negotiation. Further, landowners are not in any way guaranteed to collect the lost value of their property in an easement negotiation or eminent domain proceeding, particularly when the company can point to statements from the Commission asserting that pipelines generally do not have adverse impacts on property values. The Commission thus must revise and reissue the draft EIS to include a full and fair assessment of the proposed projects' impacts to property values.

XV. KARST

A. The draft EIS does not adequately analyze impacts associated with pipeline construction and operation in karst terrain.

The proposed route of the Atlantic Coast Pipeline traverses significant areas of karst terrain, which present substantial risks to human and environmental

[947] DEIS at 5-20.

resources.[948] The Commission acknowledges that the karst features in the path of the pipeline "present a hazard to the pipeline both pre-and post-construction due to cave or sinkhole collapse, and can also provide direct conduits from the ground surface to the groundwater, increasing the potential for groundwater contamination."[949] "Potential impacts from sinkholes include property damage and injury from sinkhole collapse; and contamination of water resources by rapid infiltration of contaminants from the land surface to the groundwater via movement of water through fractures and into the sinkhole."[950] Further, as the Commission points out, the blasting required to lay the pipeline in certain karst terrain "could create fractures in the rock, temporarily affecting local groundwater flow patterns and groundwater yield of nearby wells and springs around the blast site, and affecting their water quality by a temporary increase in turbidity levels shortly after blasting."[951]

Despite generally acknowledging these potential impacts, the Commission fails to take the required "hard look" at how the Atlantic Coast Pipeline could affect and be affected by the significant karst resources along its route. The

[948] See, generally, Chris Groves, Ph.D., *Karst Landscapes and Aquifers of the Central Appalachian Mountains and Implications for the Proposed Atlantic Coast Pipeline* [hereinafter Groves Report], included as **Attachment 49**. The Supply Header Project also affects 1.1 miles of land that has the potential to contain karst features. DEIS at ES-3.

[949] DEIS at 4-7; *See also id.* at 4-83 ("[D]evelopment of karst features along the ground surface greatly increases the susceptibility of underlying aquifers to contamination sources (e.g., soil, stormwater, chemical spills, or other contaminants) originating at the ground surface.").

[950] DEIS at 4-8.

[951] *Id.* at 4-4.

Commission's failures include wrongfully limiting its analysis to only the most visible karst features, unjustifiably minimizing the risks of construction through the karst areas it does acknowledge, and relying on vague, unproven, or undisclosed mitigation measures to determine that impacts associated with siting the pipeline through karst terrain will not be significant. As a result, the Commission significantly underestimates the environmental impacts associated with karst resources.

B. The draft EIS fails to adequately identify the full extent of the karst network that would be affected by and pose risks to the pipeline.

The proposed corridor of the Atlantic Coast Pipeline passes through three significant regions of karst as it crosses the mountains and valleys of Western West Virginia and Southwestern Virginia.[952] The Allegheny Front and Appalachian Plateau province, encompassing Pocahontas and Randolph Counties, West Virginia, "generally exhibits intensive development and high density of karst features due to its highly fractured nature and steep groundwater hydraulic gradients." Features include linear cave networks, conduit flow, disappearing and subterranean streams, and steep-walled, open throat sinkholes, known as swallets.[953] The Folded Appalachian Subsection of the Valley and Ridge province, encompassing the eastern portion of Pocahontas County, West Virginia, all of Bath and Highland Counties, and western Augusta County, Virginia, contains

[952] *Id.* at 4-10.

[953] *Id.*

numerous different areas of karst development, "where erosion has exposed the limbs of folded carbonate formations."[954] Lastly, the proposed path of the pipeline crosses the Great Valley subsection of the Valley and Ridge province, which includes the majority of the proposed alignment in Augusta County, Virginia. "The karst terrain of this subsection is characterized by numerous circular to oval-shaped sinkholes, ranging in size from a few to several hundred feet in diameter, and the presence of caves and large springs. In the eastern portion of August County, the karst terrain has been buried beneath a mantle of alluvium shed off from the mountains to the east . . . [which has] resulted in the formation of numerous shallow broad sinkholes."[955]

The Commission relies upon the applicant's Karst Survey Report to identify "surface karst features" that could be adversely impacted by construction and operation of the Project. That review includes a "desktop evaluation" identifying any closed depressions and cave entrances occurring within a quarter mile of the pipeline centerline and a "field survey" that assessed those features within 150 feet of the centerline in more detail. Only features within the 300 foot corridor were delineated, documented, and recorded.[956] That level of review is far too narrow and fails to account for portions of the karst system beyond mapped caves and the

[954] *Id.*

[955] *Id.*

[956] *Id.*

most obvious surface features. Because the draft EIS fails to identify and assess impacts to the broader karst system, it does not comply with NEPA.

As Professor Ernst Kastning explained in a review of the karst impacts of the Mountain Valley Pipeline, which would also traverse the Ridge and Valley province in Virginia and West Virginia, "Karstic features on the surface can range from the extremely obvious (e.g., large sinkholes, sinking streams, swallets and/or springs), often overlooked features (e.g., small sinkholes or dry valleys), subtle features (e.g., swales), and very small features (e.g., solutional sculpting of rock surfaces such as karren features)."[957] In addition to the more obvious "sinkholes, caves, and caverns" identified by the Commission, karst landforms of any size on the surface can sometimes be hidden from the casual observer. "Large, dry valleys and solution valleys can inadvertently go unrecognized as karst – proverbially a 'one can't see the forest for the trees' symptom. . . . Other karstic features are too small to be discovered by aerial photography or illustrated on a topographic map." [958] The end result is that "[i]n areas underlain by soluble rock, the absence of sinkholes on the surface cannot be categorically interpreted as the absence of karst."[959]

[957] Ernst Kastning, Ph.D., *An Expert Report on Geologic Hazards in the Karst Regions of Virginia and West Virginia: Investigations and Analysis Concerning the Proposed Mountain Valley Gas Pipeline* 12 [hereinafter Kastning Report], FERC Dockets No. CP16-10 and CP 16-13 (eLibrary No. 20160713-5029).

[958] *Id.* at 12–13.

