UNITED STATES OF AMERICA
BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

In the matter of:	)	
	)	
Atlantic Coast Pipeline, LLC	)	
Docket Nos. CP15-554-000	)	
PF15-6-000	)	
	)	April 5, 2017
Dominion Transmission, Inc.	)	
Docket Nos. CP15-555-000	)	
PF15-5-000	)	
	)	
Atlantic Coast Pipeline, LLC and	)	
Piedmont Natural Gas Company	)	
Docket No. CP15-556-000	)	
	)	

JOINT COMMENTS BY PUBLIC INTEREST GROUPS
ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

PURSUANT to the National Environmental Policy Act ("NEPA") at 42 U.S.C. § 4332, and 40 C.F.R. § 1502.9, now come the North Carolina Waste Awareness and Reduction Network ("NC WARN"); Clean Water for North Carolina; the Blue Ridge Environmental Defense League ("BREDL"), and its chapters: Protect Our Water! (Faber, VA), Concern for the New Generation (Buckingham, VA), Halifax & Northampton Concerned Stewards (Halifax and Northampton, NC), Nash Stop the Pipeline (Spring Hope, NC); Wilson County No Pipeline (Kenly, NC), Sampson County Citizens for a Safe Environment (Faison, NC), Cumberland County Caring Voices (Eastover, NC), EnvironmentaLEE (Sanford, NC), Pee Dee WALL (Wadesboro, NC) and No Fracking In Stokes (Walnut Cove, NC); Clean Air Carolina; The Climate Times; Climate Voices U.S.; Chatham Research Group; Winyah Rivers Foundation; Haw River Assembly; River Guardian

Foundation; 350.org Triangle; and EcoRobeson (together "the Public Interest Groups"), with comments on the Draft Environmental Impact Statement ("DEIS") for the Atlantic Coast Pipeline ("ACP").

The Public Interest Groups are not-for-profit corporations under the laws of North Carolina and Virginia law acting in the public interest and/or community groups organized to protect the family and property of their members. Several of the Public Interest Groups, including but not limited to NC WARN and BREDL, are intervenors in this proceeding pursuant to Commission Notice Granting Late Interventions, November 8, 2016. Although the interests of the intervenors are more clearly stated in their respective motions to intervene, those same interests are held by each of the Public Interest Groups.[1] The Public Interest Groups and their members will be significantly affected by the proposed ACP.

These comments are in response to the application filed with FERC for a $5.622 billion[2] pipeline project proposed by ACP, LLC, consisting of Dominion Power, Duke Energy, Piedmont Natural Gas ("Piedmont") (a wholly-owned subsidiary of Duke Energy) and others (altogether "Dominion"), in FERC Docket Nos. CP15-554, CP15-555, and CP15-556. Dominion seeks a Certificate of Public Convenience and Necessity ("certificate") from FERC under Section 7(c) of the Natural Gas Act ("NGA") and other regulations to build the ACP.

[1] http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20160411-5055
http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20151109-5041

[2] Total projected costs are $5.622 billion ($5.136 billion for the ACP, plus $486.4 million for Dominion's Supply Header.

The DEIS is fatally flawed as it does not contain relevant and significant information about the environmental, socioeconomic, and cultural impacts of the pipeline project. Subsequent to the issuance of the DEIS, Dominion has supplemented its original application with thousands of pages of additional information and this requires FERC to rescind the DEIS and supplement it.

OUTLINE OF COMMENTS

The joint comments begin on page 17, following sections on the Process and the NEPA analysis. The following is the outline of those comments:

I. The DEIS fails to determine the need for the proposed project.

- A. The DEIS does not sufficiently consider the need for the project and the no action alternative.
- B. FERC did not rigorously explore or objectively evaluate reasonable alternatives.
- C. Dominion failed to include relevant financial information on the need for the ACP.
    - 1. Affiliate transactions require higher levels of scrutiny.
    - 2. Risk is shifted from shareholders to ratepayers when ratepayers provide revenues.
- D. Natural gas companies have a history of overearning on pipelines.
- E. Natural gas companies have a history of overbuilding pipelines.
- F. Existing pipelines are underutilized.
- G. Reliance on the Clean Power Plan (“CPP”) as an indicator of need is not reasonable.

II. The DEIS fails to consider the reasonably foreseeable decline of shale gas supply for the ACP.

A. Future U.S. natural gas supplies are overestimated, which could result in stranded assets.

B. EIA has overestimated future U.S. natural gas supplies by 50% or more.

C. U.S. natural gas production peaked in February 2016.

D. Future shale production in the Marcellus and Haynesville plays is overestimated.

E. Total U.S. natural gas production is in decline.

F. Shale gas economics are not rational.

G. Ratepayers could be stuck with stranded assets.

III. The DEIS fails to include critical environmental analysis necessary to determine environmental and socioeconomic impacts.

A. The DEIS does not adequately assess safety concerns.

B. The DEIS is inadequate in its analysis of cultural resources, including those of Native Americans.

C. The DEIS does not adequately address economic impacts from the proposed pipeline.

D. The DEIS does not adequately address sociological and demographic issues related to environmental justice.

E. The DEIS provides insufficient and inaccurate information on land impacts and land use concerns.

F. The DEIS presents an inadequate analysis of the impacts of erosion and sedimentation from pipeline construction.

G. The DEIS fails to properly address the impacts of the proposed pipeline on groundwater resources and safety of well users.

H. The DEIS does not address water quality impacts from the proposed ACP or provide any information on mitigation.

IV. The DEIS fails to adequately assess greenhouse gas emissions and climate change impacts.

A. FERC utilizes an outdated methane global warming potential in the ACP DEIS.

B. FERC fails to adequately assess the emissions and impacts resulting from the ACP.

C. Information on compressor, meter and regulating, and valve control stations is incomplete.

D. Compressor stations release excessive emissions, resulting in excessive environmental impacts.

E. The DEIS provides little information on “upgrades” to existing compressor stations.

F. FERC’s proposed mitigation to offset GHG emissions is inadequate.

G. FERC failed to fully evaluate lifecycle GHG emissions.

H. FERC Failed to meaningfully evaluate the impacts of GHG emissions.

V. The DEIS fails to adequately consider all reasonable direct and indirect impacts and cumulative impacts, including those impacts associated with gas development.

A. There is a clear causal connection between the proposed ACP and shale gas development.

B. The impacts of shale gas development are reasonably foreseeable.

C. The DEIS fails to adequately consider cumulative impacts, including those impacts associated with gas development.

VI. The DEIS ignored the environmental and socioeconomic impacts of the Piedmont Pipeline.

PROCESS

On September 18, 2015, the ACP, LLC filed an application under section 7(c) of the Natural Gas Act, requesting authorization to construct, own, and operate the ACP, including three compressor stations and at least 564 miles of pipeline across West Virginia, Virginia, and North Carolina. The ACP is a joint venture of Dominion Resources, Inc., Duke Energy Corporation, Piedmont Natural Gas Company, Inc. (a wholly owned subsidiary of Duke Energy), and AGL Resources, Inc. (collectively, "Dominion"). The purpose of the proposed ACP is to deliver up to 1.5 billion cubic feet per day of fracked natural gas to customers in Virginia and North Carolina. On October 2, 2015, the Commission filed its Notice of Application, providing additional details about the application and outlining the review process, and opportunities for public comment.

The Commission has authority under Section 7 of the Interstate Natural Gas Pipelines and Storage Facilities Act ("NGA") to issue a certificate to construct a natural gas pipeline. As described in the Commission guidance manuals, environmental documents are required to describe the purpose and commercial need for the project, the transportation rate to be charged to customers, proposed project facilities, and how the company will comply with all applicable regulatory requirements.[3] The applicants must evaluate project alternatives, identify a preferred route, and complete a thorough environmental analysis – including consultation with appropriate regulatory agencies, data reviews, and field surveys. The Commission is required to analyze the information

[3] February 2017 Draft Guidelines: https://www.ferc.gov/industries/gas/enviro/guidelines/guidance-manual-volume-1.pdf ; August 2002 Guidelines: https://www.ferc.gov/industries/gas/enviro/guidelines/guidance-manual-volume-1.pdf

provided by Dominion and the other applicants to determine if the project is one of public convenience and necessity. The purpose of the Commission's review is to reduce overbuilding of pipeline capacity in order to protect consumers and property owners.

As part of its review process, the Commission prepares environmental documents, and in this case, a DEIS was prepared and released on December 30, 2016. As part of the release, the Commission provided a public comment period until April 6, 2017. Subsequently, the Commission scheduled "public comment sessions" in ten locations along the ACP route to allow for public comments.[4]

On January 10, 2017, January 17, 2017, January 23, 2017, January 27, 2017, February 23, 2017, and March 24, 2017, Dominion filed additional documents supplementing its original application.[5] These filings contain thousands of new pages of information, voluminous appendices, and attachments on environmental issues directly relevant to the DEIS. The contents of the new supplemental filings include, but are not limited to: historic properties in West Virginia, Virginia, and North Carolina; supplemental updates on compressor stations, metering and regulation stations; geological considerations; archaeological sites; impacts of forest fragmentation on bird species; maps of non-jurisdictional facilities; engineering updates on horizontal directional drilling and hydrofracture risk; cultural resources; restoration plans for wetlands; considerations

[4] The Public Interest Groups agree with criticism of the failure to have open session public hearings made by the Society of Environmental Journalists in its February 23, 2017, letter to FERC. www.abralliance.org/wp-content/uploads/2017/02/SoEJ_letter_to_FERC_Chair_LaFleur_20170223.pdf

[5] http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20170110-5142
http://elibrary.FERC.gov/idmws/file_list.asp?accession_num=20170123-5110
http://elibrary.FERC.gov/idmws/file_list.asp?accession_num=20170119-5180
http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20170224-5149
http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20170127-5202
http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20170324-5283

of soil, erosion, steep slopes, and river crossings; direct impacts on forested sites in West Virginia, Virginia, and North Carolina; impacts on streams and biotic resources; removal and relocation of aquatic species; and correspondence with state agencies and between state and federal agencies on water quality, air quality, wildlife resources, threatened and endangered species, and mitigation.

In response, the Public Interest Groups filed Joint Motion to Rescind or Supplement DEIS on January 23, 2017, and Supplement to Joint Motion to Rescind or Supplement DEIS Based on New Filings on February 15, 2017.[6] Even though the Public Interest Groups have not submitted similar motions to rescind or supplement the DEIS based on the latest Dominion filings, the arguments in those motions for the need of a supplemental DEIS have only grown more compelling. The motions to supplement the DEIS are incorporated herein by reference.

NEPA ANALYSIS

The Commission's decision to grant a certificate to construct the ACP is a "major Federal action" within the meaning of the National Environmental Policy Act ("NEPA"), and any consideration of the certificate must be preceded by the preparation of an Environmental Impact Statement ("EIS"). Pursuant to 42 U.S.C. § 4332, environmental documents, including the DEIS under consideration, must address:

> "(i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between the local short-term uses of the project as compared to the long term use of the land, and (v) any irreversible and irretrievable commitments of

[6] Joint Motion to Rescind or Supplement DEIS, January 23, 2017, FERC Accession No. 20170124-5017. Supplement to Joint Motion to Rescind or Supplement DEIS Based On New Filings, February 15, 2017.

> resources which would be involved in the proposed action should it be implemented."

The principal case on the adequacy of environmental documents, *Marsh v. Oregon Natural Resources Council*, provides that under NEPA, "agencies [must] take a 'hard look' at the environmental effects of their planned action."[7] As discussed throughout these comments, FERC's analysis in the DEIS for the proposed ACP fails to meet NEPA's standards in numerous ways.

Of immediate concern, new and significant information was added by Dominion to the applications subsequent to the date the DEIS was filed.[8] This new information clearly supplements the information in the original application, the information supplied to FERC staff for their review, and any information readily available to intervenors and the public. As such, the Commission is required to supplement the DEIS after receiving the new filings.

Rules promulgated by the Council on Environmental Quality pursuant to NEPA provide mandatory guidance to all Federal agencies on the preparation of environmental statements. Because the DEIS was issued without sufficient information and allows the applicants to later submit necessary materials, "it appears that the EIS is a 'rolling' document providing just a snapshot in time . . . creat[ing] a considerable challenge for stakeholders and members of the public to follow the documentation provided, or know which material is most current in order to provide the most relevant comments."[9] To

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[7] 490 U.S. 360, 374, 109 S.Ct. 1851, 104 L.Ed.2d 377 (1989).

[8] See footnote 5.

[9] EPA Comments on Mountain Valley Pipeline, December 20, 2016, Accession No. 20161221-5087.

remedy those NEPA violations, FERC must prepare a revised DEIS that fully assesses the need for, impacts of, and alternatives to the proposed action.

40 C.F.R. 1502.9(c)(1)(ii) specifically addresses the obligation of the agencies to supplement the environmental statements, stating:

> (c) Agencies:
>
> (1) Shall prepare supplements to either draft or final environmental impact statements if:
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> (i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or
>
> (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

As shown above, the new filings by Dominion are squarely within the requirements of this rule. The information is significant and directly relevant to environmental concerns and impacts addressed in the DEIS and, after review by the agency and public review, the information in the new filings is likely to have a bearing on the Commission's action.[10]

Case law on the agency's requirement to supplement an environmental document is clear. New information causes environmental documents to be supplemented, even after the environmental document has been completed and the agency action taken. In its review of one action, the Court found there "are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."[11] Of course, not all new information is significant or

[10] See Joint Motions to Supplement DEIS in footnote 6.

[11] *Norton v. Southern Utah Wilderness Alliance*, 542 U.S. 55 (2004) (new study of use of park lands).

relevant; but according to the requirements of *Marsh v. Oregon Natural Resources Council,* the Commission is required to take a "hard look" at the new information and, after review, incorporate it into environmental documents. In addition to requiring a “hard look” at all information, the Court specifically endorsed the "hard look" at new information even after a proposal had received its initial approval, and permit, from the agency. "When new information is presented, the agency is obligated to consider and evaluate it and to make a reasoned decision as to whether it shows that any proposed action will affect the environment in a significant manner not already considered."[12]

In addition to case law and statutory requirements, the Commission has promulgated a series of guidance documents for the preparation of environmental documents. The August 2002 guidelines were adopted by the Commission, while the 2015 guidelines remained in draft. Subsequent to the issuance of the ACP DEIS, citations to these guidance documents were removed from the FERC website, and replaced with a citation to the 2017 guidance document. The 2017 guidance documents recommend that a developer assess its project’s resilience to hazards associated with climate change, such as storm surges and rising sea levels. The agency emphasized that the book is guidance only and “imposes no new legal obligations.” This is consistent with a directive issued by the Obama administration in August, asking federal agencies to incorporate climate change impacts into their environmental reviews.[13] Further, the

[12] *Id.*, 490 U.S. at 374; also endorsed by the Court in *Arkansas Wildlife v. U.S. Army Corps*, 431 F.3d 1096 (Fed. 8th Cir., 2005).

[13] 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*: www.whitehouse.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance .pdf

2017 document lists information that is often missing from project applications and not mentioned in the previous iterations, including local climate information, air quality modeling and data on emissions from pipelines. It is unclear under which of the guidance documents FERC staff used or is using on the present DEIS.

NEPA's EIS requirement "guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision."[14] Information must be provided in a timely manner to ensure that the public can meaningfully participate in the decision-making process.[15] An agency must "not act on incomplete information, only to regret its decision after it is too late to correct." As noted above, the new supplemental filings by Dominion subsequent to the issuance of the DEIS contains information vitally important to the analysis of the ACP's environmental impacts. When an agency publishes a draft EIS, it "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."

Courts have explained that, when performing an EIS, an agency "should take to the public the full facts in its draft EIS and not change them after the comment period

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

[15] *League of Wilderness Defenders/Blue Mountain Biodiversity Project v. Connaughton*, 752 F.3d 755, 761 (9th Cir. 2014) ("Informed public participation in reviewing environmental impacts is essential to the proper functioning of NEPA.").

unless, of course, the project itself is changed."[16] NEPA "expressly places the burden of compiling information on the agency" so that the public and other governmental bodies can evaluate and critique the agency's action.[17] "The now traditional avenue of independent comment on decision-making by public interest organizations would be narrowed if interested parties did not have presented in the EIS the analysis and data supporting an agency's decision." Such information must be included in the draft EIS, as opposed to supplied in the final EIS following public comments because "*the purpose of the final EIS is to respond to comments rather than to complete the environmental analysis (which should have been completed before the draft was released).*"[18]

As the CEQ's regulations and case law make clear, a draft EIS that fails to provide the public a meaningful opportunity to review and understand the agency's proposal, methodology, and analysis of potential environmental impacts violates NEPA.[19] The information regarding environmental impacts that is missing from the DEIS and will not be provided by the applicants in a manner that facilitates meaningful public disclosure and participation includes critical information, which the applicants either provided after the issuance of the DEIS or might provide after the comment period on the DEIS is over – or even after the conclusion of the entire NEPA process. That

[16] *Burkey v. Ellis*, 483 F. Supp. 897, 915 (N.D. Ala. 1979).