[959] *Id.*

Likewise, in a review of the pipeline's potential impacts on karst terrain, Professor Chris Groves explains that "explored and mapped caves within a particular area offer only a fragmented and incomplete picture" of the karst landscape.[960] A distinction must be made between mapped caves and the more complete, integrated networks known as "karst flow networks."[961] Cave maps such as those relied upon by the Commission in the draft EIS show only the extent of passages that can be explored and mapped by humans and do not represent the entirety of the karst flow network. When karst systems are viewed on the environmentally-relevant scale of passages large enough to transmit water and air contaminants, "separate caves can get connected, and caves that didn't exist at all because the larger explorers couldn't fit into them now come into existence. It is reasonable that at some point in the progression that more and more caves within a given region of a rock body, maybe *all* at some point, converge to form a single integrated system of interconnected spaces ranging from the relatively large passages shown on cave maps down to fine fractures."[962]

This distinction is important because the contaminants that could potentially be introduced by construction and operation of the Atlantic Coast Pipeline, such as sediment, hydrocarbons, and methane, can travel throughout the karst flow network. Thus, any impacts to one area of the karst flow network may be felt

[960] Groves Report, *supra* note 948, at 9.

[961] *Id.*

[962] *Id.*

broadly throughout the larger network as contaminants travel unimpeded through the small spaces within the bedrock. As the Groves Report explains,

> a significant emphasis in [the draft EIS] is on caves, meaning the larger places within the karst aquifers into which human-sized cave mappers can fit. However, water carrying sediment or other contaminants can flow through a wide range of spaces. This includes much smaller spaces than explorable caves, whose locations are not in general measurable. . . . [T]he notion of larger "karst features" being the focus is to some degree, especially anthropomorphic. For this reason indeed, while decisions in the Karst Mitigation Plan are called for to determine whether a karst feature has "connectivity to the subsurface environment and risk for impacting groundwater quality," there are karst areas where the *entire landscape*—not just sinkholes and swallets —has "connectivity to the subsurface environment and risk for impacting groundwater quality."[963]

Once those contaminants reach the karst flow network, they can "travel long distances over relatively short periods . . . where they may emerge at a spring that in some cases may serve as a water supply contaminated by a source that may be miles or tens of miles away."[964]

Thus, although there may be no apparent karst surface features, construction may still significantly contaminate the karst network and affect resources many miles away. By relying primarily on mapped caves and more obvious surface features to identify karst resources, limiting the assessment of karst features to within ¼ mile of the pipeline corridor, and limiting assessment of springs/swallets

[963] *Id.* at 30 (emphasis in original).

[964] *Id.* at 12; *see also* DEIS at 4-14 ("Dye trace tests conducted in the area determined that water from sinking streams flowing into subsurface conduits can travel miles over a couple days, further indicating the degree of subterranean karst development.").

and pre-construction water quality surveys to within 500 feet of the pipeline, the Commission fails to account for potential significant impacts to the larger karst flow network.

As Professor Groves notes, significant potential for contamination of groundwater sources exists even where obvious surface karst features are not present:

> A shortcoming of environmental regulations and planning . . . concerns the concept that water and contaminants that it carries must take a surface route to a sinkhole or swallet and then sink into the aquifer there to potentially contaminate groundwater. . . . A characteristic of many karst areas, however, especially sinkhole plains such as occur in SW Virginia and eastern West Virginia, *is that surface drainage is almost wholly lacking, and this is because water can infiltrate essentially everywhere*. While sinkholes, swallets and related karst features can certainly be preferred routes for water and contaminants to enter the subsurface, they are often not required for water to infiltrate into the karst aquifer.[965]

For these reasons, the Commission is wrong to dismiss impacts to karst systems that are outside the construction corridor. For instance, the Commission notes that the proposed Atlantic Coast Pipeline construction workspace is within a half mile of the Burnsville Cove Cave Conservation Site, which has a biodiversity significance ranking of B1, "indicating that it is of first order global significance in terms of biodiversity conservation," for a distance of over 2 miles.[966] The Commission dismisses any impacts to this valuable area based on its conclusion

[965] Groves Report, *supra* note 948, at 30 (emphasis in original).

[966] DEIS at 4-15.

that "proposed trenching activities would not pass over or intercept any known cave systems in the Burnsville Cove Cave Conservation Site."[967] As explained above, however, merely avoiding the most obvious karst features such as mapped cave systems is not sufficient to prevent impacts to those systems through contamination of the karst flow network. The Commission's failure to analyze the potential impacts caused by construction within the karst flow network, as opposed to directly through easily identifiable karst features such as mapped caves and sinkholes, renders the draft EIS deficient.

C. The draft EIS wrongly dismisses the serious risks posed by leakage of gas from the Atlantic Coast Pipeline into the karst flow network.

The draft EIS's analysis of risks posed by the crossing of karst landscapes fails to adequately assess the potential for methane leakage from the pipeline to contaminate and spread through the karst flow network. There have been numerous documented cases where toxic and/or explosive gasses have contaminated the unsaturated zone of a karst flow system in ways that have created concerns for public health, significant financial impacts, and in at least two cases, injury and death.[968]

The Bureau of Land Management (BLM) conducted a study on the potential for methane leakage from natural gas development activities to contaminate the karst network outside of but connected to Carlsbad Caverns National Park, which

[967] *Id.*

[968] Groves Report, *supra* note 948, at 13–22.

was published as part of the Final Dark Canyon Environmental Impact Statement.[969] BLM's analysis found that

> If natural gas were to flow through an open hole or through casing/cement that either failed or was inadvertently perforated, the gas would follow passage or other routes, such as small fractures or faults, and eventually contaminate a cave or cave system. Some of the effects of such contamination may be irreversible. The risk to humans from the migration of hydrogen sulfide and/or methane could be substantial. Explosions could result when the gas and the oxygen in the cave mix and are ignited by carbide lights often used by cavers.
>
> . . .
>
> Cave values would be damaged by explosion. The presence of hydrogen sulfide and/or methane gas, even in small amounts, could change the delicate balance of the cave atmosphere, causing the rapid deterioration of cave formations and the disruption or death cave life.
>
> …
>
> Buildup of toxic or combustible fumes in caves and cave entrances from leaking or ruptured pipelines may harm wildlife and cave visitors and, in extreme cases, lead to asphyxiation or rapid ignition in the rare event that the fumes are ignited by visitors.[970]

The draft EIS fails to adequately address the substantial ecological and safety risks posed by pipeline leakage into karst systems. Contrary to the Commission's conclusion that "the likelihood of a gas release [from the Atlantic Coast Pipeline] is low" such that "the probability for methane to impact karst features and associated groundwater" is also low, [971] such methane leakage is a common

[969] *Id.* at 15.

[970] *Id.* at 15-17.

[971] DEIS at 4-20.

occurrence in underground pipelines.[972] Indeed, the risk of leaks or catastrophic failures is greatly increased when a pipeline is cited through karst terrain.[973] The Commission's failure to adequately address these risks thus renders the draft EIS inadequate.

D. The draft EIS impermissibly defers assessment of impacts to multiple critical karst resources.

The karst terrain that would be traversed by the Atlantic Coast Pipeline includes several sites of particular ecological significance. Instead of analyzing and disclosing in the draft EIS the potential for impacts to these special areas, the Commission merely instructs Atlantic to submit analysis of potential impacts and mitigation at some point in the future. As explained in detail in Section I of these comments, this approach undermines the purposes of an EIS under NEPA, which is to inform agencies and the public of impacts and alternatives *before* a decision that would significantly affect the environment is made.

One such special area is the Cochran's Cave Conservation Site in Augusta County, Virginia. This area is designated as a first order globally significant

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[972] EPA Natural Gas Star, Basic Information, http://www.epa.gov/methane/gasstar/basicinformation/index.html (last visited Apr. 5, 2017); Conservation Law Foundation, *Into Thin Air: How Leaking Natural Gas Infrastructure is Harming Our Environment and Wasting a Valuable Resource*, *available at* http://www.naturalgaswatch.org/wp-content/uploads/2012/11/CSF_fugitive_emissions_report.pdf (last visited Apr. 5, 2017); House Natural Resources Committee Democratic staff, *America Pays for Gas Leaks: Natural Gas Pipeline Leaks Cost Consumers Billions*, *available at* http://www.clf.org/wp-content/uploads/2013/08/Markey-Gas-Leaks-Report-2.pdf (last visited Apr. 5, 2017).

[973] Groves Report, *supra* note 948, at 12-13; Kastning Report, *supra* note 957, at 28-29; DEIS at 4-17.

conservation site. Cochran's Cave No. 2 is designated as a significant resource under the Virginia Cave Protection Act of 1979 and is known to harbor sensitive species such as Virginia big-eared bats, Indiana bats, and Northern long-eared bats, and provides ideal habitat for the Madison Cave isopod. [974] The Commission specifically notes that, because of its high ceiling heights, the cave is particularly vulnerable to construction impacts from the pipeline. However, instead of analyzing in detail and disclosing the potential adverse effects to this ecologically significant, vulnerable cave system, the Commission merely instructs Atlantic to consult with a state agency to determine what those impacts would be and to file the results of that consultation and any avoidance measures with the Commission outside of the NEPA public process. [975]

The Commission likewise defers in-depth analysis of impacts to the Dever Spring Recharge Area in Highland County, Virginia. This spring is located within 1,500 feet of the project workspace in an area where over 80% of karst features are classified as high risk.[976] Atlantic has not yet conducted field surveys in this area and thus does not present any detailed analysis of the potential impacts to this sensitive area. Rather, the Commission permits the applicant to "submit an assessment of karst development and potential impacts in the area" at some unspecified future date and "complete the field survey for karst features in the area

[974] DEIS at 4-15.

[975] *Id.*

[976] DEIS at 4-14 (finding that 23 of 28 identified karst features in Highland County are classified as high risk).

pending land access and prior to construction."[977] The Commission's failure to analyze these impacts in the draft EIS and subject that analysis to meaningful public comment violates NEPA.

E. The draft EIS unjustifiably minimizes the risks of construction through karst by relying on vague, unproven, or undeveloped mitigation measures.

Despite acknowledging some, but by no means all, of the risks posed by construction through karst terrain, the Commission concludes that the impacts will not be significant.[978] In order to reach that conclusion, the Commission relies on Atlantic's implementation of Best Management Practices in its *Karst Mitigation Plan* and use of a karst specialist to limit potential negative impacts on karst features.[979] The Commission does not, however, evaluate the effectiveness of those measures. Instead, it assumes that these measures would be sufficient to minimize impacts to karst. As the Groves and Kastning reports make clear, those measures would not be adequate to avoid the significant impacts associated with construction through karst.

Professor Groves concludes that, "Considering the nature of the karst systems of the Appalachian Mountains across which this proposed pipeline would cross, the environmental challenges presented, and the karst-related environmental planning described in the DEIS, karst hazard assessments, and the Karst

[977] *Id.*

[978] *Id.* at 5-1 to 5-2.

[979] *Id.*

Mitigation Plan, . . . there are still significant environmental and safety risks if the ACP [Atlantic Coast Pipeline] is constructed."[980] Groves cites numerous flaws with the mitigation plan that demonstrate it will not minimize impacts as the Commission asserts. For example,

> [T]he Karst Mitigation Plan, described in Measures to Avoid Impact to the Karst Aquifer and Environment section 8.d recommends that "construction equipment vehicles, materials, hazardous materials, chemicals, fuels, lubricating oils, and petroleum products will not be parked, stored, or serviced within 300 feet of any karst feature." This suggests that if a spill of such hazardous material occurs, that it will flow overland to the karst feature and then sink there to potentially contaminate groundwater. A characteristic of many karst areas, however, especially sinkhole plains such as occur in SW Virginia and eastern West Virginia, *is that surface drainage is almost wholly lacking, and this is because water can infiltrate essentially everywhere*. While sinkholes, swallets and related karst features can certainly be preferred routes for water and contaminants to enter the subsurface, they are often not required for water to infiltrate into the karst aquifer.[981]

The Commission is thus wrong to rely on Atlantic's identification of "karst features" to minimize impacts.

This failure is compounded by the draft EIS's deferral of development of many mitigation measures beyond the draft EIS process. The Commission fails to include in the draft EIS the mitigation measures that are necessary to: (1) protect the Cochran Cave Complex, discussed above; (2) protect against damage to karst

[980] Groves Report, *supra* note 948, at 29-30.