[17] *Grazing Fields Farm v. Goldschmidt*, 626 F.2d 1068, 1073 (1st Cir. 1980).

[18] *Habitat Educ. Ctr. v. U.S. Forest Servs*., 680 F. Supp. 2d 996, 1005 (E.D. Wis. 2010) (emphasis added), aff'd sub nom. *Habitat Educ. Ctr., Inc. v. U.S. Forest Serv*., 673 F.3d 518 (7th Cir. 2012).

[19] *California ex rel. Lockyer v. U.S. Forest Service*, 465 F. Supp. 2d 942, 948-50 (N.D. Cal. 2006); see also *Idaho ex rel. Kempthorne v. U.S. Forest Service*, 142 F. Supp. 2d 1248, 1261 (D. Idaho 2001) ("NEPA requires full disclosure of all relevant information before there is meaningful public debate and oversight.").

information is necessary for FERC to take the required hard look at the environmental impacts of the proposed projects and to allow the public to evaluate and meaningfully participate in the NEPA process.

FERC's failure to require such voluminous and significant information to be evaluated and included in the DEIS for public review and comment clearly demonstrates that the agency has not made "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."[20] FERC is required to "guarantee…that the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision."[21]

FERC's failure to include significant amounts of critical environmental information in the DEIS seems to be part of a recent trend in draft statements prepared by FERC for major greenfield pipelines. For example, in comments on the DEIS for the Constitution Pipeline, EPA stated that a substantial amount of information was omitted from the DEIS, including information regarding impacts to geology and soils, waterbodies, wetlands, wildlife and vegetation, air emissions, and cumulative impacts.[22] EPA repeatedly explained that the lack of information prevented other agencies and the public from meaningfully participating in the NEPA process.[23] Likewise, in comments on

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[20] 40 C.F.R. § 1502.9(a) (emphasis added).

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

[22] EPA, *Comments on the Constitution Pipeline DEIS* p. 3-9 (Apr. 9, 2014) (Docket No. CP13499-000, Accession No. 20140409-5120).

[23] *Id* at 3 (The lack of information "negates the ability of agency specialists and the public to review the analysis and comment on it.")
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the DEIS for the Sabal Pipeline, EPA said that it had "very significant concerns over the FERC's process and full and objective compliance with the NEPA regulations at 40 CFR Part 1500."[24] EPA even suggested that FERC "appear[ed] to be justifying decisions made prior to implementing the NEPA process." In comments on the DEIS for the PennEast Pipeline, the EPA said it had "significant concerns regarding the alternatives analysis, a number of important topics for which information is incomplete, and the direct, indirect and cumulative impacts of the proposed action on the environment and public health, including impacts to terrestrial resources, including interior forests, aquatic resources, and rare, threatened and endangered species."[25] EPA emphasized that "[a] significant amount of information is omitted from the DEIS and is proposed to be filed by the project proponent at a future date." EPA stressed that "[f]ailing to consider this information in the DEIS leads to gaps in the data and lack of potentially important information for the decision maker."[26] As it did in comments on the Atlantic Sunrise DEIS, EPA specifically requested that FERC prepare a "revised DEIS" for the PennEast Pipeline to account for these significant deficiencies.

As noted in the sections on environmental and socioeconomic impacts, much of the DEIS is inadequate, failing to provide relevant information or containing unsubstantiated conclusions. In order to cure the glaring deficiencies in the DEIS and allow the public to review and meaningfully comment on the impacts of the proposed

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[24] EPA Comments on the Southeast Market Pipeline Project DEIS p. 1, October 26, 2015, Docket No. CP15-17-000, Accession No. 20151102-0219.

[25] EPA Comments on the PennEast Pipeline DEIS p. 1, September 16, 2016, Docket No. CP15558-000, Accession No. 20160916-0013. (emphasis added)

[26] 40 C.F.R. § 1502.9(a).

project, FERC must wait until it has gathered the information described above (and the other missing information identified elsewhere in these comments and in the numerous other similar comments submitted to FERC) and then issue a revised and supplemental DEIS with a new public comment period. 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."[27]

Only the issuance of a revised DEIS that thoroughly analyzes this missing information and incomplete analysis will satisfy NEPA's public comment procedures, which "[encourage] public participation in the development of information during the decision making process."[28] Simply adding this missing information to the final EIS is insufficient, as it does not allow the same degree of meaningful public participation.[29]

As discussed below, the current DEIS contains many substantial deficiencies, including the failure to fully evaluate the need for the ACP and the failure to fully evaluate water resources, wetlands, cultural resources, socioeconomic factors, threatened and endangered species, risks associated with the reliance on natural gas, air emissions, and climate change implications. Although the Public Interest Groups have addressed these issues in depth below, it is not their burden to ensure environmental documents are complete; that duty is clearly on the agency. It is FERC's responsibility to address each of the relevant and significant issues in the DEIS, and

[27] *Id.*

[28] *Half Moon Bay Fishermans' Mktg. Ass'n v. Carlucci*, 857 F.2d 505, 508 (9th Cir. 1988).

[29] *Id*. (citing *California v. Block*, 690 F.2d 753, 770-71 (9th Cir. 1982)) ("It is only at the stage when the Draft EIS is circulated that the public and outside agencies have the opportunity to evaluate and comment on the proposal…No such right exists upon issuance of a final EIS."). See also 40 C.F.R. § 1500.1(b).

correct the deficiencies. Given the DEIS as it stands today, the Public Interest Groups are not confident FERC is willing or capable of taking a hard look at the environmental effects of its planned action.

COMMENTS

I. The DEIS fails to determine the need for the proposed project.

The Council on Environmental Quality's ("CEQ") regulations for implementing the NEPA require that an environmental document "specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action."[30] The CEQ regulations also require the Commission to consider and evaluate the no action alternative.[31] Courts have determined the alternatives analysis "is the heart of the environmental impact statement." A properly drafted purpose and need statement is critical to "inform the agency's review of alternatives to the proposed action and guide its final selection."[32] A purpose and need statement "will fail if it unreasonably narrows the agency's consideration of alternatives so that the out-come is preordained."[33] Where, as here, a federal agency is reviewing an applicant-sponsored project, it "cannot restrict its analysis to those 'alternative means by which a particular

[30] 40 C.F.R. § 1502.13; see also FERC's NEPA regulations at 18 C.F.R. Part 380.

[31] 40 C.F.R. § 1502.14.

[32] *Protect Our Cmtys. Found. v. Jewell*, 825 F.3d 571, 579 (9th Cir. 2016).

[33] *Id*. (quoting *Alaska Survival v. Surface Transp. Bd.*, 705 F.3d 1073, 1084 (9th Cir. 2013)); see also *Citizens Against Burlington v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991).

applicant can reach his goals.'"[34] An agency must "exercise a degree of skepticism in dealing with self-serving statements from a prime beneficiary of the project."[35]

Despite the clear requirement to "specify the purpose and need" for the ACP, the DEIS "does not address in detail the need or public benefits" of the ACP.[36] According to FERC, it "will more fully explain its opinion on project benefits and need *in its Orders* for the ACP and the EEP" (emphasis added). FERC has made similar statements in other recent DEIS documents for major greenfield pipelines.[37] Without assessing the need for the project in the DEIS, FERC undermines the development of alternatives to the proposed project, which is a "critical component of the NEPA process." EPA noted that without this information in the DEIS, FERC failed to "provide transparency in the decision-making process," thereby frustrating obstructing the public's "opportunity to provide comment" on the DEIS.

The ACP DEIS suffers from the same lack of transparency. The public's right to weigh in on the assessment of need is particularly critical for a project such as the ACP, which would impact both state and federal public lands and require the use of eminent domain for a private project over the objections of numerous landowners along the

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[34] *Simmons v. U.S. Army Corps of Eng's*, 120 F.3d 664, 669 (7th Cir. 1997) (quoting *Van Abbema v. Fornell*, 807 F.2d 633, 638 (7th Cir. 1986)); see also *Nat'l Parks & Cons. Ass'n v. Bureau of Land Mgmt.*, 606 F.3d 1058, 1072 (9th Cir. 2009).

[35] *Simmons*, 120 F.3d at 669 (7th Cir. 1997) (quoting *Citizens Against Burlington*, 938 F.2d at 209 (D.C. Cir. 1991) (Buckley, J., dissenting)).

[36] DEIS p. 1-9.

[37] Draft Environmental Impact Statement for the Atlantic Sunrise Project at 1-2, Docket No. CP15-138-000. ("While this EIS briefly describes Transco's stated purpose, it will not determine whether the need for the Project exists, because this will later be determined by the Commission.").

proposed route. In such instances, there must be even greater scrutiny of project need in the DEIS.

The procedures of the Natural Gas Act cannot replace the full and fair public participation in the decision-making process that NEPA mandates. Due to FERC's failure to determine the need for the project in the DEIS, commenters must assume that FERC will rely on precedent agreements in order to assess the need for the ACP in its proceedings under the Natural Gas Act. However, as detailed below, the precedent agreements contracting for capacity on the ACP raise several concerns that call into question the market need for the project. The DEIS should have considered these issues and more fully addressed the "no action" alternative in the DEIS. These concerns speak to the appropriate division of risk between ratepayers and shareholders and go to the crux of the Commission's primary obligation under the Natural Gas Act to protect consumers. For all of these reasons, the Commission should look behind the precedent agreements supporting the ACP project and adjudicate whether the shipper commitments represent genuine growth in market demand as to warrant the construction of a $5.6 billion greenfield pipeline.

A. The DEIS does not sufficiently consider the need for the project and the no action alternative.

The DEIS briefly discusses the purpose and need of the ACP project in Section 1.2, mentioning that ACP has entered into a series of precedent agreements and that the project is fully subscribed. However, the DEIS omits several critical facts regarding the timing, terms, and circumstances surrounding the precedent agreements underpinning the ACP project. These concerns—further detailed below—call into question whether a *bona fide* market need exists for the project.

The primary purpose of the NGA is to protect consumers of gas from excessive costs.[38] When gas consumers are captive ratepayers who provide essentially guaranteed revenues for a project, risk is shifted from shareholders to ratepayers. Self-dealing occurs when contracts with subsidiaries and other corporate entities are directly linked to the parent companies. FERC has expressed concern over this type of risk-shifting.[39] In addition, establishing "need" is an essential requirement for FERC to approve a permit for the ACP. A certificate cannot be approved by FERC unless the applicant can demonstrate "need" in the marketplace for increased amounts of natural gas. In this case, market need is established by shippers that are also owners, which calls into question whether a *bona fide* market need exists.

A recent West Virginia court decision on the Mountain Valley Pipeline ("MVP") found "no definitive evidence that any West Virginia consumers or non-MVP affiliated natural gas producers would benefit from MVP's pipeline."[40] Likewise, the present DEIS provides no evidence that any consumers would benefit from the ACP.

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[38] http://naturalgas.org/regulation/history/

[39] Comments on the Draft Environmental Impact Statement for the Proposed Mountain Valley Pipeline and Equitrans Expansion Project, pp. 20-23: http://www.appalmad.org/wp-content/uploads/2016/12/2016-12-22-MVP-Comments-1.pdf

[40] *Mountain Valley Pipeline, LLC v. McCurdy*, Case No. 15-0919 (W. Va. 2016), *available at* http://www.courtswv.gov/supreme-court/docs/fall2016/15-0919.pdf , p. 2.

B. FERC did not rigorously explore or objectively evaluate reasonable alternatives.

As stated above, the alternatives section "is the heart of the environmental impact statement." FERC must "[r]igorously explore and objectively evaluate all reasonable alternatives."[41] This includes "reasonable alternatives not within the jurisdiction of the lead agency."

By relying almost exclusively on ACP's ambitions for the project to frame its statement of purpose, FERC impermissibly "restrict[ed] its analysis to just those 'alternative means by which a particular applicant can reach his goals.'"[42] For example, FERC says that the purpose of the ACP is to transport natural gas, but alternatives that do not transport natural gas "are not considered or evaluated further in this analysis."[43] As a result, FERC excluded consideration of meeting any of the project's purpose from the generation of electricity from renewable energy sources or the gains realized from increased energy efficiency and conservation.[44]

FERC's categorical refusal to consider alternative energy sources and increased energy efficiency is at odds with other recent statements by FERC. For example, in the Constitution Pipeline DEIS, FERC considered energy conservation/efficiency and renewable energy alternatives.[45] While FERC ultimately decided against considering

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[41] 40 C.F.R. § 1502.14.

[42] *Simmons*, 120 F.3d at 669 (quoting *Citizens Against Burlington*, 938 F.2d at 209 (Buckley, J., dissenting)); see also *Nat'l Parks & Cons. Ass'n*, 606 F.3d at 1072.

[43] DEIS p. 3-2.

[44] Commenters' Motion to Intervene and Protest at 43-50, November 27, 2015 https://www.bloomberg.com/news/articles/2016-1215/world-energy-hits-a-turning-point-solar-that-s-cheaper-than-wind ("... now unsubsidized solar is beginning to outcompete coal and natural gas on a larger scale[.]").

[45] Constitution Pipeline DEIS pp. 3-3 – 3-12, Docket CP13-499-000.

these alternatives in greater detail, it at least considered them in some detail. That is in stark contrast to the ACP DEIS where alternatives that would not transport Marcellus and Utica shale gas were excluded from any analysis. Effectively, this means energy conservation and renewable energy alternatives will never be considered, even if they are economically and technologically feasible, serve the broader public interest, and can be reasonably expected to eliminate some of the need for the proposed pipeline.

In the ACP DEIS, FERC also did not adequately consider alternative pipeline routes. In rejecting further consideration of two alternative routes, FERC generally stated that because they would involve construction similar to or greater than what is proposed by ACP, they were not considered in greater detail. This rationale, however, does not at all take into consideration the relative values of the areas and resources being impacted, and the wide range of environmental and socioeconomic impacts on people and places.