[981] *Id.* at 30 (emphasis in original).

resources from geotechnical drilling boreholes;[982] (3) protect cave invertebrates and other subterranean obligate species (amphipods, isopods, copepods, flatworms, millipedes, beetles, etc.) that are endemic to only a few known locations;[983] and (4) protect against groundwater impacts where construction activities intercept a saturated karst conduit.[984] Instead, the Commission allows Atlantic to develop and submit these mitigation measures in the future. The Commission cannot rationally conclude in the draft EIS that the Atlantic Coast Pipeline's impacts in karst would be adequately minimized when Atlantic has yet to develop or submit these mitigation measures. As with impacts to many other resources discussed in these comments, the Commission blindly accepts the assurances of the applicants without itself subjecting the proposed measures to scrutiny to ensure their effectiveness.

Moreover, the Commission's assurance that Atlantic will be able not only to identify but to avoid significant impacts to karst ignores the reality of the karst systems described above. As Kastning explains,

> For the DEIS discussion of hazards and mitigation to merely dance around and past individual sinkholes and other karst features ignores the interconnectivity of surficial and subsurficial paths of water flow. By analogy, if an army were to encounter a mine field in battle, it would be prudent for it to skirt the area completely rather than tip-toe through it in the hopes that a catastrophic event would not be triggered. A pipeline that zigs and zags through a plain of

[982] DEIS at 4-19.

[983] *Id.* at ES-10.

[984] *Id.* at 4-84.

> sinkholes may easily encounter karst features that are subtle of not recognizable from surface recognizance.[985]

Because of the complex, interconnected nature of karst landscapes, both Groves and Kastning conclude that the impacts of construction of a 42-inch buried pipeline through this terrain "cannot simply be engineered away. These are often simply poor locations for the construction and operation of such facilities. . . . The only way to wholly avoid these significant potential problems is to avoid well-developed karst areas altogether."[986] The Commission's unreasonable reliance on Atlantic's proposed—and yet to be proposed—mitigation measures to minimize the impacts of construction in karst thus renders the draft EIS deficient.

I. IMPACTS FROM CONSTRUCTION ON STEEP SLOPES

A. The draft EIS fails to adequately assess the aquatic resource impacts of erosion, sedimentation, and turbidity resulting from construction through streams and along steep slopes.

Construction of the proposed Atlantic Coast Pipeline and Supply Header projects would cross 1,989 waterbodies, including 851 perennial waterbodies, and would disturb over 4,336.7 acres of soils with high potential for water erosion.[987] The vast majority of those waterbodies provide habitat for aquatic life and support fisheries.[988] The Atlantic Coast Mainline would clear a 110–150 foot wide

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[985] Kastning Report, *supra* note 957, at 7.

[986] Groves Report, *supra* note 948, at 29-30; *see also* Kastning Report, *supra* note 957, at 54-56.

[987] DEIS at ES-8, 4-44.

[988] *Id.* at 170-76. *See, generally*, DEIS Appendix K (listing use classifications of streams crossed).

corridor along the length of the pipeline route during construction,[989] which would lead to increased sedimentation of streams due to bank erosion at crossing locations and stormwater discharges from disturbed areas, among other impacts.[990] Additionally, the project would convert a significant amount of forested land to herbaceous cover in the 50-foot wide permanent right-of-way, much of which follows steep slopes with highly erodible soils.

The Commission acknowledges that construction of the project would likely lead to adverse impacts on water quality.[991] "Clearing and grading of stream banks, blasting (if required), in-stream trenching, trench dewatering, and backfilling could each result in temporary, local modifications of aquatic habitat involving sedimentation, increased turbidity, and decreased dissolved oxygen concentrations."[992] Those impacts would harm the aquatic organisms that rely on the affected streams for their survival. As the Comission states,

> [i]ncreased sedimentation and turbidity resulting from in-stream and adjacent construction activities would displace and impact fisheries and aquatic resources. Sedimentation could smother fish eggs and other benthic biota and alter stream bottom characteristics, such as converting sand, gravel, or rock substrate to silt or mud. These

[989] *Id.* at 2-9. The cleared construction right-of-way for the ACP laterals would be between 75 and 100 feet wide. *Id.*

[990] *Id.* at 4-97 to 4-100.

[991] *Id.*

[992] *Id.* at 4-100; *see also id.* at 5-10 ("In-stream pipeline construction across waterbodies could impact aquatic species and their habitats, increase sedimentation and turbidity, alter or remove aquatic habitat cover, cause stream bank erosion or scour, impinge or entrain fish and other biota during water withdrawals, and increase the potential for fuel and chemical spills.").

> habitat alterations could reduce juvenile fish survival, spawning habitat, and benthic community diversity and health. Increased turbidity could also temporarily reduce dissolved oxygen levels in the water column and reduce respiratory functions in stream biota. Turbid conditions could also reduce the ability for biota to find food sources or avoid prey.[993]

Despite generally acknowledging these impacts, the Commission concludes that they would be primarily short term and could be adequately mitigated through the use of Best Management Practices, such that no significant adverse impacts to aquatic resources would occur.[994] The Draft EIS's analysis of impacts to aquatic resources falls fall short of the "hard look" required by NEPA for numerous reasons.

First, the Commission lacks adequate information to determine the impacts that would be associated with the wet open-cut crossing method at the major crossing of the Neuse River. Without that information, it cannot reasonably conclude that the project would not significantly impact the aquatic ecosystem in that waterbody. Second, the Commission unjustifiably relies on the use of Best Management Practices to conclude that clearing and trenching in steep slope areas and at water crossings will not significantly contribute to sedimentation and related impacts of turbidity. The Commission provides no evidence to justify its conclusion that those measures would successfully minimize sedimentation impacts, and past experience demonstrates that they would be inadequate. Third,

[993] *Id.* at 4-188

[994] *Id.* at 5-10 to 5-12.

the Commission fails to account for the increased sedimentation that would result from the conversion of mature forest to herbaceous cover within the 50-foot wide permanent right-of-way along much of the pipeline route. As expert analysis performed by the consulting firm Downstream Strategies, LLC confirms, that land use change would cause significant increases in sedimentation.[995] Finally, the Commission fails to account for impacts associated with the creation of potentially millions of cubic yards of excess spoil. Because of those shortcomings, the Commission's draft EIS does not comply with NEPA.

B. The draft EIS lacks information necessary to determine impacts to aquatic life in the Neuse River, which would be crossed using the wet open-cut method.