The central flaw in FERC's consideration of these alternatives is the fact that FERC simply assumed that all of the gas proposed for transport on these pipelines is actually needed. Without looking behind the precedent agreements supporting the ACP, FERC cannot determine whether the shipper commitments represent genuine growth in market demand as to warrant construction. Because the ACP application presents a questionable demonstration regarding market need, FERC should have given greater weight to the no action alternative. The recent Synapse report supports this and concludes that "given existing pipeline capacity, existing natural gas storage, the expected reversal of the direction of flow on the existing Transco pipeline, and the expected upgrade of an existing Columbia pipeline, the supply capacity of the Virginia-

Carolinas region's existing natural gas infrastructure is more than sufficient to meet expected future peak demand." Thus, the no action alternative would not result in greater environmental impacts, as suggested by the DEIS.[46]

One of the most significant alternatives to the ACP and its use in electricity generation is regional sharing of resources in the southeastern U.S. Relevant and glaring examples, Resource Report 10 on Alternatives, and the April 2016 update, are incomplete, misleading and inadequate because the reports ignore the glut of power in the southeastern U.S. and North Carolina and the current low costs of clean energy. For example, the DEIS "no action" alternative does not mention that Duke Energy's most recent IRP reports very high reserve margins -- between 17% and 27% over the next fifteen years. An update given to FERC Commissioners by staff on May 19, 2016[47] shows that SERC, the Southeast Electricity Reliability Corporation, has a reserve margin of 25%, well over the 12-15% that's recommended by the North American Reliability Council.[48]

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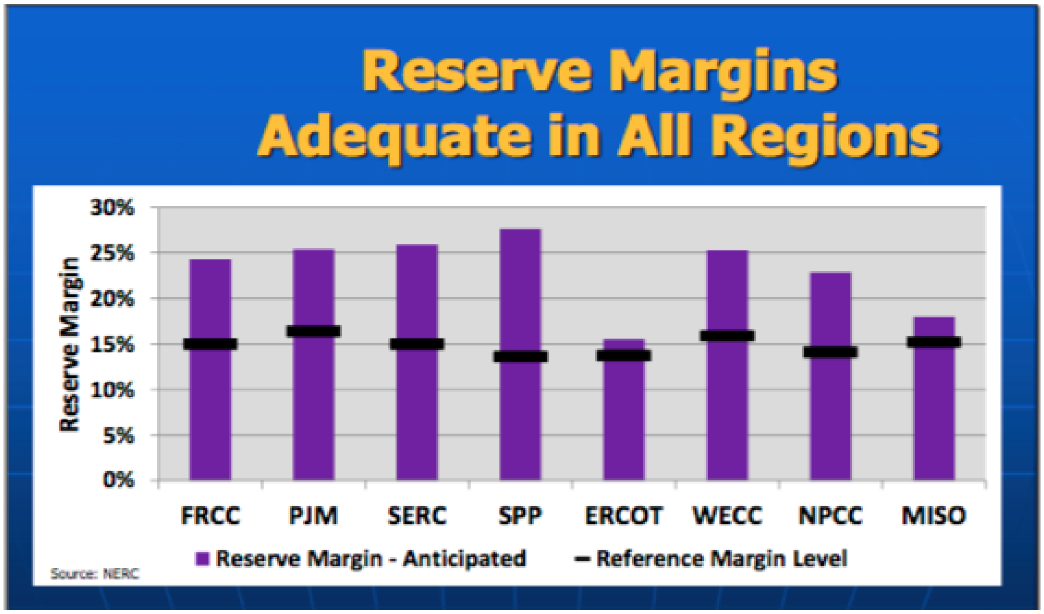
[46] www.southernenvironment.org/uploads/words_docs/2016_09_12_Synapse_Report_-_Are_the_ACP_and_MVP_Necessary__FINAL.PDF

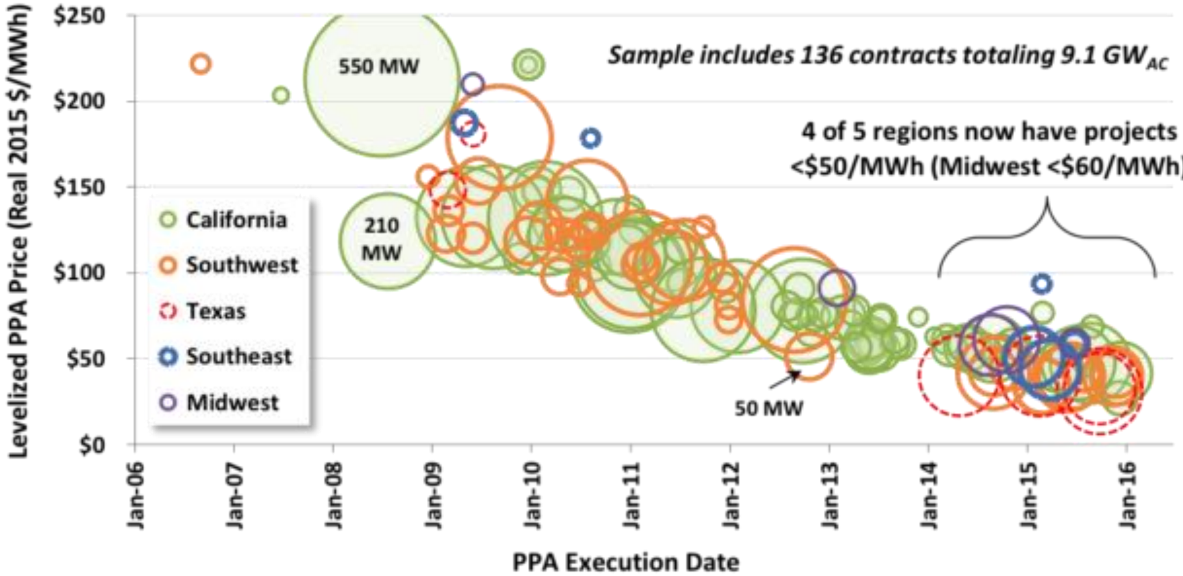
[47] https://www.ferc.gov/market-oversight/reports-analyses/mkt-views/2016/05-19-16.pdf

[48] http://www.nerc.com/files/2012SRA.pdf, p. 1.

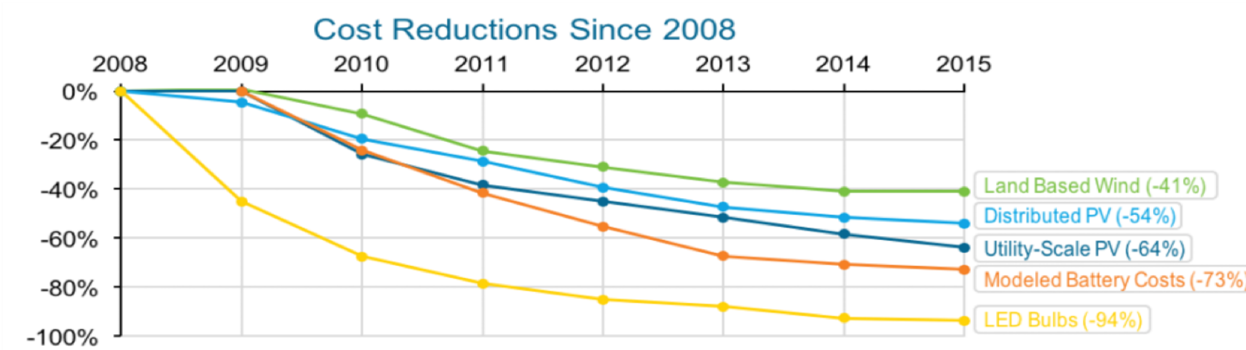


In addition, DEIS Report 10 erroneously states that clean energy alternatives would provide inadequate amounts of electricity and are not cost-effective, ignoring the fact that utility-scale wind power currently costs an average of 2.5 cents/kWh in the U.S., and that utility-scale solar contracts for 5-7 cents/kWh have been signed in the southeastern U.S. The cost of solar is down dramatically in recent years, even in the southeastern U.S., as demonstrated by the chart below from Lawrence Berkeley Labs, issued August 2016:[49]

[49] http://newscenter.lbl.gov/2016/08/24/median-installed-price-solar-united-states-fell-5-12-2015/



The graph below illustrates the following cost reductions since 2008: land-based wind down 41%; distributed solar photovoltaic (PV) down 54%; utility-scale PV down 64%; modeled battery costs down 73%; and LED bulbs down 94%.[50]



Duke Energy and Dominion, the utilities that own the ACP, each have very low usage of clean energy, less than 3% of their load is generated by wind, solar, and hydropower.[51] The DEIS ignores the fact that Duke Energy's current energy efficiency

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50 https://thinkprogress.org/clean-energy-revolution-now-81a8e61134c7#.asksofmf2

51 www.utilitydive.com/news/utility-clean-energy-rankings-reveal-unprecedented-shift-in-power-sector/421978/

goals are extremely low and could be increased significantly at a lower cost than the pipeline and new gas power plants. Over the past decade, North Carolina has lost ground on energy efficiency, and is now 30th in the U.S., at only 0.62% of total retail electricity MWh used for efficiency programs. On gas, North Carolina is even worse, at 0.11% of total natural gas retail sales spent on energy efficiency programs.[52] A thorough DEIS would evaluate these renewable energy and efficiency alternatives and compare their environmental impacts to the proposed project.

As demonstrated above, FERC's failure to establish the true market need for the proposed projects completely undermines its analysis of reasonable alternatives. Without knowing how much, if any, new infrastructure is needed to satisfy public demand – not just applicants' desires for profits – FERC cannot reasonably determine what alternative actions, including the no action alternative, would satisfy the underlying need. FERC's purpose and need statement and resulting alternatives analysis thus fails to comply with the requirements of NEPA.

C. Dominion failed to include relevant financial information on the need for the ACP.

In order to analyze the need for the ACP, FERC is required to fully analyze financial information from the applicant. In the present application, Dominion failed to provide necessary information, particularly in its affiliate transactions and impacts on ratepayers from unnecessary pipelines.

[52] http://aceee.org/sites/default/files/publications/researchreports/u1606.pdf

1. Affiliate transactions require higher levels of scrutiny.

Both the Natural Gas Act and FERC precedent require heightened scrutiny of affiliate agreements.[53] In this case, 96% of the pipeline capacity will be sold to owners/affiliates Duke Energy (now merged with Piedmont) and Dominion using 20-year contracts.[54] These 20-year contracts are known as "take-or-pay," which are usually unlawful, except within the oil and gas industry.[55] Under take-or-pay contracts, entities that contract for gas delivery must either take delivery, or pay a penalty. According to a June 23, 2016, filing with the Federal Trade Commission, Dominion ratepayers will likely be paying far more per therm for gas delivered by the ACP than under previous contracts.[56] Much of this increase is likely due to take-or-pay contracts with high fixed charges. These 20-year "firm" contracts obligate ratepayers to pay for firm transportation service every hour of every day for the next 20 years, regardless of whether the service is actually used. Take-or-pay contracts also impose barriers for new entrants, such as clean energy, and raise prices for consumers due to a lack of competition.

Affiliate agreements, such as the contracts Duke Energy and Dominion have with their affiliate ACP, also imply self-dealing. Self-dealing is more likely when affiliates depend on the expertise of regulated utility holding companies to help manage pipeline investments, since utility holding companies have far more assets and are thus less risky than pipeline companies.

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[53] See footnote 23.

[54] Per the application, 1.44MMDth/d (96%) of the capacity for the ACP is under 20 year contracts with Dominion (21%), Duke Energy (50%), Piedmont (11%), Virginia Natural Gas NG (11%), and Unaffiliated (7%).

[55] https://www.ferc.gov/market-oversight/guide/energy-primer.pdf, p. 162.

[56] http://wp.vasierraclub.org/LetterInFull.pdf

Therefore, from its inception, the market need for the ACP project has been established by the very same corporate interests that also own the project. The fact that the additional shippers of the project also took an ownership interest calls into question whether a bona fide market need exists. The precedent agreements that followed after the expiration of the open season appear to be indicative of utility holding companies seeking to convert ratepayer transportation costs into shareholder return, as the basis for their taking on affiliate equity interests as developers. Other motivations, including the opportunity to recover a generous return on equity, should be considered by the Commission as a critical driver for the project. As it has done in the past, the Commission should view, with skepticism, precedent agreements that are not connected to the open season process.[57]

2. <u>Risk is shifted from shareholders to ratepayers when ratepayers provide revenues.</u>

When utility holding companies Duke Energy and Dominion invest in pipelines, ratepayer transportation costs are converted into shareholder returns. Duke Energy and Dominion are taking on affiliate equity interests as pipeline developers, with each utility's holding company getting higher rates of return on pipeline projects (estimated 14%) than allowed by state commissions (usually 10%). This provides excessive benefits to shareholders at the expense of ratepayers. The stock market's projected rate of return for the next five years is 4-7%. A recent FERC filing on the proposed Mountain Valley

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[57] *Millennium Pipeline Co., L.P.*, 100 FERC ¶ 61,277 at p. 62,141 (2002) (citing *Independence Pipeline Co.*, 89 FERC ¶ 61,283 at p. 61,840 (1999)) ("The proffered precedent agreement was not the result of, or related to, Independence's open season. For this reason, we found that the DirectLink agreement did not constitute reliable evidence of market need to support a finding that the proposal was required by the public convenience and necessity.") DEIS p. ES-1, n.1.

Pipeline also involves long-term gas contracts with utilities that are subsidiaries of the parent company. In that case, expert Dr. Steve Issuer states:

> "Where pipelines are financed through long-term contracts with LDCs [Local Distribution Companies] or utilities that are subsidiaries of the parent company building the pipeline, the efficiency of the pipeline cannot be presumed by a full subscription to its capacity. *Cross-subsidization can be accomplished by risk shifting as well as direct side payments. An uneconomic project that creates excess capacity can be financed in this manner by guaranteeing the income stream at the expense of alternative transport options*."[58]

(emphasis added). A filing by the Virginia Chapter of the Sierra Club on the MVP, dated June 23, 2016, further found: (a) the annual cost of service for the ACP would be in excess of $1 billion annually; (b) the annual unavoidable reservation charges for the ACP would cost ratepayers an additional $1 billion annually; and (c) Dominion's affiliate has a 20-year contract obligating it to pay annual fixed charges of $208 million, plus variable charges, including fuel/loss charges.[59]

Dominion's share of the ACP is now 48%, Duke Energy (including the portion previously owned by Piedmont, now a wholly owned Duke Energy subsidiary) is 47%, and the Southern Company owns 5%.[60] Duke Energy, like Dominion, will likely realize more profits from sales of natural gas electricity once it owns the ACP, rather than simply purchase the natural gas and count it as an expense as it has done for the past decade.

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[58] See footnote 23.

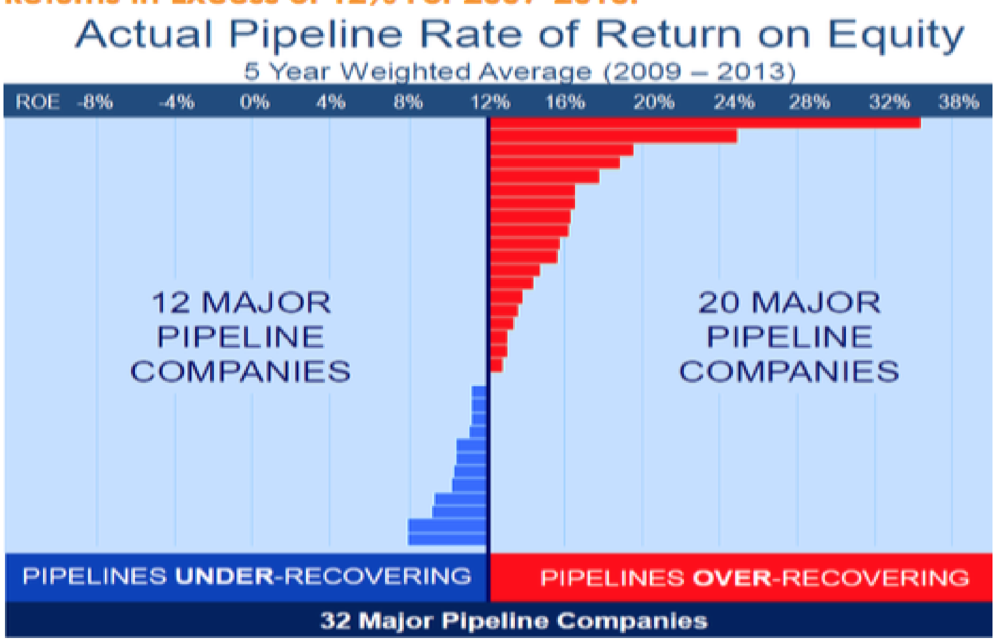
[59] http://wp.vasierraclub.org/LetterInFull.pdf, p. 9.

[60] http://www.bizjournals.com/charlotte/blog/energy/2015/10/duke-energy-won-t-be-dominant-atlantic-coast.html

D. Natural gas companies have a history of overearning on pipelines.

A report by the Institute for Energy Economics and Financial Analysis (IEEFA) on the risks associated with overbuilding pipelines states: “FERC facilitates overbuilding by allowing very high rates of return on equity for pipeline companies (allowable rates of up to 14%), along with the lack of a comprehensive planning process for natural gas infrastructure, thus attracting more capital into pipeline development than is necessary.” According to the Natural Gas Supply Association, the majority of pipeline companies earned returns in excess of 12% from 2009-2013.[61]

Figure 2. The Majority of Major Pipeline Companies Earned Returns In Excess of 12% For 2009-2013.



Source: Natural Gas Supply Association

The figure above represents the returns on equity from 32 major natural gas pipeline companies, comprising 75% of interstate natural gas market capacity. Only 40% of the companies earned 8-12%, while the majority earned over 12%, and two companies

[61] http://ieefa.org/wp-content/uploads/2016/04/Risks-Associated-With-Natural-Gas-Pipeline-Expansion-in-Appalachia-_April-2016.pdf, pp. 1, 9.

earned returns on equity in excess of 24%. In fact, we do not yet know what the negotiated rate of return will be for the ACP since these do not need to be filed with FERC until 60-90 days before the pipeline is in service.[62]

The IEEFA report points out that there is no regional analysis of the need for new pipelines, as there is with electric transmission. Since FERC does not provide either a regional or long-term assessment of the need for more pipelines, overbuilding is likely. As the IEEFA report states, overbuilding pipelines:

a. Puts ratepayers at risk for paying for excess capacity,
b. Puts landowners at risk of sacrificing property to unnecessary projects, and
c. Puts investors other than Duke Energy and Dominion at risk of loss if shipping contracts are not renewed and pipelines are underused.

Thus, while ratepayers provide the capital and bear the risk, Dominion and Duke Energy will earn higher profits on pipelines (up to 14%) than they are allowed to earn on generation, usually 10%. The financial benefits to the pipeline builders do not necessarily align with the interests of ratepayers and citizens. Duke Energy and Dominion have a vested interest in over building pipelines, and competition from lower-priced renewables over the next 10, 20 and 30 years will likely be ignored.

E. Natural gas companies have a history of overbuilding pipelines.

Dominion appears to ignore solid evidence that pipeline capacity from the Marcellus and Utica shale plays are overbuilt, in other words, there are “too many straws in the milkshake.” Approval of the ACP depends on 20-year affiliate-backed contracts to

[62] http://ieefa.org/wp-content/uploads/2016/04/Risks-Associated-With-Natural-Gas-Pipeline-Expansion-in-Appalachia-_April-2016.pdf

support the new pipeline capacity. A September 2016 study by Synapse Energy Economics[63] points out the huge market distortion due to Duke Energy's massive build-out of natural gas power plants, increasing the current 10,000 MW of gas plants in Duke Energy Carolinas (DEC) and Duke Energy Progress (DEP) territory by another 7,900 MW from 2017 through 2031, locking ratepayers into paying for these plants for 30 years or more.[64] Even industry insiders like Kelcy Warren, CEO of Energy Transfer Partners, recognize that pipeline builders are likely to overbuild.[65] Other industry leaders, such as natural gas consultant Rusty Braziel, recognize and acknowledge that current expansion plans will likely result in overbuilding. Braziel reports that gas pipeline capacity will exceed the gas production in Appalachia starting in late 2017.[66]

The $5.6 billion cost for the ACP will not be worth much without adequate supplies for the power plants, or if the gas is so expensive that customers flee to cheaper renewable energy, which has zero fuel costs and zero risk of fuel cost increases. Many billions of dollars sunk into pipelines and power plants could become stranded assets. A recent report shows this could easily happen in the Northeastern U.S., where overbuilt pipelines could cost ratepayers an additional $277 million over its lifetime.[67]

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[63] https://www.southernenvironment.org/uploads/words_docs/2016_09_12_Synapse_Report_-_Are_the_ACP_and_MVP_Necessary__FINAL.PDF

[64] Direct Testimony of Swati V. Daji, February 16, 2017, North Carolina Utilities Commission Docket No. E-100 Sub 147: www.ncuc.net

[65] http://ieefa.org/wp-content/uploads/2016/04/Risks-Associated-With-Natural-Gas-Pipeline-Expansion-in-Appalachia-_April-2016.pdf, p. 1.

[66] https://about.bgov.com/blog/new-barrier-pipelines-path-brutal-economics/

[67] http://www.utilitydive.com/news/new-report-questions-need-cost-of-access-northeast-gas-pipeline-project/436228/

F. Existing pipelines are underutilized.

Existing pipelines should be utilized more efficiently. The Synapse Energy Economics study shows existing pipeline capacity, gas storage, along with the expected reversal of flow of gas from the Transco pipeline in North Carolina will provide more than enough gas to cover needs in the Carolinas.[68] Jonathan Peress of the Environmental Defense Fund ("EDF") points out that there are signs that a gas pipeline bubble is forming. This bubble would impose unnecessary costs on consumers, and constrain the development of cleaner, cheaper sources of electricity such as wind and solar. IEEFA reports that current utilization of pipelines for gas flowing into North Carolina is 37%.[69] The U.S. Department of Energy ("DOE") reports average capacity utilization for gas interstate pipelines from 1998-2013 was only 54%.[70]

Peress also points out that there is a big difference between market participants and captive ratepayers financing these huge, expensive projects. When market participants finance expensive pipelines, they understand the risk, whereas ratepayers have no choice but to pay. The environmental damages from drilling and shipping

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68 https://www.southernenvironment.org/uploads/words_docs/2016_09_12_Synapse_Report_-_Are_the_ACP_and_MVP_Necessary__FINAL.PDF

69 http://ieefa.org/wp-content/uploads/2016/04/Risks-Associated-With-Natural-Gas-Pipeline-Expansion-in-Appalachia-_April-2016.pdf, p.13
http://www.eia.gov/dnav/ng/ng_move_ist_a2dcu_nus_a.htm
http://www.eia.gov/naturalgas/pipelines/EIA- StatetoStateCapacity.xls
http://southeastenergynews.com/2016/11/14/advocates-ratepayers-will-be-on-the-hook-for-unnecessary-pipelines/

70 Testimony of N. Jonathon Peress at 2, June 14, 2016, Before the State Energy and Natural Resources Committee: http://wp.vasierraclub.org/LetterInFull.pdf

fracked gas are also borne by citizens, and are not even considered by pipeline builders Duke Energy and Dominion. In summary, Mr. Peress concludes:

a. Per unit (per dekatherm or per million BTU), transportation costs for new greenfield capacity are almost as much as the current commodity price for natural gas;

b. Before a proposed pipeline can apply for a certificate with FERC, it must show executed contracts to provide enough revenue to pay for the full cost of the project, including construction, return on equity, depreciation, taxes, maintenance and operations;

c. These contracts are 'take-or-pay,' whereby daily pipeline delivery capacity is reserved and paid for by shippers every day over the term of the transportation service agreements -- whether or not those services are used;

d. Because the cost of constructing a new pipeline (particularly a greenfield project) are so great, these contracts must be of long duration, typically 20 years.

e. Normally, new pipelines are financed over 35 to 40 years in order to spread the costs so that per unit transportation services can be reasonably affordable;

f. Shippers entering into long term agreements with capacity developers must have a high degree of confidence that the market conditions signaling the need for new pipeline capacity will persist for many years into the future;

g. In the absence of a voluntary transaction between capacity developers and market participants risking their own capital, further capacity expansion would only occur in the event policymakers impose long term financial obligations on captive ratepayers for costly long-lived infrastructure. And should they do so, they are going outside of the price signals sent by a rational market. Any such government-induced incursion into the market is highly risky and if pursued, is likely to impose costs on the obligors in excess of putative benefits, while enriching those who benefit without them bearing risk in proportion to the investment;

h. There is a "disturbing" trend of utilities imposing transportation contract costs on state-regulated retail utility ratepayers so that affiliates of those same utilities can earn shareholder returns as pipeline developers;

i. The essence of this financing structure is that transportation fees are paid to an affiliate, so that ratepayer costs which may not be justified by ratepayer demand are converted into shareholder return.

The costs and risks of pipeline overbuilding are being borne by ratepayers, while shareholders increase their returns. State regulators, as well as FERC, appear to be complicit, as they refuse to ask hard questions of pipeline developers.

These conclusions are supported by out-going FERC Chairman Norman Bay who stepped down from his position on February 3, 2017.[71] The same day, Bay issued a separate statement on an order involving shale gas and U.S. markets.[72] In that statement, Bay notes the "public benefits" that might be shown in order to determine need for a pipeline, including but not limited to: meeting unserved demand; lowering costs to customers; providing competitive alternatives; increasing electric reliability; or advancing clean air objectives. Bay notes that although these factors are included in the Natural Gas Act, FERC largely relies on contracts with shippers to establish need in practice.

The problem arises when the same affiliated party -- i.e. Duke Energy and Dominion -- are on both sides of the equation. In other words, Duke Energy and Dominion subsidiaries have contracts with Duke Energy and Dominion. Bay points out that the danger in affiliate-signed contracts is that anticipated markets "may fail to materialize." He compares this danger with the huge build-out of LNG terminals built during the early 2000s that became stranded assets.

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[71] http://www.platts.com/latest-news/natural-gas/washington/former-chairman-norman-bay-to-resign-from-us-21720960

[72] Order Granting Abandonment and Issuing Certificates (Separate Statement by Commissioner Bay) at 89-95, Docket Nos. CP15-115-000 and CP15-115-001: https://www.ferc.gov/CalendarFiles/20170203194955-CP15-115-000.pdf

Bay states that it's in the public interest to ensure that pipelines are not overbuilt, contributing to boom-and-bust cycles, as they are "capital intensive and long-lived assets." Bay observes that:

> It is in the public interest to foster competition for pipeline capacity but also to ensure that the industry remains a healthy one, not subject to costly boom-and-bust cycles. *Pipelines are capital intensive and long-lived assets. It is inefficient to build pipelines that may not be needed over the long term and that become stranded assets. Overbuilding may subject ratepayers to increased costs of shipping gas on legacy systems.* If a new pipeline takes customers from a legacy system, the remaining captive customers on the system may pay higher rates. *Under such circumstances, a cost-benefit analysis may not support building the pipeline.*

(emphasis added). That could be exactly the situation with the ACP; gas that is currently transported via the Transco pipeline may simply be shunted to the ACP, so that the Transco will be underutilized. Who will pay for the stranded capacity from the Transco pipeline that currently serves North Carolina?

G. Reliance on the Clean Power Plan ("CPP") as an indicator of need is not reasonable.

Dominion asserts that implementation of the CPP would increase coal-fired electric generation plant retirements and coal-to-gas switching, thus supporting the need for the pipeline. However the Supreme Court has stayed implementation of the CPP pending disposition of ongoing litigation.[73] The current Administration has vowed to backtrack on the goals in the CPP. As a result of court and executive actions, states have suspended the planning process, so the details of states' plans – including specific emissions reduction measures and the schedule for implementing them – remain largely unknown. However, state plans can be expected to be responsive to the CPP's

[73] *Chamber of Commerce v. EPA*, No. 15A787 (U.S., Feb. 9, 2016) (order granting stay).

incentives for renewable generation over gas-fired generation. Because gas-fired plants emit significant amounts of carbon dioxide, states will be able to achieve compliance more easily by relying on greater renewable generation as compared to coal-to-gas switching. As a result, EPA modeling shows that gas-fired generation is expected to decline by the end of the compliance period, as compared to the base case.[74] The CPP is thus not a significant driver of need for additional natural gas transmission infrastructure.

While studies show carbon dioxide emissions have decreased over the past few years in the United States, greenhouse gas emissions have increased. The huge increase of fracking is driving a spike in methane emissions, and according to the most recent report by the Intergovernmental Panel on Climate Change ("IPCC") issued in 2013, methane's effect on the climate is 86 times that of carbon dioxide over 20 years. Decisions about the use of natural gas and its impacts on the climate should use the shorter time frame, which has the result of making natural gas, including fracked gas, appear to be more climate-friendly than it actually is.[75]

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[74] EPA Regulatory Impact Analysis for the Clean Power Plan Final Rule at 3-27: https://www.epa.gov/sites/production/files/2015-08/documents/cpp-final-ruleria.pdf.

[75] https://thinkprogress.org/how-the-epa-and-new-york-times-are-getting-methane-all-wrong-eba3397ce9e5#.s5zcjd205

II. The DEIS fails to consider the reasonably foreseeable decline of shale gas supply for the ACP.

A. Future U.S. natural gas supplies are overestimated, which could result in stranded assets.

Without sufficient natural gas, both the pipelines and gas-fired power plants could become too expensive to operate, especially in an era of ever-decreasing costs for wind and solar power. Since 2009, some 5,000 miles of pipelines have been approved by FERC, with an additional 3,500 miles in process. According to Bloomberg, these pipelines represent a $35 billion investment.[76] At least twice that amount could easily be spent on gas-fired power plants planned around the U.S. North Carolina and Virginia alone have $6 billion in proposed pipelines, with an estimated $20-plus billion in gas-fired power plants proposed by Duke Energy Carolinas ("DEC") and Duke Energy Progress ("DEP") in their most recent Integrated Resource Plans (IRP).[77] Duke Energy currently generates electricity from 10,000 MW of gas plants in DEP and DEC territories; and has plans to add 7,900 additional MW of gas-fired generation capacity by 2031.[78]

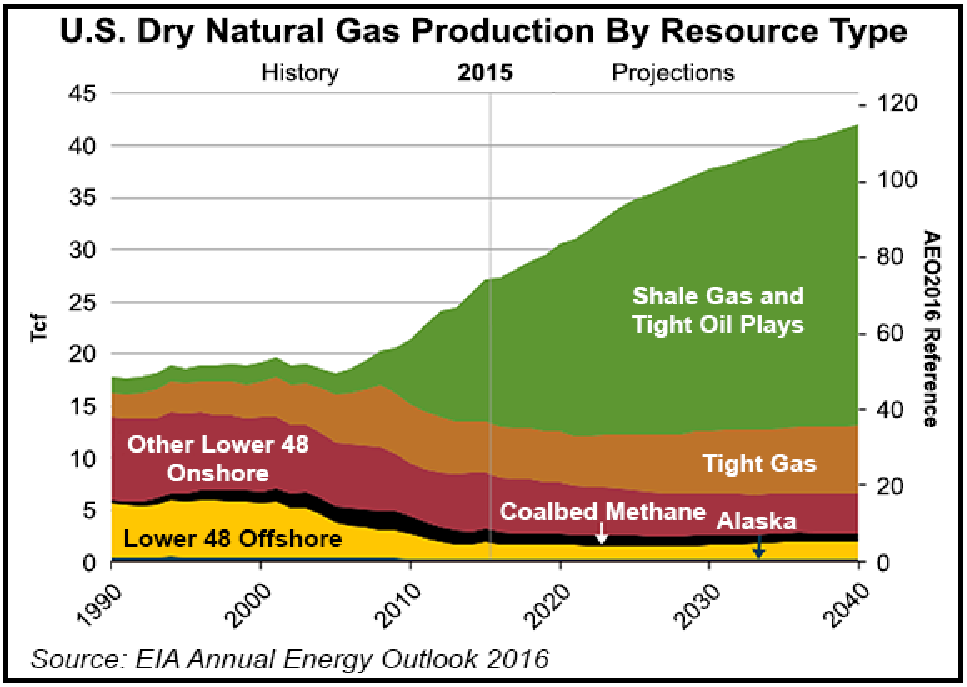
A critical issue the utilities proposing the ACP refuse to consider is that the supply of natural gas in the U.S. is seriously overestimated, putting ratepayers at risk of rising prices at best, or stranded assets at worst. Their assumption of endless supply is based on the unrealistic forecasts by the U.S. Energy Information Administration (EIA). The graph below shows the EIA's 2016 estimate of future natural gas supplies out to 2040. The EIA expects natural gas production to continue to rise decades into the future,

[76] https://about.bgov.com/blog/new-barrier-pipelines-path-brutal-economics/

[77] North Carolina Utilities Commission Docket No. E-100 Sub 147: www.ncuc.net

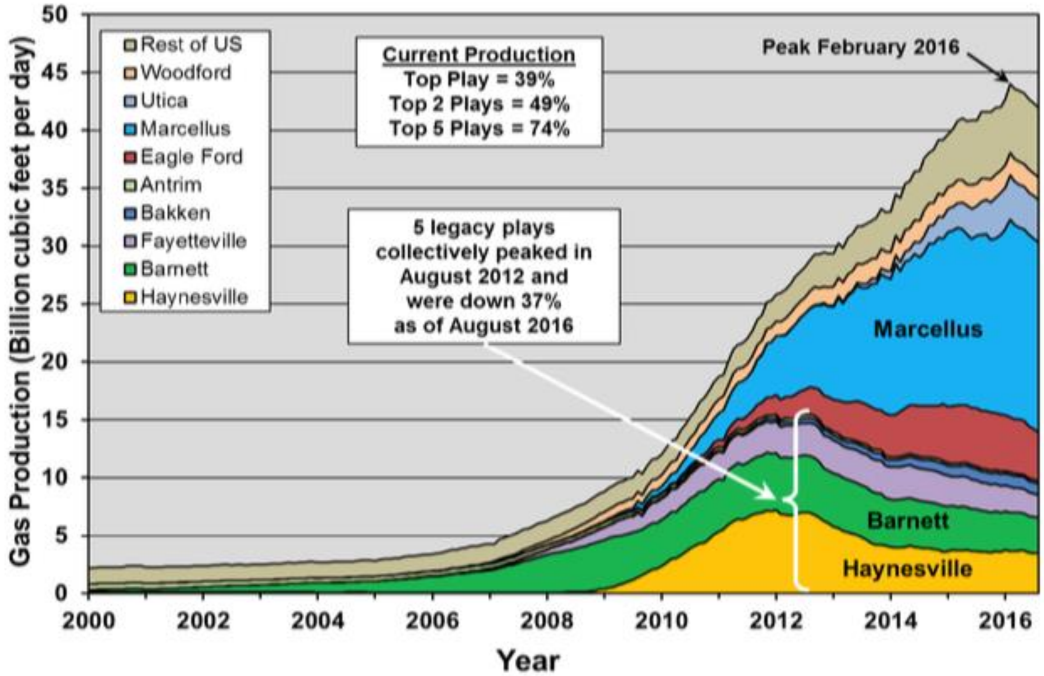
[78] Direct Testimony of Swati V. Daji, February 16, 2017, North Carolina Utilities Commission Docket No. E-100 Sub 147: www.ncuc.net

utterly ignoring the fact that shale gas wells decline very quickly over the first three years, and that the oldest U.S. shale gas plays, which have been producing for less than 20 years, are in the advanced stages of decline.