The Atlantic Coast Pipeline would cross the vast majority of "major" waterbodies, defined as those where the crossing width would be greater than 100 feet, using the HDD or cofferdam methods. However, one major waterbody, the Neuse River, would be crossed using the "wet open-cut" method, which involves trenching within the waterbody under flowing conditions and thus carries the potential for much greater impacts to water quality than dry crossing methods.[996] The Neuse supports habitat for multiple sensitive aquatic species, including the Neuse River Waterdog and the Atlantic Sturgeon.[997] Despite the potential for

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[995] *See* Atlantic Coast Pipeline Sediment Modeling Methodology, Prepared for Appalachian Mountain Advocates by Jason Clingerman and Evan Hansen of Downstream Strategies, LLC, (hereinafter Downstream Strategies Report), included as **Attachment 52**.

[996] DEIS at 4-91, 4-192.

[997] *Id.* at 4-192 to 4-193.

significant impacts to this important habitat, the Commission failed to analyze impacts of the crossing in the draft EIS, choosing instead to defer analysis until some unspecified time prior to construction.

The Commission recognizes that the wet open-cut crossing method poses substantial threats to water quality:

> Open-cut construction would result in increased turbidity and sedimentation in the crossing vicinity, potentially decreasing the dissolved oxygen, thereby potentially suffocating the eggs and larvae of fish and invertebrates. Sedimentation could displace the more mobile species and potentially smother benthic invertebrates, decreasing prey availability for fish. These effects could degrade the quality of the habitat, making it unsuitable for spawning and rearing activities.[998]

In previous NEPA reviews, the Commission has acknowledged that in order to determine the impacts to aquatic organisms from such a crossing, it is necessary to calculate the duration, extent, and magnitude of in-stream turbidity levels that would result from additional sediment loads. In the draft EIS for the Mountain Valley Pipeline, which is the same size and crosses very similar terrain to the Atlantic Coast Pipeline, the Commission explained that simple sediment load modelling was not sufficient to determine impacts to aquatic life from open-cut construction. Without analyzing factors such as stream velocity, turbidity, bank composition, sediment particle size, and duration of the disturbance, the density, downstream extent, and persistence of a turbidity plume at a given crossing cannot be known. In the absence of quantitative analysis of the duration, extent, or

[998] *Id.* at 4-192.

magnitude of estimated turbidity levels, "conclusions cannot be drawn regarding the effects of sedimentation and turbidity on fisheries and aquatic resources due to the wet open-cut crossings."[999]

Despite admitting that it cannot determine impacts from sedimentation and turbidity on aquatic life at the wet open-cut major river crossings, the Commission nonetheless concludes that those impacts would not be significant. Its conclusion is in part on its requirement that Atlantic submit an analysis that "address[es] the duration, extent, and magnitude of turbidity levels," "assess[es] the potential impacts on resident biota," "include[s] a discussion on the physical and chemical characteristics of the sediments, the estimated area affected by the transport and redistribution of the sediments, and the effect of the suspension and resettlement on water quality," and includes "an assessment of the effectiveness of the proposed mitigation measures."[1000] The Commission, however, does not require that analysis to be submitted during the NEPA process or, indeed, even prior to the issuance of a certificate. Rather, it permits Atlantic to submit its analysis at any time prior to the beginning of construction.[1001]

As explained in detail above, NEPA does not permit agencies to defer analysis that is critical to determining the environmental impacts of a proposed project until after the issuance of a draft EIS or, even less so, after the conclusion of the NEPA

[999] Draft Environmental Impact Statement for the Mountain Valley Pipeline and Supply header Projects, FERC Dockets No. CP16-10 and CP16-13, at 4-108, 4-176.

[1000] *Id.* at 4-102.

[1001] *Id.*

process. Rather, the Commission must "take to the public the full facts in its draft EIS."[1002] Here, the Commission expressly acknowledges that it cannot determine impacts to aquatic life at the major waterbodies such as the Neuse River that would be crossed using the wet open-cut method based on the information before it. Nonetheless, the Commission concludes that those impacts would not be significant because they would be studied at some future date along with the effectiveness of the proposed mitigation measures. This conclusion defies logic and plainly renders the draft EIS deficient, thus violating NEPA.

C. The draft EIS's reliance on BMPs to minimize construction sedimentation impacts along steep slopes and at water crossings is unjustified

The proposed projects would impact aquatic life due to increased sedimentation not just from the stream crossings themselves, but also from the runoff from the significant land disturbance that would occur in the watersheds upstream from the crossings during construction. As mentioned above, construction of the Atlantic Coast Pipeline would disturb over 4,336.7 acres of soils with high potential for water erosion.[1003] Moreover, much of the proposed project route follows very steep slopes, with the Atlantic Coast Pipeline crossing over 84 miles of slopes greater than 20 percent, including 24.1miles of slopes greater than 35 percent, and the Supply Header Project crossing over 24 miles of slopes greater than 20 percent, including 10.7 1miles of slopes greater than 35

[1002] *Burkey v. Ellis*, 483 F. Supp. 897, 915 (N.D. Ala. 1979).

[1003] DEIS at 4-44.

percent.[1004] Through the course of construction, "clearing and grading would remove trees, shrubs, brush, roots, and large rocks from the construction work area" and heavy machinery would be used to dig a trench to a depth of between six and eight feet.[1005] Such disturbance would undoubtedly lead to increased risk of slope failure and increased sedimentation in waterbodies downstream from the disturbed area.[1006]

Despite the steep slopes and highly erodible soils that would be traversed by the Atlantic Coast Pipeline, the Commission concludes that erosion and sedimentation from these areas would be temporary and localized with the implementation of Best Management Practices.[1007] The draft EIS does not, however, in any way evaluate the effectiveness of, or even discuss in any detail, the measures included in those plans. Indeed, site-specific plans are not included

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[1004] *Id.* at ES-4, 4-26.

[1005] *Id.* at 2-32 – 2-33.