The next graph shows the production of each shale play up to August 2016, and notes that the top two plays, the Marcellus and the Haynesville, account for 49% of total U.S. shale gas production. As shown below, this should raise red flags for FERC, state commissions and the participating utilities. As a result, the Public Interest Groups urge regulators to scrutinize EIA's potentially overblown claims of future shale gas production.[79]

[79] The most recent historical data from EIA's Natural Gas Weekly shows that annual U.S. natural gas production for 2016 was down 2.2% overall from 2015 levels. While a 2.2% reduction for 2016 is an improvement over the 4.7% decrease from the Hughes study, it is still cause for concern, and shows that future shale gas production is hardly guaranteed. See http://www.eia.gov/naturalgas/weekly/



© Hughes GSR Inc, 2016 (data from EIA Natural Gas Weekly Update, October, 2016)

B. <u>EIA has overestimated future U.S. natural gas supplies by 50% or more.</u>

The "shale gas revolution" has changed electricity generation in the U.S., and shale gas now provides two-thirds of U.S. natural gas.[80] However, what is much less discussed, but critically important, is that U.S. shale gas "plays" (focused areas with drilling activity) have very high decline rates, with the average well declining 75 - 85% over the first three years of production. This means that 30 - 45% of a play's production must be replaced each year by more drilling.[81] Compounding the problem is that high productivity "sweet spots" account for only 10-20% of the geographic area of most shale plays, but comprise the most productive wells. After sweet spots are exhausted, more wells must be drilled to maintain current production. In some areas of the U.S., spacing

[80] www.eia.gov/todayinenergy/detail.php?id=26112

[81] www.postcarbon.org/wp-content/uploads/2014/10/Drilling-Deeper_FULL.pdf

of gas wells has dropped from 1 well pad per 240 acres to 1 well pad per 10 acres.[82] As sweet spots are used up, and there are fewer locations left to drill, more low-producing wells will need to be drilled just to keep production even. If more and more wells are not drilled, production will likely decline steeply. Less-productive wells require more money invested per unit of gas produced, so that the price of gas must rise if these wells are to be drilled at a profit.

Earth scientist David Hughes has studied energy resources for four decades, spending 32 years with the Geological Survey of Canada as a scientist and research manager. Hughes developed Canada's National Coal Inventory to determine availability and environmental constraints, and is uniquely qualified to assess future supplies of shale gas. Over the past decade, Hughes has researched, published and lectured widely on global energy and sustainability issues in North America and internationally, starting with a 2011 report on U.S. natural gas supplies.[83] Hughes' work includes many reports analyzing the EIA data. Hughes has analyzed EIA reports in depth, and authored major studies on shale gas and oil in 2013, 2014 and 2015. The analysis below is from Hughes' December 2016 update on U.S. shale gas plays, which compares EIA's most recent 2016 forecast with the EIA's forecasts in 2015 and 2014, as well as Hughes' own analysis from *Drilling Deeper* (2014).[84] Hughes' analysis shows:

a. Actual shale gas production has declined 4.7% since its peak in February 2016.

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[82] http://endocrinedisruption.org/chemicals-in-natural-gas-operations/introduction

[83] http://www.postcarbon.org/publications/will-natural-gas-fuel-america/

[84] http://www.postcarbon.org/wp-content/uploads/2014/10/Drilling-Deeper_FULL.pdf
http://www.postcarbon.org/publications/drill-baby-drill/
http://www.postcarbon.org/publications/shale-gas-reality-check/
http://www.postcarbon.org/2016-shale-gas-reality-check/

b. All shale plays appear to have peaked.

c. Production from the Haynesville shale play (located in Louisiana) is down 52%, despite a heavy increase in drilling.

d. Despite these decreases in production over a short time frame, the U.S. EIA's estimates of *future* production of natural gas have increased dramatically; in other words, the EIA's estimates are 22% higher in the 2016 analysis than its 2015 analysis.

e. High-producing shale plays such as the Marcellus are relatively rare, and the top five U.S. shale plays (Marcellus, Ford, Utica, Haynesville, and Barnett), account for 74% of August 2016 production.

f. The EIA's drilling rates from the Annual Energy Outlook 2015 (AEO2015) require over 1 million wells to be drilled between 2015 and 2040, at a cost of approximately $6 million each, for a total required investment of $6 trillion.[85]

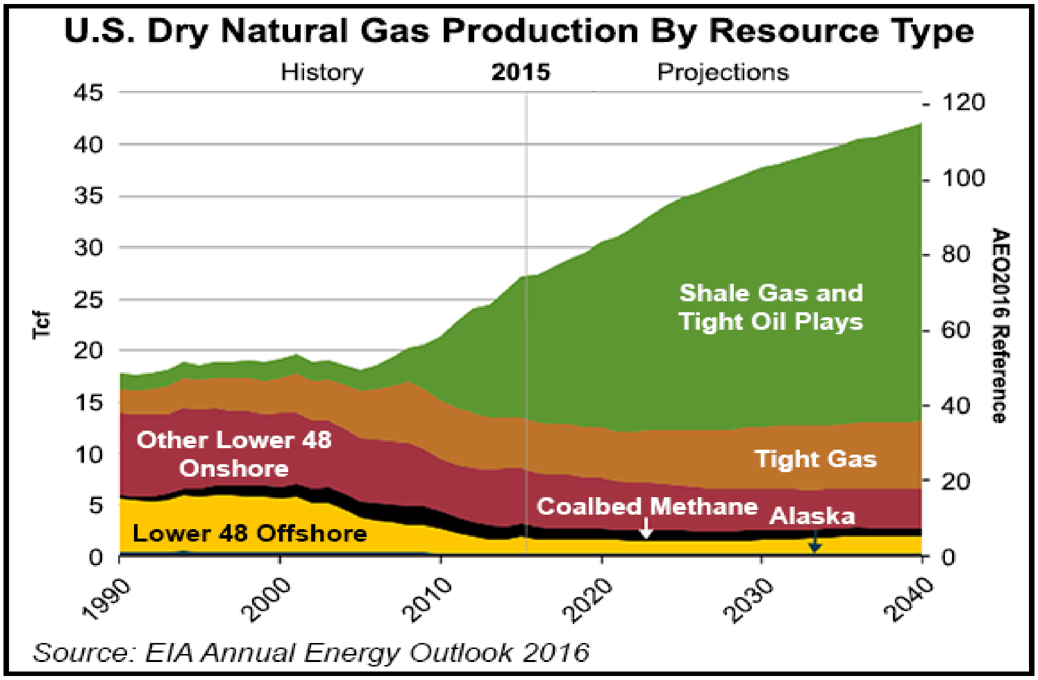
Hughes demonstrates there is no reason given for the new, highly optimistic increase in total production. In fact, much of the natural gas supply expected by the EIA to materialize by 2040 (and by 2050 in the most recent AEO) does not appear to be grounded in geologic reality. The graphic below shows the EIA's estimates that natural gas production will continue to rise decade after decade, utterly ignoring the fact that shale gas wells decline very quickly.

Remarkably, the EIA's 2016 report assumes that natural gas prices will remain at or below $5/MMBTU through 2040. This is 20% below its Annual Energy Outlook (AEO2015) price forecast over the 2015-2040 period. Gas prices in 2016 were $2.50-3.00/MMBTU, but ballooned to over $12.00/MMBTU as recently as 2008.[86] EIA expects

[85] http://www.resilience.org/stories/2016-12-16/2016-shale-gas-reality-check/

[86] http://www.postcarbon.org/2016-shale-gas-reality-check/, p. 3.

the cost of natural gas to somehow remain at $5.00/MMBTU from 2025 through 2040, despite the fact that the cost of natural gas has been extremely volatile since 2000.



C. U.S. natural gas production peaked in February 2016.

The Hughes 2016 analysis on the production from the U.S. shale gas plays focus on historic data and then compares EIA's 2016 forecast with its earlier forecasts. Hughes' analysis shows:

a. Actual shale gas production as of August 2016 declined 4.7% since peaking in February 2016;

b. All shale plays appear to have peaked;

c. Production from the Haynesville shale play (located in Louisiana), is down 52% since peaking in January 2012, despite a heavy increase in drilling; and

d. High-producing shale plays such as the Marcellus are relatively rare, and the top five U.S. shale plays (Marcellus, Ford, Utica, Haynesville and Barnett), account for 74% of August 2016 production.

Despite these decreases in shale gas production over a few years, EIA's estimates of future production of natural gas have increased dramatically; in other words, EIA's 2016 estimates are 22% higher than its own 2015 analysis. There is no reason given for the big increase in possible future shale gas supplies and no data to back up such a conclusion.

D. Future shale production in the Marcellus and Haynesville plays is overestimated.

The future development of the Marcellus and Haynesville shale plays are fundamental to the future of the proposed ACP. The Marcellus is the shale play that is the basis of the EIA's huge projection in future shale gas supplies, while the Haynesville shows us what the future actually looks like, since that play is down by over half since peaking in January 2012. As part of his recent statement, former FERC Chairman Bay notes that the early-producing shale plays have already seen output decline and, further, nearly all U.S. shale plays are in decline. Bay also notes the "growing importance" of the Marcellus and Utica, and asks why FERC has never conducted a "comprehensive study of the environmental consequences of increased production from that region. Nor has the Commission performed a programmatic review of gas production in the different shale formations."

The Marcellus provides more shale gas than any other shale gas play, providing over a third of total U.S. shale gas. The Marcellus is mainly concentrated in Pennsylvania, but also includes eastern Ohio, northern West Virginia, and southern New

York. The top five shale-producing counties in Pennsylvania have accounted for 65% of cumulative production from the Marcellus play, demonstrating the fact that most gas is produced from a few "sweet spots."

The chart below, Figure 1 from Hughes' 2016 study, shows the estimated recovery for several plays from the EIA's Annual Energy Outlook (AEO) for 2014, 2015 and 2016. The 2016 estimate for the Marcellus play, in red, shoots up higher than any other play in the U.S., and is in fact *76% higher than the AEO2014 estimate.* Note that the short black bar on the right is actual gas recovery. The AEO2016 estimate is also triple the estimate by the U.S. Geological Survey.[87]

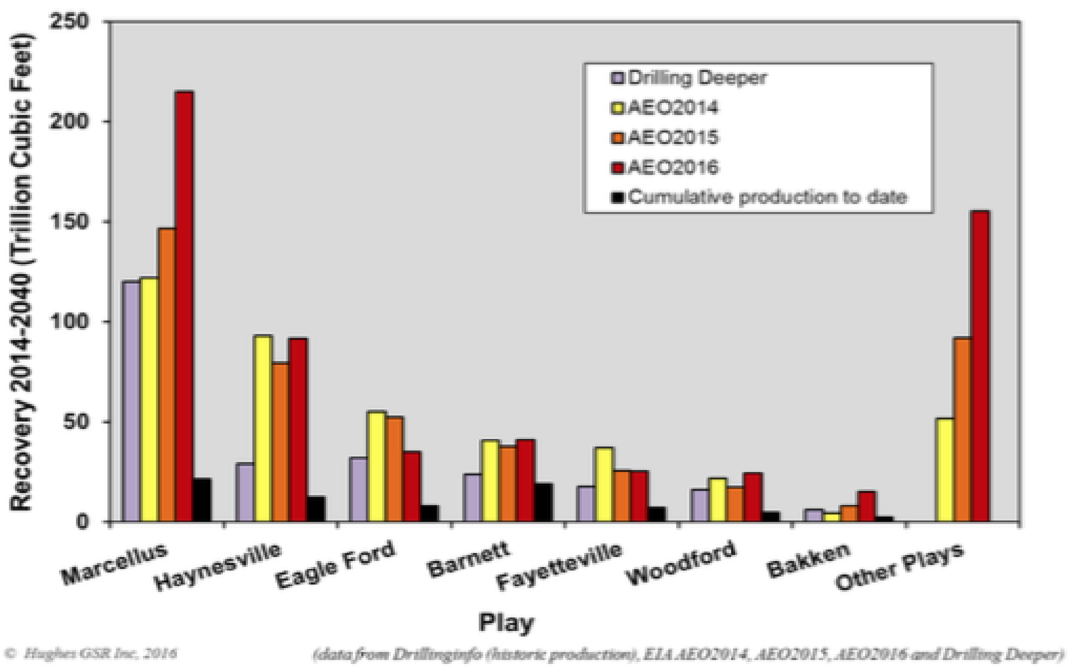


Figure 1. Cumulative recovery by play from 2014 to 2040 comparing AEO2014, AEO2015, AEO2016, and *Drilling Deeper* "Most Likely" projections.

The most significant increases occur in the Marcellus and "other" plays, although all plays are revised upward in AEO2016 compared to AEO2015 except the Eagle Ford and Fayetteville. All plays are below peak production. Also shown is cumulative production to date, per Drillinginfo.[8]

[87] http://www.postcarbon.org/2016-shale-gas-reality-check/, pp. 11-12.

The other glaring omission in the EIA's ambitious forecast is geological: many of the sweet spots have so many wells that it's impossible to drill more wells without draining shale gas from wells nearby, and there is simply no more land left to drill, known as "well saturation." In January 2012, the Marcellus had 143 active drilling rigs, which was down to 34 in October 2016. Greater rig efficiencies and technology have allowed the Marcellus to continue to produce at a high rate, although overall gas production in the Marcellus declined 5% from February 2016 to August 2016.[88]

The figure below compares EIA's 2014, 2015, and 2016 projections for total gas production from the Marcellus shale play. In 2014, the EIA estimated that a total of 120 trillion cubic feet ("TCF") of gas would be recovered from the Marcellus (from 2014 until 2040). In 2015, the EIA increased that estimate from 120 TCF to 147 TCF and, in 2016, increased it again to 215 TCF, 76% higher than its estimate in 2014.

[88] http://www.postcarbon.org/2016-shale-gas-reality-check/, pp.11-13.

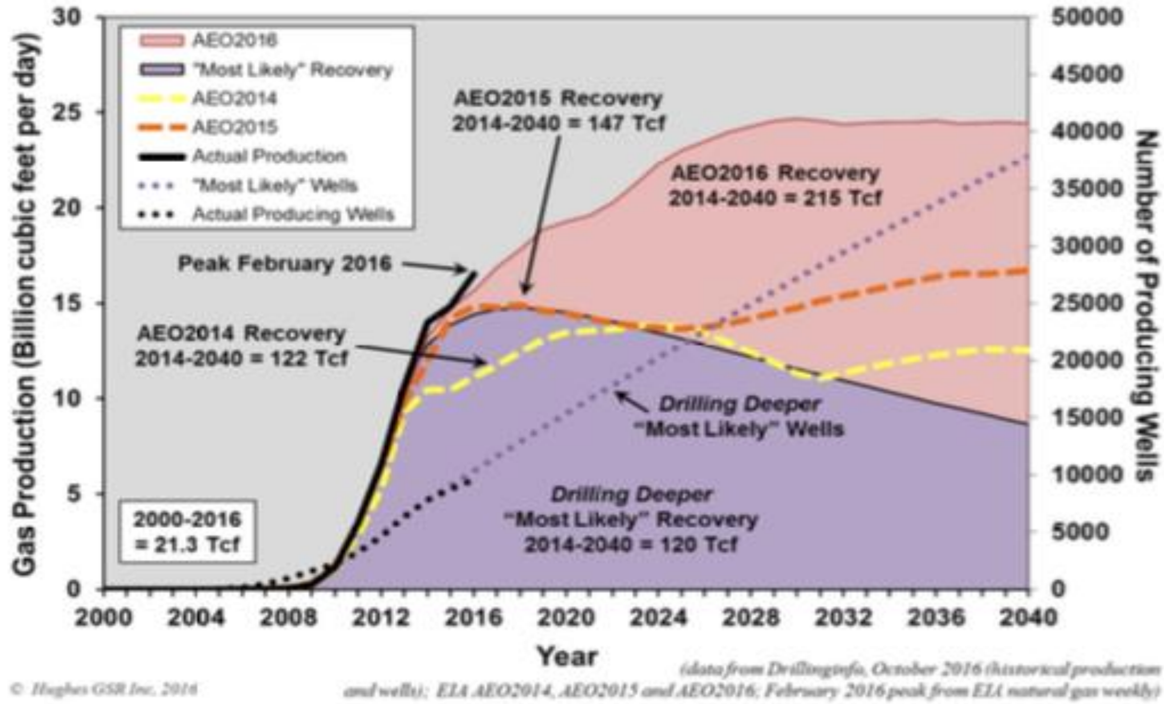


Figure 7. Marcellus Play production for the "Most Likely" drilling rate forecast from *Drilling Deeper* compared to the EIA's AEO2014, AEO2015 and AEO2016 forecasts. Also shown are actual production, actual cumulative producing wells, and the cumulative wells that would have to be drilled for the "Most Likely" drilling rate. Cumulative production through mid-2016 was 21.3 Tcf. AEO2016 estimates cumulative recovery over the 2014-2040 period of 215 Tcf, compared to 120 Tcf in *Drilling Deeper*. The February 2016 production peak is not reflected as data in this figure are in 1-year intervals.

Again, there is no reason given for the new, highly optimistic increase in total production and it appears to disregard actual production potential. Similarly, there is no reason for the highly optimistic increase in total production from the Haynesville. The rapid growth and subsequent decline in the Haynesville shale play is the likely future of the Marcellus shale play. The chart below shows the following regarding the Haynesville play:[89]

a. Actual gas production, starting with near-zero output in 2006, peaked only 6 years later in January 2012

b. AEO2014 projected 92.3 TCF total shale gas recovery from 2014-2040

[89] http://www.postcarbon.org/2016-shale-gas-reality-check/

c. AEO2015 projected 79.3 TCF total shale gas recovery from 2014-2040

d. AEO2016 projects 91.8 TCF total shale gas recovery from 2014-2040

e. Hughes' *Drilling Deeper* projects 29 TCF as the "most likely" recovery scenario from 2014-2040

f. Actual production from 2000-2016 was only 12.5 TCF

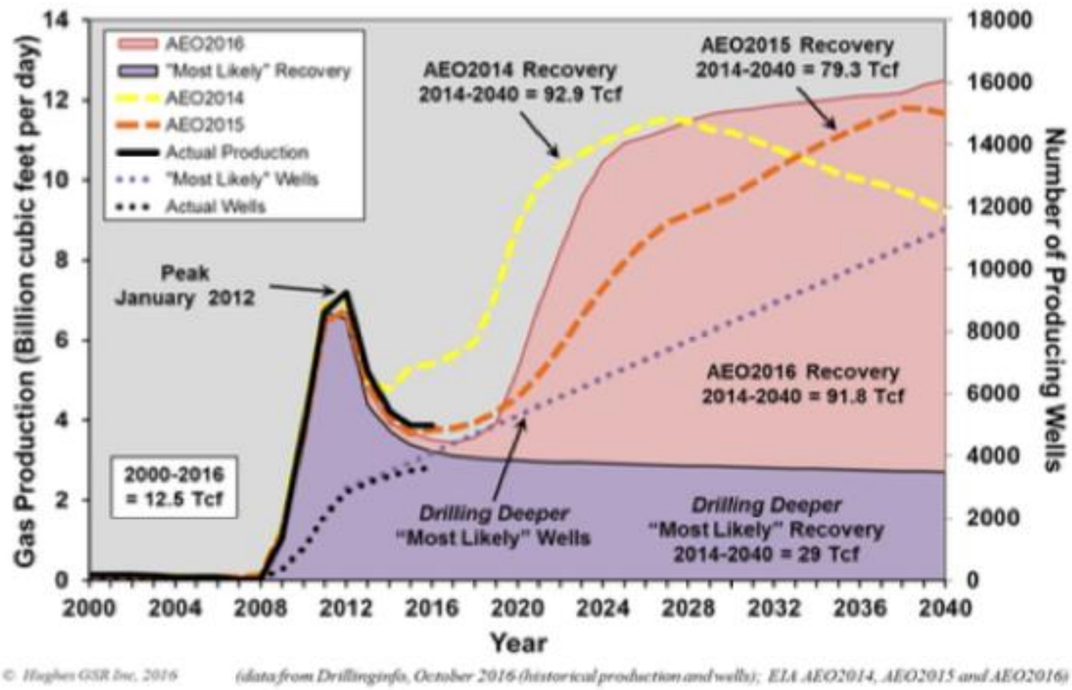


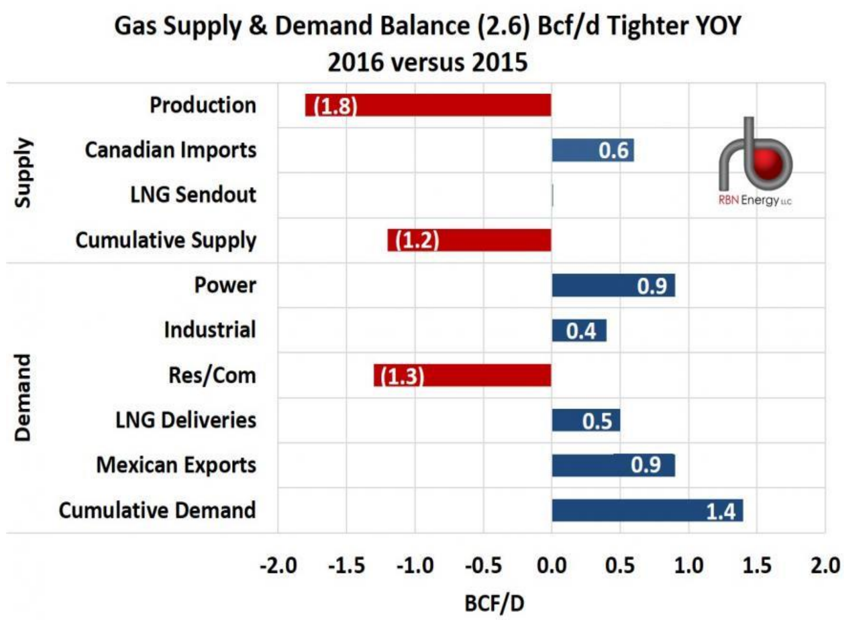
Figure 9. Haynesville Play production for the "Most Likely" drilling rate forecast from *Drilling Deeper* compared to the EIA's AEO2014, AEO2015 and AEO2016 forecasts.

Also shown are actual production, actual cumulative producing wells, and the cumulative wells that would have to be drilled for the "Most Likely" drilling rate. Cumulative production through mid-2016 was 12.5 Tcf. AEO2016 estimates cumulative recovery over the 2014-2040 period of 92 Tcf, compared to 29 Tcf in *Drilling Deeper.*

In other words, the EIA has revised the total amount of projected gas production from the Haynesville shale play up and down over the past three years. Meanwhile, *actual recovery from the Haynesville shale play is down by a staggering 52% from its January 2012 high*. Hughes projects the "most likely" recovery from the Haynesville play to in fact be 29 TCF with an ever growing number of wells needed to produce the gas.

E. Total U.S. natural gas production is in decline.

The week of February 20, 2017, Rusty Braziel published the following graph on U.S. gas production, showing total production down by 1.8 billion cubic feet per day (bcf/d) year over year, from 2015 to 2016:[90]



This chart should give pause to every investor and utility that is depending on unlimited supplies of cheap natural gas for the next thirty years. Bloomberg's June 24, 2016, blog notes that "economics of pipelines is becoming less favorable" and cheap gas is "making it hard for shale drillers to survive."[91] The EIA's January 2017 chart on U.S. natural gas production also shows a recent decline.[92]

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[90] http://marcellusdrilling.com

[91] https://about.bgov.com/blog/new-barrier-pipelines-path-brutal-economics/

[92] http://www.eia.gov/naturalgas/monthly/pdf/figure_01.pdf, Figure 1.

F. Shale gas economics are not rational.

Arthur E. Berman is a geological consultant with 37 years of experience in petroleum exploration and production, as well as financial analysis with a focus on the energy sector.[93] Berman has been alerting investors for years that the “magical thinking” behind believing shale gas can continue to be cheap, abundant and profitable defies the rules of economics. Berman, like Hughes, disputes the findings of the EIA’s AEO2016, saying that it “sparkles with pixie dust.”[94]

Berman lists the shale gas companies that are losing money, noting that, in 2016, the largest shale gas producer in the world, Chesapeake Energy, did not even cover operating costs of about $6 million per well, much less capital-intensive expenditures like drilling and completion. The list of shale gas companies with negative cash flows includes Anadarko, Comstock, and Petroquest, with Goodrich and Sandridge in bankruptcy. Berman notes that, in 2015, Ultra, Forest, Quicksilver, Swift and Talisman were “lost in action.” Companies that survived out-spent cash flow two-to-one, while debt ratios were even worse. In 2015, the average debt-to-cash flow ratio increased from 2:1 to 7:1.

Berman, like Hughes, points out that many shale plays have peaked. He notes that although the Marcellus still has gas, and will for many years, the gas cannot be profitably brought to market at these low prices. Berman clearly states that when gas prices are below the cost of production, companies cannot make a profit. The NYMEX

[93] http://www.artberman.com/about-art/

[94] www.artberman.com/shale-gas-magical-thinking-and-the-reality-of-low-gas-prices/

cost of natural gas is currently less than \$3/MMBTU,[95] and has been for most of the past few years.[96] Berman shows the costs of gas needed for companies to break even drilling the Marcellus shale, and they are all over \$3/MMBTU.

Marcellus Break-Even Gas Prices			
Marcellus	Wells	EUR (BCF)	B/E Price
Anadarko	241	6.17	\$4.25
Cabot	280	9.36	\$3.42
Chesapeake	575	7.20	\$3.91
Chevron	199	4.93	\$4.89
EQT	220	9.42	\$3.41
Range	643	3.85	\$5.75
Shell	305	3.20	\$6.56
Southwestern	238	5.81	\$4.73
Talisman	354	4.31	\$5.33
Average For COG,CHK & EQT			\$3.58

Table 1. Marcellus break-even gas prices. COG: Cabot, CHK: Chesapeake. Source: Drilling Info and Labyrinth Consulting Services, Inc.

Berman also analyzes the break-even cost of gas for Haynesville, Utica, and Woodford shale plays, which are all above the current price of natural gas:

Shale Gas Break-Even Price Summary			
Play	Range	Average	Avg of Low-Cost Operators
Haynesville	\$5.29-\$6.82	\$6.57	\$5.39
Marcellus	\$3.41-\$6.56	\$4.69	\$3.58
Utica	\$3.24-\$7.93	\$5.93	\$4.51
Woodford	\$5.83-\$7.77	\$6.83	\$5.93

As Mr. Berman states:

> Falling gas prices have exposed the delusion of shale gas magical thinking. Production growth was funded by debt. Capital in search of yield continued to flow and over-production pushed prices below \$2 by the end of 2015.

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[95] The cost of NYMEX natural gas per Bloomberg is \$2.78 on 2/28/17: https://www.bloomberg.com/energy

[96] http://www.eia.gov/todayinenergy/detail.php?id=29552

> The wreckage is clear from disastrous first quarter financial data and falling production. The Barnett and Fayetteville plays that were supposed to last 100 years are dead at current prices. The Haynesville will probably follow soon enough.
>
> Capital may continue to flow to shale gas companies but most of it will be used to repair balance sheets. Prices will gradually increase and financially stronger companies with core positions in the Marcellus and Utica plays will survive. Many companies will not.

Finally, Berman notes that "[t]he U.S. has perhaps a decade of gas supply at about $6 and considerably more at higher prices. By the time prices reach those levels, the folly of export will be apparent."[97]

<u>G. Ratepayers could be stuck with stranded assets.</u>

Since pipelines and power plants are expected to deliver and burn fracked gas for over 30 years, Hughes' and Berman's data deserve a high level of scrutiny. New natural gas infrastructure projects that are completed only to become unviable shortly thereafter put ratepayers at risk of paying for stranded assets. These significant findings require that regulatory bodies such as FERC and state commissions charged with protecting ratepayers against imprudent expense, answer Hughes' questions:

1. What are the justifications for the substantial projected increase in shale gas from 2015 to 2040 and beyond?

2. Why is the difference so large between AEO's 2015 production estimates and its 2016 production estimates?

3. How can overall shale gas production increase 31% from AEO2015 to AEO2016, and add the assumption that natural gas prices will be 20% lower over the same period?

[97] http://www.artberman.com/shale-gas-magical-thinking-and-the-reality-of-low-gas-prices/

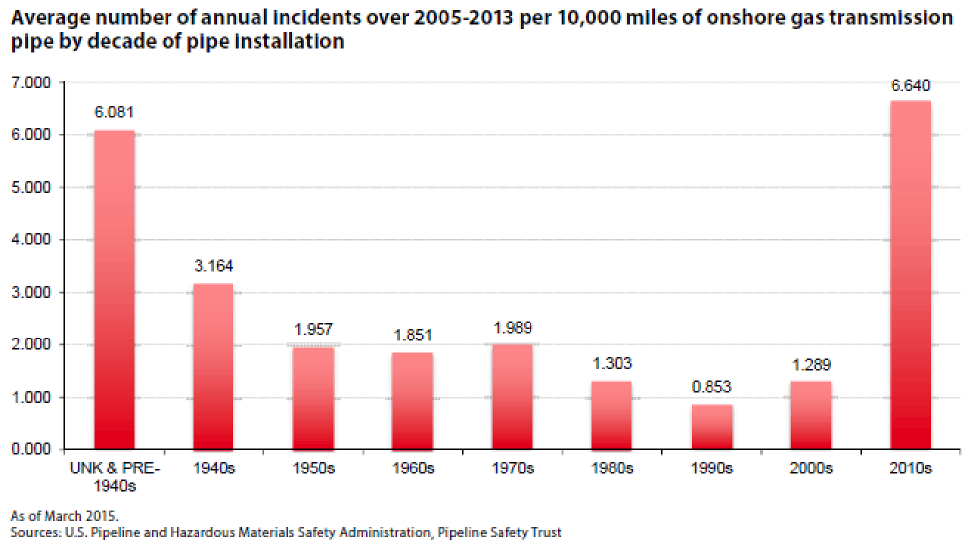
The answers to these questions are crucial to the need for the ACP and its long-term viability. Customers should not have to bear the burden for misguided pipeline construction.

III. The DEIS fails to include critical information to determine direct and indirect environmental and socioeconomic impacts.

A. The DEIS does not adequately assess safety concerns.

Section 4.12 of the DEIS does not adequately assess the AP-2 threats to safety of North Carolina communities along the pipeline. In response to a number of safety concerns expressed by public commenters during the "scoping" period, FERC simply responds that "ACP and SHP (Supply Header Project) aboveground facilities would be designed, constructed, operated, and maintained in accordance with DOT Minimum Federal Safety Standards in 49 CFR 192."

Since 2010, there has been, according to Pipeline and Hazardous Materials Safety Administration ("PHMSA") data, a five-fold increase in the number of pipeline incidents per 100,000 miles of gas transmission pipeline (see figure below). Such a rise is evidence that the DOT standards themselves are inadequate to prevent pipeline incidents, or that the inspection and enforcement of those standards is failing, likely due to rushed pace of construction, or both.



According to the DEIS, “Section 157.14(a)(9)(vi) of FERC’s regulations require that an applicant certify that it would design, install, inspect, test, construct, operate, replace, and maintain the facility for which a Certificate is requested in accordance with federal safety standards and plans for maintenance and inspection, or certify that it has been granted a waiver of the requirements of the *Reliability and Safety* 4-472 safety standards by the DOT in accordance with section 3(e) of the Natural Gas Pipeline Safety Act.” The PHMSA data above necessarily raise the question as to whether the required certification by an applicant is adequate to assure compliance in a time when the motivation to construct pipelines as quickly as possible.

The DEIS identifies one High Consequence Area (“HCA”) each in Northampton, Halifax, and Wilson Counties, and multiple HCA’s in Nash, Johnston, Cumberland, and Robeson Counties, indicating areas of higher occupied building density or where the impact circle is greater than 660 feet and intercepts 20 or more buildings for human occupancy or an identified site with anticipated occupancy more than 50 days per year or with disabled persons difficult to evacuate. A basic right should be for any person who will stay for extended periods or reside in a building close to a major gas pipeline to be aware of its presence and to be trained to recognize and respond to, and then report and evacuate, any evidence of a pipeline leak or disturbance. This is particularly critical for residents in an HCA.

When staff of Clean Water for NC, one of the Public Interest Groups, met with residents door to door in an identified HCA (though it had not been formally identified at the time of the visits) in Garysburg, NC (Northampton County) or at several HCA locations in Robeson County, there was almost no awareness of plans to construct the ACP or the size of the pipeline, and certainly not that their residence was in or near an HCA. This deprives residents of the right to informed participation in public scoping meetings, FERC comment sessions (which fell far short of any reasonable definition of public "hearings"), or the ability to give informed comment as well as take any actions that would protect their lives and property from the higher risks resulting from construction of the ACP. FERC appears to unreasonably discount the additional risks of a pipeline incident faced by existing residents, who are already at high risk of extreme natural events. This is entirely inappropriate and deeply disrespectful of the rights of residents along the route, many who are disproportionately low income and people of color.