[1006] *See, e.g.,* Pamela C. Dodds, Ph.D., Licensed Professional Geologist, *Assessment Of The Adverse Hydrogeological Impacts Resulting From Construction Of The Proposed Atlantic Coast Pipeline In West Virginia, Virginia, And North Carolina*, March 2017, included as **Attachment 53**; DEIS at 4-37 ("Restoring a slope to original contour, returning the topsoil, and reestablishing vegetation would not restore a slope to original condition, though it may appear so and create a false sense of security. ACP's cut-and-fill construction on steep slopes would result in permanent, irreversible alterations of geologic conditions."); *Id* at 4-36 ("The potential failure of ACP's fill slopes (including backfill) and resulting debris flows than [sic] could travel hundreds or thousands of feet downslope is a significant concern of the FS with the potential to affect public safety, resources, and infrastructure on the NFS lands and non-federal lands downslope. However, the full scope of this fill slope hazard is not recognized in the industry-specific guidance "Mitigation of Land Movement in Steep and Rugged Terrain for Pipeline Projects" (INGAA, 2016), which the BIC Team would use to develop mitigation designs for ACP (see section 4.1.4.2.).").

[1007] *See, e.g.,* DEIS at 5-2.

in the draft EIS and it is not clear if those plans have been completed and reviewed by the Commission. The Commission either simply assumes that the mitigation measures that would be included in those plans would successfully minimize sedimentation impacts or defers consideration of the effectiveness of those measures to a later date. Thus, its analysis in the draft EIS is thus either unsupported or incomplete and, indeed, conflicts with available evidence of the impacts of pipeline construction through areas of steep slopes and highly erodible soils.

Studies show that erosion and sedimentation controls for pipelines have been known to fail under heavy rain events and sedimentation risk is higher under steeper conditions and near bodies of water.[1008] There are numerous examples of significant sedimentation impacts occurring during pipeline construction despite the use of industry-standard erosion and sedimentation controls.

A 42-inch diameter pipeline has never been constructed through the steep, rugged, highly erodible terrain of the region of the Appalachian Mountains that would be traversed by the Atlantic Coast Pipeline. However, construction of much smaller pipelines in the region has repeatedly resulted in extreme sedimentation impacts. For example, in 2006, during construction of a 20-inch East Tennessee Gas Pipeline in Tazewell and Smyth Counties, Virginia, slopes failed in two independent events in Indian Creek and North Fork Holston River, resulting in a

[1008] *See, e.g.*, Johnson, Gagnolet, Ralls, and Stevens, The Nature Conservancy, *Natural Gas Pipelines* at 7 (2011), http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/pennsylvania/ng-pipelines.pdf.

kill of several hundreds of individuals and multiple species of endangered mussels.[1009] The worst sediment problems originated not directly at the stream crossings, but high in the watershed where small streams transported sediment to the larger streams. Evidence of the sediment was detected as far as two kilometers downstream of the slips. These impacts occurred despite extreme care taken by the Commission, U.S. Fish and Wildlife Service, the Virginia Department of Conservation and Recreation, and the company to ensure that state-of-the-art erosion control measures were in place.[1010]

Similarly, a 2014 Columbia Gas of Virginia project to add a 12-inch pipeline adjacent to an existing 6-inch pipeline along Peter's Mountain near a portion of the Jefferson National Forest in Giles County, Virginia, led to extreme sedimentation impacts.[1011] This location involves similar terrain and is very close to the proposed route of the Atlantic Coast Pipeline. Inspection reports by the U.S. Forest Service describe sediment movement that "looked like a lava flow" and note that the inspector had "never seen that much sediment move off site before."[1012] Much of the sediment became embedded in a nearby stream.[1013] These impacts occurred despite the existence of comprehensive erosion control plans,

[1009] *See* April 10, 2015 Comments of the Scientific and Technical Committee of Preserve Craig, Inc. to the USDA Forest Service, included as **Attachment 54**.

[1010] *Id.*

[1011] *See* Dominion Pipeline Monitoring Coalition, *Case Study - Columbia Gas, Giles County, VA*, http://pipelineupdate.org/case-study-no-1.

[1012] U.S. Forest Service Inspection Reports of Sept. 5, 2014 and September 15, 2014, http://pipelineupdate.org/national-forest-pipeline-inspection-reports/.

[1013] *Id.*

implementation of Best Management Practices, and weekly inspections by the company to ensure proper implementation.[1014] As demonstrated by the photo below showing massive amounts of sediment that travelled beyond the company's installed silt fence and bypassed a diversion channel, standard erosion and sediment control practices are not sufficient to protect against damage associated with pipeline construction on the steep slopes of this area.

Figure XVI(a)
Sedimentation at Columbia Gas Site near Jefferson National Forest
Source: Dominion Pipeline Monitoring Coalition

[1014] *Id.*

Similar impacts occurred in Pennsylvania with construction of Tennessee Gas Pipeline's (TGP) 300 Line Project, part of the Susquehenna West Project.[1015] In May of 2010, FERC issued an environmental assessment for the 300 Line Project, finding there would be no significant impacts when TGP crossed streams in northeast and north-central Pennsylvania. The Commission relied on TGP's plan to follow construction guidelines created by the Corps, USDA, NRCS, and the Commission. In addition, the Commission imposed its own conditions. However, despite what the Commission believed to be adequate measures, TGP's construction violated Pennsylvania Clean Water Law multiple times. The majority of the project's compliance reports contained at least one violation of the project plans, but the plan was never enforced.[1016] Whether the plan was inadequate in its substance or inadequately enforced, the end result is the same: the pipeline's stream crossings, which the Commission believed would cause no significant environmental impact, ended up resulting in an $800,000 in a settlement between TGP and the Pennsylvania DEP.[1017]

[1015] *See* Comments of Allegheny Defense Project and Damascus Citizens for Sustainability on Susquehenna West Pipeline Environmental Assessment, FERC Docket CP15-148-000, filed April 18, 2016 (eLibrary No. 20160418-5264) at 13-17.

[1016] *Id.* at 15–16.

[1017] *Id.* at 13.

The developers of the present proposed projects have likewise caused sedimentation impacts that led to violations of water quality standards. Dominion Transmission, Inc.'s (DTI) operations on the G-150 and TL-589 gas pipelines in West Virginia led to slope failure at pipeline stream crossing locations during and post construction, resulting in harm to streams despite the application of industry-standard erosion and sediment control practices. West Virginia Department of Environmental Protection inspections documented a series of 13 locations where lower slope slippage or landslides along pipeline construction right-of-ways introduced sediment into streams in violation of state water quality standards. These violations are documented in a Consent Order that resulted in a fine of more than $50,000.[1018] Indeed, due to the mass movement of soil and failure of mitigation measures, many of the sediment control devices themselves actually ended up in the streams, as shown in the photos below from WVDEP's Consent Order.[1019]

[1018] WVDEP Consent Order No. 8078, October 1, 2014, http://www.dep.wv.gov/pio/Documents/Settlements%20and%20Orders/DOMINION%20TRANSMISSION%20INC.pdf.