The DEIS describes Dominion consulting with Local Emergency Planning Committees ("LEPCs") and fire and emergency management officials. From experience and a study by Clean Water for North Carolina of NC LEPCs, many of them are not functioning at all or are only meeting annually, and are seldom discussing urgent public safety matters. While fire and emergency services personnel may be more ready for such a consultation, we can reasonably assume Dominion and its contractors will downplay potential safety hazards and the risks associated with any response. There is no assurance that equipment available to them will be adequate to deal with a major incident. Further, in a 2016 Clean Water for NC phone survey of Emergency Directors and County Managers in relevant NC counties, several were completely unaware the pipeline would be traversing their county or had no understanding of the planned timing. One Emergency Management Director said he thought the pipeline would be constructed starting in 2025.

The DEIS includes “direct mailings” to police, fire and emergency officials as one of the ways that Dominion will stay in touch with them. This is wholly inadequate to assure that the information is incorporated into staff knowledge and agency planning. Even where adequate training programs are established for such personnel, the turnover of staff will necessarily require retraining in person with updates on at least an annual basis. Such training must also include familiarity with all remote monitoring systems used by Dominion and the ability to check and report on any monitoring failures.

As the largest categories of pipeline incidents for recently built pipelines are associated with equipment failure and excavation, additional redundancy and increased frequency of on-site testing must be required for all systems associated with pipeline safety, and more visible and frequent pipeline signage must be required on all pipelines.

FERC’s analysis of safety implications of the ACP is simplistic and minimizes the risk, and establishes inadequate requirements for public notification. Thus, the DEIS fails to meet the requirements of NEPA.

B. The DEIS is inadequate in its analysis of cultural resources, including those of Native Americans.

The DEIS in Section 4.10 on cultural resources provides only cursory analysis of the potential impact of the ACP, stating

> Construction and operation of ACP and SHP could adversely affect historic properties. These historic properties could include prehistoric or historic archaeological sites, districts, buildings, structures, and objects, as well as locations with traditional value to Native Americans or other groups.

The DEIS states that “Surveys, reporting, and [National Registry of Historic Properties] determinations are not complete for cultural resources along ACP.” Although Dominion will continue to conduct surveys and file the reports as they are prepared, it is unfair to ask the public to comment on incomplete information about impacted cultural and historical resources. FERC cannot make a decision on the pipeline based on incomplete surveys.

The DEIS states “compliance with section 106 of the NHPA has not been completed for ACP and SHP. Dominion still needs to complete cultural resources surveys of proposed project areas and treatment plans for NRHP-eligible sites that cannot be avoided.” The provisions for mitigating the impacts of the ACP are again only cursory and incomplete. FERC states in the DEIS that Dominion

> should not begin construction of ACP and SHP facilities or use of contractor yards, ATWS, or new or to-be-improved access roads until:
>
> A. [Dominion files] with the secretary:
>
> I. all survey reports, evaluation reports, site treatment plans, and cemetery avoidance plans; and
>
> II. comments on all reports and plans from the Pennsylvania, West Virginia, Virginia, and North Carolina SHPOs; the MNF; GWNF; and NPS; as well as any comments from federally recognized Indian tribes; and other consulting parties, as applicable;

B. the ACHP is afforded an opportunity to comment if historic properties would be adversely affected; and

C. the FERC staff reviews and the Director of OEP approves the cultural resources reports and plans, and notifies Atlantic and DTI in writing that treatment plans/mitigation measures (including archaeological data recovery) may be implemented and/or construction may proceed.

The Cultural Resources section of the DEIS, like many other sections, is incomplete and does not provide sufficient information for the public to adequately comment on the project. Dominion has not completed the necessary groundwork for FERC and the public to thoroughly understand the potential impacts of the project on cultural and historic resources. Though FERC suggests in the DEIS that Dominion should not begin construction until relevant reports and plans are filed with the agency, this still would not allow State agencies, the public, and other interest groups to review a complete DEIS before a decision is granted by FERC.

In North Carolina, there are at least 92 cultural resource sites along the pipeline route that could be impacted. These include "45 archaeological sites, 16 cemeteries, 2 battlefields, and numerous standing structures." In addition "the project area of potential effect (APE) intersects with two battlefields in North Carolina, the Averasborough Battlefield and the Bentonville Battlefield." However, State Historic Preservation Officer ("SPHO") comment on most of these sites is still pending. The DEIS states "the SHPOs have not provided comments on the reports that [Dominion] filed in September 2016 (archaeology reports) and October 2016 (historic architecture) for all three states." Until the SHPOs have been able to review all of the sites and provide comments, Dominion should not be able to begin construction. If the reviews are incomplete, and a site is disrupted by the pipeline or construction, we could lose an invaluable cultural or historic resource that may not ever be able to be restored.

Dominion contracted with Environmental Resources Management to conduct the cultural resource investigations for the ACP. However, we know from experience with other pipelines like Keystone and the Dakota Access pipeline that these types of private consulting firms are not able to identify many sites of potential cultural significance to Native American tribes. Some sites may be ceremonial or have native plants significant to traditional practices, and an archaeologist would likely not have the cultural knowledge necessary to recognize these.

The failure to recognize cultural and historic resources is compounded by the inadequate provisions in the DEIS Unanticipated Discovery Plans. The DEIS states that Dominion "submitted Unanticipated Discovery Plans outlining the actions they would take in the event that archaeological resources including human remains were inadvertently exposed during project construction." The discovery plans state that if Dominion or its contractors come across any significant cultural or historical discoveries during construction, they are supposed to stop construction and report it to the Environmental Investigator. But this would rely on the ability of Dominion employees and contractors to recognize these resources, and the integrity and ethics of Dominion to actually cease construction. Instead, Dominion should be required to have an independent professional archaeologist on-site for any ground-disturbing activities, and if any cultural resources are found then any further construction should be halted until an appropriate review has been conducted.

As noted in the DEIS, FERC consulted with federally recognized American Indian tribes about the ACP. However, they failed to comment on any consultation with the Lumbee Tribe, a state-recognized tribe with sizeable populations in Robeson and Cumberland Counties in North Carolina.[98] There are 58,306 individuals in the state of North Carolina who identified as Lumbee (alone or in combination) in the 2010 census, and 42,111 (>72%) of these individuals live in counties that would be affected by the pipeline.[99] Members of the Lumbee Tribe make up 38% of the entire population of Robeson County. The Lumbee Tribe is the largest non-federally recognized tribe east of the Mississippi River, and the ninth largest non-federally recognized tribe in the U.S.

Consultation with tribes like the Lumbee is important to protect cultural resources, as well as represent the concerns of its members, and their ties to the land. The Advisory Council on Historic Preservation ("ACHP") states that a federal agency may invite groups to participate in consultation if they have a demonstrated interest in the effects of the project. A demonstrated interest could be that a tribe has "ancestral ties to the area of the undertaking."[100]

Similarly, the Commission rule at 18 CFR 2.1c provides the policy rationale for consultation, "high-level meetings to discuss" tribal concerns. Subsection (e) states: "The Commission in keeping with its trust responsibility, will assure that tribal concerns and interests are considered whenever the Commission's actions or decisions have the potential to adversely affect Indian tribes or Indian trust resources." The Commission's

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[98] It is important to note the federal Lumbee Act of 1956 acknowledges the Lumbee Indians, but specifically declines to provide the tribe with access to federal programs. Public Law 570, Chapter 375 (June 7, 1956).

[99] http://www.doa.nc.gov/cia/documents/populationdata/TotalPopulationbyTribebyNCCounty/pdf

[100] http://www.achp.gov/pdfs/consultation-with-indian-tribes-handbook-june-2012.pdf

Policy Statement on Consultation with Indian Tribes in Commission Proceedings provides clear guidance on the necessity for consultation and procedures for doing so.[101]

With such a large population in the pipeline's area of potential effect, the tribal councils certainly have a demonstrated interest in the project. In addition to the Lumbees, the Meherrin, Haliwa-Saponi, and Coharie Tribes are state-recognized tribes that live along the pipeline route, and whose members constitute most of the 30,000 American Indians who stand to be impacted by this project. All four of these tribes are recognized by the state of North Carolina, and the proposed pipeline route crosses all of their traditional territories. These tribes maintain unique cultural and religious attachments to specific lands and waters within North Carolina. Although regulators may not be compelled by law to formally consult state-recognized tribes, NEPA and the other guidance documents recommend engaging all tribes in formal consultation.

The DEIS does not comply with federal guidelines for the protection of cultural and historic resources, and further, does not allow State agency or public commenters the opportunity to review complete information. If the Lumbee Tribe, or any of the other tribes along the ACP route, were purposefully left out of the DEIS and consultation process, FERC should provide justification for that decision. If leaving them out was an oversight, FERC should officially consult with the Lumbee and the other tribes before any decisions are made.

[101] Order No. 635, Docket No. PO03-4-000.

C. The DEIS does not adequately address economic impacts from the proposed pipeline.

The introduction to the Socioeconomic Impact section of the DEIS on page 4-383 indicates a substantial bias in its analysis of "potential" socioeconomic impacts of the ACP. It lists first the impacts most favorable for pipeline development:

> Increased property tax revenue, increased job opportunities, and increased income associated with local construction employment are potential effects of the projects… increased employment opportunities, increased demand for housing and public services, tourism and transportation impacts, and an increase in government revenue associated with sales and payroll taxes.

Only "increased traffic or disruption of normal traffic patterns" are named as potential adverse impacts. Overall there is little economic justification for the "positive" impacts, and the analysis of the "negative" impacts is completely insufficient.

The DEIS concludes that there is adequate rental housing and public services (hospitals, law enforcement, fire depts. and schools) in North Carolina counties along ACP to handle the influx of temporary workers from outside (about half of the total construction workforce for each spread) from late 2017 to 2019. This analysis assumes that workers from outside the area will not bring their families, and fails to account for any economic or social disruptions due to the temporary influx, including overbuilding of hotel units or other housing not needed after a few months.[102] The DEIS states that there will only be a temporary minor increase in hiring to meet needs of rental and retail services. Dominion plans to have three NC construction "spreads" with 885 workers and 85 inspectors in each for a period of months, with about half expected to be workers

[102] Such dislocation has been reported in other areas where oil and gas development increased quickly and crashed. It is unclear if local economies and governments are aware of the very temporary nature of the construction, followed by few permanent 20 jobs in two of the North Carolina counties.

from outside the region. Dominion’s own studies forecast approximately $72,000 in additional individual income tax payments to N.C. Department of Revenue during operational years, this would indicate an insignificant increase in economic benefits to counties where employees are located. A high proportion of permanent employees can be anticipated to have been recruited from outside North Carolina. The only permanent jobs anticipated would be 15 employees at the compressor station and offices in Northampton and 5 in Johnston. No significant positive economic benefit can be assumed.

The DEIS states that Dominion would each have a health and safety plan to prevent and minimize accidents; but acknowledges that use of local emergency, fire and health services could occur, but fails to account for the need for increased capacity and training of local services to deal with any emergencies. The DEIS claims Dominion would maintain emergency response plans so concerns about costs and local ability to respond to a catastrophic accident are unfounded. As a result, there will be no significant added expenses for local government services. In fact, local fire and emergency responders are often the first responders to a pipeline explosion or fire, and the number of significant pipeline incidents has been increasing in recent years, especially on pipelines built since 2010. Data from the Pipeline and Hazardous Materials Safety Administration show a dramatic increase in pipeline incidents for pipelines built in the past 6 years, even higher than for pipelines built before 1940, which provides a reasonable basis for public safety concerns.

The DEIS is dismissive of the Key-Log Economics study of economic impacts on property values in Virginia counties.[103] Instead it cites studies commissioned by Dominion and real estate sources, with the claim that they are independent, stating that there is no impact on value of local properties, except in the first few years after a pipeline accident. The Key-Log study demonstrate that the DEIS's assessment of socioeconomics is flawed because FERC fails to critically evaluate applicant-provided assessments of potential economic benefit when those assessments use flawed research methods, applies the methods inappropriately, and bases estimates on unrealistic assumptions. FERC also fails to critically evaluate flawed gas-industry-sponsored and/or promoted research, which falsely concludes pipelines do not diminish property value. FERC 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. Finally, FERC unreasonably dismisses independent research into the likely economic impacts of the proposed Mountain Valley Pipeline. The Key-Log analyses undermine FERC's conclusion that the proposed projects would not have a significant adverse effect on the socioeconomic conditions of the project area.

There is a troublesome pattern of FERC uncritically accepting the claims of ACP-contracted studies, while dismissing independent studies simply because they have been contracted by environmental organizations or organizations opposing pipeline development. The DEIS acknowledges that a variety of factors make such analyses

[103] Key-Log Economics, "*Economic Costs of the Atlantic Coast Pipeline: Effects on Property Value, Ecosystem Services, and Economic Development in Western and Central Virginia*," February 2016. www.abralliance.org/wp-content/uploads/2016/02/Economic_Costs_Of_The_Atlantic_Coast_Pipeline-KeyLogic_2-16-16.pdf

problematic. “Perceived safety issues” or limitations on land uses with a permanent easement may effect number of buyers and extend a property’s stay on the market. This is one of the key concerns of many rural residents who view their land and its use as a legacy that they had expected to be able to pass to descendants. Most of these studies of buyer perception have been done in higher density areas than the predominantly rural areas in which ACP would be built, so impacts on land value and long term use may be expected to be more acute in rural areas.

D. The DEIS does not adequately address sociological and demographic issues related to environmental justice.

The DEIS purports to include an environmental justice analysis in Section 4.9.9 and concludes that no disproportionate impacts on poor or minority communities along the preferred route.[104] The analysis in the DEIS Starts by assuming the principle policy impact of the Environmental Justice Executive Order is only to ensure widespread public participation.[105] FERC congratulates Dominion for widespread public notification and participation, but lists inadequately noticed meetings with only 330 comments, a tiny fraction of the population that could be impacted in even one of the three states the ACP would traverse.

The DEIS acknowledges that more than half of North Carolina counties are below the median income for the state, and notes that “[t]wenty-seven of the 42 census tracts in North Carolina within a 1-mile radius of ACP facilities have a higher percentage

[104] DEIS pp. 4-383 - 4-413.

[105] Executive Order 12898, “Environmental Justice for Low Income & Minority Populations,” 1994. www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf

of persons living below poverty-level when compared to the state." This fact, by itself, indicates that the route chosen creates disproportionate impact of the pipeline on low income residents, and therefore contradicts the DEIS conclusion that "no environmental justice populations are impacted."

The DEIS analysis of minority populations is remarkable in its contorted logic used minimize the relative impact on people of color. It notes that "[i]n North Carolina, minorities comprise 30.5 percent of the total population. The percentage of minorities in the North Carolina census tracts within 1 mile of ACP ranges from 12.5 to 95.5 percent. In 13 of the 42 census tracts, the minority population is meaningfully greater than that of the county in which it is located." FERC uses this result to reinforce its conclusion that there are no disproportionate impacts on environmental justice populations.

Remarkably, unlike using poverty data in census tracts within one mile of the pipeline corridor to compare to the state as a whole, FERC's study only compares minority population percentages in census tract near pipeline with the percentage of minorities in the county in which this occurs. As most of the North Carolina counties along the proposed ACP corridor have minority populations significantly above the state average this greatly minimizes the apparent disproportionality in minorities impacted. Northampton County, for instance, is 58% African American, compared to a state average of 22%. A comparable analysis to disproportionate impacts on low income residents would use a comparison to state minority populations, and would result in a dramatically different conclusion.

Based on a recent study conducted by researchers at the Research Triangle Institute,[106] it is highly likely that the proposed ACP will cause significant disproportionate impacts on minority populations. The researchers downloaded county-level 2010 Decennial Census data for the entire state, and determined the number of people in every county who self-identified as white and non-Hispanic. They subtracted that subpopulation from the total population of each county to obtain the number of "minority" residents, and divided the states' counties into two groups, those that were crossed by the proposed pipeline route and those that were not. The proportional minority population was calculated for each group. Using a two-sample test of proportions, the proportion minority population of the counties that would be crossed by the proposed pipeline with the proportion minority population of the rest of the counties in the state was compared. The results are below:

Pipeline route counties' proportion minority population	0.5099
Proportion minority population for rest of the counties in the state	0.3295
P-Value (one-tailed test)	0.0000
Conclusion	The counties crossed by proposed ACP route collectively have a significantly higher percentage minority population than the rest of the counties in the state (at the 99% confidence level).

[106] Allpress, J., Hofmann, J., Wraight, S., Depro, B. (2017). *U.S. Census Socioeconomic Data, Environmental Justice, The Atlantic Coast Pipeline: A Methods Report*. Unpublished manuscript.