[1019] *Id.* at 13.

Figure XVI(b)

Photo 3: N 39° 52.3772' W 80° 41.1271' Bartletts Run. Flume pipe, sand bags and slip material in stream.

Figure XVI(c)

Photo 4: N 40° 06.535' W 80° 35.297' Sediment blanket in Battle Run.

The U.S. Forest Service in multiple submissions to the Commission has documented the inadequacy or lack of evidence to demonstrate effectiveness of Atlantic's proposed mitigation measures. For example, in its comments and questions regarding Atlantic's soil slippage analysis, the Forest Service noted that

> [A]though ACP states that 'Based on the results of the first phase of the Geohazards Analysis Program and the implementation of site specific mitigation, Atlantic believes that impacts from slope failures will be minimized or avoided,' the validity of this statement is questionable . . . . *Empirical evidence shows that slope failures are occurring on these soils in other parts of the region, even with the implementation of required mitigation and design features*.[1020]

In order to be assured that construction of the Atlantic Coast Pipeline would not result in significant sedimentation impacts on National Forest lands, the Forest Service is requiring Atlantic to submit detailed, site-specific information to assess potential impacts of steep slope failure including:

- plans and typical drawings of representative construction segments to display the magnitude of the proposed slope modifications;

- site specific designs, including plan and profiles (cross section(s) perpendicular to centerline, and a longitudinal cross section along the

[1020] Forest Service Comments and Questions Regarding ACP's Soil Slippage Analysis, FERC Dockets No. CP15-554 and CP15-555 (eLibrary No. 20160113-5055) (emphasis added); *see also*: Forest Service Comments on the Order 1 Soil Survey Report for the MNF and GWNF, FERC Dockets No. CP15-554 and CP15-555 (eLibrary No. 20160923-5226) (describing inadequacies in Atlantic's soil surveys that prevent assessment of potential success of BMPs); Forest Service Comments on Atlantic's Construction, Operation and Maintenance Plan, FERC Dockets No. CP15-554 and CP15-555 (eLibrary No. 20161110-5195) (identifying myriad problems and lack of justification for Atlantic's proposed mitigation measures).

centerline) for several sites with steep slope landslide hazards, which would need to include dimensions (feet) showing 1) the original ground surface, 2) the maximum extent of the cut, fill, and spoil during construction, and 3) the post-construction reclaimed ground surface, showing reclamation backfill, reclaimed slopes, and the permanent right-of-way; and

- the criteria that would be used to determine whether excavated material would be stable if returned to original contour, how they would assess the potential for failure of fill slopes resulting from reclamation on steep slopes, and alternative reclamation methods in the event that backfill for reclamation on steep slopes would be unstable.[1021]

According to the draft EIS, Atlantic has still not provided the Forest Service with adequate information to assess "potential project-induced landslide hazards and risk to public safety, resources, and infrastructure and also the effectiveness of proposed mitigation measures for restoration of steep slopes."[1022] As discussed in detail in Section I of these comments, the Commission's failure to obtain, analyze, and disclose this information to the public in the draft EIS is not remedied by its requirement that Atlantic submit the information prior to the close of the public comment period.[1023]

Moreover, if such information is necessary to determine potential impacts associated with construction in streams and along steep slopes on National Forest Service lands, as the Commission acknowledges, it is likewise required to assess impacts on all lands along the route of the pipeline that share those characteristics.

[1021] DEIS at 4-37, 4-40.

[1022] *Id.* at 4-40.

[1023] *See id.* at 4-37, 4-40.

There is no rational distinction that would allow the Commission to assess the impacts associated with construction through these sensitive areas on non-federal land without obtaining the same information that is required for Forest Service lands. The Commission's failure to adequately assess and disclose these potential impacts for the entire route of the Atlantic Coast Pipeline and Supply Header Project in the draft EIS violates NEPA.

The sedimentation modelling performed by Downstream Strategies underscores the importance of requiring an evidence-based demonstration of the effectiveness of proposed mitigation measures. That analysis shows that sedimentation impacts in high risk areas would be substantial even with moderately successful BMPs. Downstream Strategies looked at two high risk areas and used computer models to predict the change in sedimentation that would occur due to construction of the Atlantic Coast Pipeline. The modelling for Turkeypen Creek in Lewis County, West Virginia, shows that, even assuming that best management practices would reduce sedimentation associated with construction by 75 percent, sedimentation would nonetheless increase by *805* percent.[1024] For Falls Run in Nelson County, Virginia, sedimentation would increase by *9,051* percent over baseline levels during construction, assuming 75 percent effectiveness of BMPs.[1025] The Commission, however, cannot know the extent to which Atlantic's proposed measures would be successful because it has not

[1024] *See* Downstream Strategies Report, *supra* note 995.

[1025] *Id.*

performed the necessary analysis. The Commission's unreasonable reliance on unproven or undisclosed best management practices to minimize any impacts to aquatic resources from pipeline construction renders the draft EIS deficient.

D. The draft EIS fails to account for sedimentation impacts from land cover change in sensitive areas within steep and erodible segments of the pipeline right-of-way.

In addition to failing to assess impacts to aquatic resources from wet open-cut crossings and unreasonably relying on unproven best management practices, the Commission also entirely fails to account for the increase in sedimentation that would result from the conversion of upland forest to herbaceous cover within vulnerable segments of the pipeline right-of-way. Although the Commission to some extent evaluates the temporary impacts from in-stream crossings and construction-related clearing of riparian vegetation at the site of crossings, it does not consider the permanent changes in runoff and sedimentation associated with land cover change.

Consulting firm Downstream Strategies prepared an analysis of the sedimentation impacts associated with construction and with post-construction land use change utilizing the Generalized Watershed Loading Functions – Enhanced (GWLF-E) and Wikiwatershed computer modeling tools.[1026] The authors used these models to predict the change in annual sedimentation post-construction that would result from conversion of land cover from forest to the

[1026] Downstream Strategies Report, *supra* note 995.

herbaceous cover that would need to be maintained in the permanent pipeline right-of-way. Although the study found that streams in watersheds with low slopes and stable soils would not experience significant, long-term increases in sedimentation, the opposite was true for "high risk" areas, *i.e.*, those with steep slopes and highly erodible soils.[1027]For Turkeypen Creek, annual post-construction sedimentation increased by 31 percent due to the permanent land use change associated with keeping the right-of-way clear.[1028] For Falls Run, annual post-construction sedimentation increased by a shocking *319* percent due to the conversion of forest in the permanent right-of-way.[1029] Such an increase would threaten aquatic life in streams that are already experiencing stress from other activities such as mining, development, and oil and gas extraction. In order to satisfy NEPA's mandate that agencies take a "hard look" at the impacts of proposed actions, the Commission must analyze the potential for long-term increases in sedimentation associated with the permanent maintenance of the pipeline right-of-way, particularly in sensitive areas with steep slopes and highly erodible soils.

[1027] As explained above, a significant portion of the proposed route of the Atlantic Coast Pipeline is characterized by the steep slopes and highly erodible soils that would contribute to such long-term impacts.

[1028] Downstream Strategies Report, *supra* note 995.

[1029] *Id.*

E. The draft EIS fails to analyze impacts associated with the creation of substantial volumes of excess spoil from ridgeline construction.

Construction of the Atlantic Coast Pipeline and Supply Header Project would result in the creation of large volumes of excess spoil that could not be safely placed back on the pipeline right-of-way, particularly where the pipeline is constructed along ridgelines.[1030] Although the Commission acknowledges that such spoil would be created, it does not analyze impacts associated with disposal of this excess material. The volume of excess spoil is significant enough that offsite disposal would either be impractical or would lead to significant impacts to the disposal areas that must be analyzed in the draft EIS. The draft EIS does not include any plan for the disposal of the excess spoil associated with the Atlantic Coast Pipeline, making it much more likely that the spoil would end up polluting waterbodies adjacent to the construction corridor. The Commission's failure to assess the potential impacts from excess spoil disposal renders the draft EIS inadequate.

The Commission notes in the draft EIS that pipeline construction along ridgetops would require excavation of significant amounts of rock and dirt because of the need to take the top off of the ridge to establish a sufficiently wide construction corridor. This excavated material

> would likely swell in volume and have reduced strength parameters. This material may spill over the edge during construction, leaving a mass of loose material on steep slopes, which

[1030] *See* RESPEC, *Atlantic Coast Pipeline and Supply Header Project Volumetric Analysis* 13 (2017) [hereinafter RESPEC Report], included as **Attachment 55.**

> would be susceptible to failure in the short-term or long-term. In addition, the swelled volume of material may create excess excavation that would need to be hauled to a suitable disposal site. In addition, the piling of the excavated material on the excavated ridgetop in an effort to restore the ridgetop could result in failure of the fill (backfill) slope in the short-term or long-term.[1031]

A significant portion of the route of the Atlantic Coast Pipeline follows ridgelines and would thus be expected to create this excess spoil.[1032]

Engineering firm RESPEC performed a spoil balance analysis for ridgeline construction on the Atlantic Coast Pipeline on a per foot basis. For steeply sloping ridgelines (those greater than 20 percent), 6.3 cubic yards of excess spoil would be created per foot of pipeline corridor. For ridgelines with slopes less than 20 percent, the excess spoil volume would be 7.6 cubic yards per foot.[1033] RESPEC performed a case study applying these factors to a two-mile stretch of ridgeline construction between Atlantic Coast Pipeline mileposts 96 and 98. Construction along just this two mile stretch would create over 130,000 cubic yards of excess spoil that would need to be disposed of off-site.[1034] Construction of the entire Atlantic Coast Pipeline could thus be expected to generate several million yards of excess spoil that would need to be disposed of off-site.

[1031] DEIS at 4-36; *see also* RESPEC Report, *supra* note 1030, at 13.

[1032] *See* DEIS at 4-41 ("The proposed pipelines have been cited to maximize ridgeline construction."); *id.* at 4-35 (noting that 82 percent of the ACP route in the GWNF follows ridgelines); *id.* at 4-38 (noting that 65 percent of the ACP route in the GWNF follows ridgelines).

[1033] RESPEC Report, *supra* note 1030, at 10.

[1034] *Id.* at 12.

The image below depicts the case study corridor outlined in red and the area that would be needed to safely dispose of the excess spoil from just this stretch of construction outlined in blue. The excess spoil disposal from just this stretch would require approximately 7 acres of land.[1035] Thus, disposal of the excess material created by ridgeline construction along the entire length of the Atlantic Coast Pipeline and Supply Header Project corridors would require spoil deposition on hundreds or even thousands of acres of land, with attendant impacts to water quality.[1036]

[1035] *Id.*

[1036] *See, e.g.*, 30 C.F.R. § 780.35 (prescribing the planning and precautions necessary to minimize impacts to terrestrial and aquatic ecosystems from spoil disposal associated with surface coal mining).

Figure XVI(d)
RESPEC Ridgeline Case Study Depiction

Although the Commission in the draft EIS generally acknowledges that excess spoil would need to be "hauled to a suitable disposal site," it does not disclose whether sufficient suitable disposal sites are available, analyze the impacts of the thousands of dump truck trips that would be required to haul the excess spoil, or assess the impacts if sufficient off-site disposal locations are not available. As RESPEC notes, "a spoil relocation plan will be required to properly dispose of the material either onsite or off."[1037] Because the Commission has failed to analyze the critical issue of excess spoil disposal in any meaningful way, the draft EIS does not satisfy NEPA.

[1037] *Id.* at 13.

CONCLUSION

For the reasons set forth above, the Commission's draft EIS for the Atlantic Coast Pipeline and Supply Header Project fails to satisfy the requirements of the National Environmental Policy Act. To remedy these defects, the Commission must prepare and issue a revised draft EIS for public comment that addresses the deficiencies outlined in these comments. Alternatively, the Commission must prepare and issue a supplemental draft EIS for public comment that addresses these deficiencies.

Respectfully submitted,

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On behalf of Conservation Groups

April 6, 2017

CERTIFICATE OF SERVICE

I hereby certify that I have on April 6, 2017, caused the foregoing document to be served upon each person designated on the official service list compiled by the Secretary in this proceeding.

/s/ Gregory Buppert
Gregory Buppert

On behalf of Conservation Groups