The failure of FERC and/or Dominion to do any serious credible analysis of without any basis or even minimal quantification, the DEIS baldly states

> The construction and operation of the proposed facilities would affect a mix of racial/ethnic and socioeconomic areas in the ACP and SHP project area as a whole. Not all impacts identified in this EIS are considered to affect minority or low-income populations. The primary adverse impacts on the environmental justice communities associated with the construction of ACP and SHP would be the temporary increases in dust, noise, and traffic from project construction. These impacts would occur along the entire pipeline route and in areas with a variety of socioeconomic backgrounds.

In its lack of understanding of the simple term “disproportionate,” FERC claims that because impacts may be happening in low population areas, fewer people would be hurt and therefore they cannot see evidence of disproportionate impact. The DEIS states “[b]ecause the projects would generally traverse rural areas, the number of persons who would be at risk of injury due to a pipeline failure would be low, and there is no evidence that such risks would be disproportionately borne by any racial, ethnic, or socioeconomic group.” Just because there is a low population concentration does not mean that people of low income or people of color would not be disproportionately impacted. In fact, in comparing the current ACP corridor to earlier proposed ACP routes, it is clear that the pipeline has been moved to areas of greater poverty and more people of color, the very definition of “Environmental Injustice.”

Environmental justice analyses are mandatory in Federal environmental documents, but there is no standard method for computing disproportionate impacts. As such, the research community has long raised concerns about potential misapplication of methods or tailoring of methods to support a predetermined outcome.[107] The environmental justice section of the present DEIS is an example of such misapplication.

As further described above in the section on cultural resources, the analysis fails to identify major impacts on American Indian populations living along the preferred pipeline route. Data from the DEIS shows that in North Carolina alone, approximately 30,000 American Indians live in census tracts along the route. This number represents one quarter of the state's American Indian population and 1% of the entire American Indian population of the U.S. The environmental justice analysis is silent on this issue, but instead concludes that the preferred route has no disproportionate impacts on minority communities. It draws this conclusion by counting up the number of census tracts with "meaningfully greater" minority populations than the county in which it they are located. Failure of the environmental justice analysis to detect these impacts is based on at least two flaws in the method.

The first flaw is that the environmental justice analysis aggregates results from counties treated as separate comparison groups but fails to account for variations in population size and racial make-up among counties. County-level data can provide valuable comparison statistics for targeted census blocks, but when the baseline data change for each county (as is the case here), county-level results cannot be compared

[107] Rose, L., et al., *Environmental Justice Analysis: How Has It Been Implemented in Draft Environmental Impact Statements?*, Environmental Practice 7, 235-245 (2005); Hartell, A. *Methodological challenges of environmental justice assessments for transportation projects*, Transportation Research Record: Journal of the Transportation Research Board, 21-29 (2007); Holifield, R. *Environmental Reviews and Case Studies: Accounting for Diversity in Environmental Justice Screening Tools: Toward Multiple Indices of Disproportionate Impact*, Environmental Practice 16, 77-86 (2014); Liang, J. *Defining Environmental Justice Communities for Regulatory Enforcement: Implications from a Block‐Group‐Level Analysis of New York State*, Review of Policy Research 33, 666-685 (2016).

to draw conclusions about impacts along an entire project route. Regulators may be able to adjust the existing analysis for changes to baseline data on a county-by-county basis, but even this analysis lacks the ability to draw statistical conclusions. A more robust method would involve pooling all of the impacted census tracts for each state, and comparing this test population with a suitable reference population comprising appropriate non-affected census tracts from each state. This method would allow regulators to (1) compute disproportionality rates from the demographic profiles of test and reference populations and (2) determine whether these rates are statistically significant using tests such as the Wilcoxon Rank-Sum test or the T-test. This preferred method can be conducted for minority population as a whole and for specific racial or ethnic categories, including American Indians, African Americans, or other minority populations.

Second, the definition of “meaningfully greater” is flawed. DEIS footnote 20, page 4-412, defines “meaningfully greater” as ten percentage points higher than the comparison group. By defining differences in terms of percentage points, the analysis masks relevant information in areas where minority (or poor) populations are both very small and very large. At the small end of the scale, a reference population that comprises, say, 2% minority individuals would require that the test population be at least 12% minority in order to identify a disproportionate impact. In this example, the minority population would have to be impacted at six times the rate of the reference population before registering as disproportionate. At the other end of the scale, the reference populations themselves become an environmental justice consideration. If a reference population is mostly made up of minority populations that the environmental justice analysis is intended to study, then the choice of reference population becomes suspect, raising the question "meaningfully greater" than what?

The current analysis takes a single, interstate project and breaks it down into a series of county-level projects for evaluating impacts on minorities. In doing so, the analysis masks large disproportionate impacts on minority populations, particularly American Indians and African Americans in eastern North Carolina. According to the executive summary of the DEIS, the public benefits of the project are realized at the regional scale and not necessarily in the counties or census tracts adjoining the pipeline route. For these reasons, FERC should conduct a new environmental justice analysis that considers the nature of this pipeline as a single, inter-state project and considers reference populations more carefully given the stated motivation for the project.

E. The DEIS provides insufficient and inaccurate information on land impacts and land use concerns.

The DEIS acknowledges that ACP construction will impact at least 2258 acres in NC, of which 1125.5 will be used for permanent corridor. Other land used by the project in NC will include 460 additional acres of temporary workspace, 45 acres for Compressor Station 3 in Northampton County, and 14.8 acres for metering stations, in addition to dozens of acres for new access roads and contractor yards. This large area of land required for the project would reduce or modify future use of a significant amount of land in areas already disproportionately impacted by low levels of economic development.

However, the amount of information missing in the DEIS is substantial, including soil surveys and detailed practices and mitigation measures that would be needed to assess the project's impacts on land and soils, as well as cumulative impacts. The

Public Interest groups conclude that the ACP DEIS does not provide sufficient information to justify the stated conclusion that:

> given the proposed projects' mitigation measures, cumulative impacts on land use, recreation, special interest areas, and visual resources would mostly be limited to the construction phase (except as noted above) and would be temporary and minor, we conclude that cumulative impacts on these resources would not be significant'

Despite the DEIS conclusion that regional economic benefits will outweigh the lack of local economic benefits—a fact that the Public Interest Groups challenge in our analysis of gas supply need and impact of the project on energy cost—we contend that, after a short pulse of economic activity associated with construction, the net effect of the pipeline will be reduced flexibility for income generating landowner uses, reduced land values, reduced overall local real estate tax revenues and increased local government costs for services including emergency response services. As only a very few industries would be large enough to pay for a tap fee and pipeline extensions to access the gas supply, there is no realistic projection of indirect permanent jobs after pipeline construction except close to the largest cities.

FERC calls for reduction of the width for which eminent domain could be used on non-North Carolina section of the ACP to 50 feet, saying that is "sufficient to efficiently and safely operate large diameter natural gas pipelines." Simply reducing the width for which eminent domain would be available will not assure safe land use outside the 50 foot corridor, and the question remains why eminent domain should be granted for any section of the ACP if sufficient compensation is not offered to landowners for loss of land use, inconvenience, and other factors.

Dominion and its contractors are required to use PHMSA minimum safety standards for construction and 18 CFR 380.15 (Siting and Maintenance Requirements) and other applicable federal and state/commonwealth regulations, including the requirements of the U.S. Department of Labor, Occupational Safety and Health Administration. These minimum requirements are intended to protect the construction work force, but the rise in incidents along pipelines built since 2010 documents the inadequacy of these standards for recently built pipelines in operation. This clearly increases the liability and safety risk for landowners in or near the pipeline corridor and further reduces the range of safe uses of land and intrinsic land values, whether or not a pipeline incident occurs.

F. The DEIS presents an inadequate analysis of the impacts of erosion and sedimentation from pipeline construction.

According to the DEIS, “Temporary erosion controls would be installed along the construction right-of-way immediately after initial disturbance of the soil and would be maintained throughout construction. Temporary erosion control measures would remain in place until permanent erosion controls are installed or restoration is completed. [Dominion has] committed to employing Environmental Inspectors (EI) during construction to help determine the need for erosion controls and ensure that they are properly installed and maintained.” The Best Management Practices called for as a key element of erosion and sedimentation prevention cannot be assumed to be adequate to prevent erosion from the construction site, or sedimentation of downstream waters under conditions of heavy precipitation.

A careful assessment of erosion and sedimentation is crucial as the construction of the proposed project in NC would disturb over 930 acres of wind-erodible soils, 39 acres of water erodible soils, over 900 acres of hydric soils, as well as 1,740 acres of prime farmland. The ACP would clear a 150 foot wide corridor along the length of the pipeline route during construction with a few exceptions in wetlands, which would "remove [the protective cover and expose] the soil to the effects of wind and rain, which increases the potential for soil erosion and sedimentation." Additionally, the project would convert a significant amount of forested land to herbaceous cover in the 75-foot wide permanent right-of-way, including some highly erodible soils. The DEIS acknowledges that "[i]mpacts on waterbodies could occur as a result of construction activities in stream channels and on adjacent banks." Those impacts include "local modifications of aquatic habitat involving sedimentation, increased turbidity, and decreased dissolved oxygen concentrations." Additionally, the DEIS states that:

> The clearing and grading of stream banks could expose soil to erosional forces and would reduce riparian vegetation along the cleared section of the waterbody. The use of heavy equipment for construction could cause compaction of near-surface soils, an effect that could result in increased runoff into surface waters in the immediate vicinity of the proposed construction right-of-way. Increased surface runoff could transport sediment into surface waters, resulting in increased turbidity levels and increased sedimentation rates in the receiving waterbody. Disturbances to stream channels and stream banks could also increase the likelihood of scour after construction.

Those impacts would harm the aquatic organisms that rely on the affected streams for their survival. As FERC states:

> Increased 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 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.

Despite generally acknowledging these impacts, FERC nonetheless concludes that “[n]o long-term or significant impacts on surface waters are anticipated as a result of the projects” and that “[t]emporary impacts would be avoided or minimized” primarily because the applicants will use dry open-cut crossing methods at most major crossings and will adhere to Best Management Practices when performing clearing and grading in riparian areas. Following from that conclusion, FERC finds that “constructing and operating the ACP would not significantly impact fisheries and aquatic resources.”

The DEIS’s conclusion that the project would not have significant adverse impacts on fisheries and aquatic resources is flawed for several reasons. FERC lacks adequate information to determine the impacts that would be associated with the use of wet open-cut crossing methods at three of the major rivers that would be crossed by the ACP. Without that information, FERC cannot reasonably conclude that the project would not significantly impact the aquatic ecosystems in those waterbodies. FERC then unjustifiably relies on the use of Best Management Practices to conclude that clearing and trenching within the relevant watersheds during pipeline construction will not significantly contribute to sedimentation and related impacts of turbidity.

In the DEIS, FERC provides no evidence to justify its conclusion that BMP measures would successfully minimize sedimentation impacts, and past experience with similar projects in erodible soils such as those traversed by the ACP demonstrates that they would be inadequate. FERC fails to account for the increased sedimentation that would result from the conversion of mature forest to herbaceous cover within the 75-foot wide permanent right-of-way along much of the pipeline route. FERC’s failure to analyze those impacts renders its conclusion that the projects would not significantly impact aquatic resources unsupportable. Because of those shortcomings, FERC's DEIS does not comply with NEPA.

G. The DEIS fails to properly address the impacts of the proposed pipeline on groundwater resources and safety of well users.

FERC's conclusion on page 4-86 that "[n]o long term impacts on groundwater are anticipated from construction or operation of ACP" is without basis. The Public Interest Groups believe the methods proposed are actually designed to prevent detection of such long term impacts.[108] For most of its length in North Carolina, the ACP would be located above the Northern Coastal Plain Aquifer system, especially vulnerable to contamination. The uppermost sand aquifers at shallow depths are particularly vulnerable to contamination or disruption due to human. Given the large number of households in or within ½ mile of the proposed corridor dependent on well water, even with special precautions, construction could adversely impact safe water supplies.

The DEIS acknowledges that there are a large number of private wells within 150 feet of the pipeline workspace in Nash, Johnston and Cumberland Counties.[109] Also admitted is that Dominion and its contractors have not completed a survey of wells within 150 feet due to lack of survey access and landowner objections to being surveyed for this project. A 150-foot buffer between water supply wells and the construction workspace is inadequate. Approximate locations for wells within 500 feet of

[108] DEIS pp. 4-63 - 4-86.

[109] DEIS pp. 4-70 – 471.

construction workplace could be readily facilitated by GIS location of all residences outside city limits or service areas of public water utilities.

The DEIS states that surface disturbances, clearing and trenching can impact both surface water drainage and groundwater recharge patterns, with the most impact to shallow surficial aquifers. FERC contends that most construction will be 10 feet or less below the surface, and that the surface will be restored to its original contours. The DEIS offers no protocols to prevent impacts including compaction affecting recharge of shallow aquifers or infiltration of toxic or hazardous materials. The potential for toxic and hazardous materials to be released in and near the construction workspace is acknowledged, including: fuels, oils, lubricants, hydraulic fluids, and explosives for blasting.

According to the DEIS,

> Prior to construction and pending landowner authorizations, Atlantic and DTI would test water supply wells and springs within 150 feet of the construction workspace (within 500 feet of the construction workspace in karst terrain). In addition to well yields, water quality parameters that would be tested include pH, total suspended solids, total dissolved solids, conductivity, alkalinity, acidity, sulfates, oil/grease, phenolic, iron, manganese, aluminum, copper, lead, nickel, silver, thallium, zinc, chromium, arsenic, mercury, selenium, cyanide, calcium magnesium, hardness, chlorides, antimony, cadmium, beryllium, and fecal coliform. Sampling methods would comply with approved EPA and state/commonwealth sampling.

The well testing must include all water supply wells within 500 feet of the construction workspace and include ALL substances which could impact groundwater, including components of natural gas liquids. Well owners must receive a copy of all testing results, pre- and post-construction, and the opportunity to do independent testing by certified laboratories.

Methods protective of well users in or near the workspace cannot be achieved with a mere "recommendation" that Dominion and its contractors complete a well survey before construction begins.[110] Dominion must prepare a list of all possible wells on land parcels with potentially occupied buildings requiring a water source within 500 feet of the construction workspace, and all methods must be assured to protect well water sources for all such locations. The DEIS states that "Atlantic and DTI would conduct post-construction water quality tests to ensure water supply wells and springs are not adversely affected by construction activities. If damage claims occur, Atlantic and DTI have committed to providing a temporary potable water source, and/or a new water treatment system or well."[111] The DEIS does not require that the well water testing results would be reported to the well owner promptly, or that additional substances possibly present near contaminated sites, used in construction activities, or resulting from acknowledged potential leakage of natural gas liquids would be included in testing.

There is no information for landowners about the procedure initiate a claim if there is evidence of well water quality or quantity impacts. Moreover, a single post-construction well water test is inadequate to assure that there are no long term impacts of construction or operation. Well testing must include fuels, lubricants, hydraulic fluids and any explosives use, as well as the components of natural gas liquids and well flow rate. The DEIS acknowledges that natural gas liquids represent the greatest ongoing threat to groundwater during ACP operation. Well testing for all of the standard

[110] DEIS, p. 4-74.
[111] DEIS, p. 4-82.

parameters, plus any hazardous or toxic materials used during construction, as well as natural gas liquids, must continue annually during the operational life of the pipeline.[112]

All well tests must be by labs certified for analysis of all of the specified contaminants and to detection levels below any North Carolina groundwater rules, 15A NCAC 02L or interim maximum allowable concentration (IMAC) standards. All water testing results must be reported to well owners with a comparison to those standards within 20 days of testing. Dominion must state the procedure for a well owner to make a claim of diminished flow rate or contamination their well for drinking water, and act within 15 days of a substantiated claim to provide bottled water and within 60 days to provide a permanent replacement safe water supply.

Relating to a Spill Prevention, Control, and Countermeasure ("SPCC") plan, the DEIS notes that,

> [Dominion has] prepared a SPCC Plan to avoid or minimize impacts of hazardous material releases during construction and operation of ACP and SHP. The SPCC Plan prescribes preventive measures such as regular inspection of storage areas for leaks, replacement of deteriorating containers, and construction of secondary containment systems around hazardous liquids storage facilities. Moreover, the SPCC Plan provides explicit guidance on handling hazardous materials during construction. Specifically, it would restrict refueling or other liquid transfer areas within 100 feet of wetlands, waterbodies, and springs, and within 300 feet of karst; prohibit refueling within 200 feet of private water supply wells and within 400 feet of municipal water supply wells; and require additional precautions (e.g., secondary containment) when specified setbacks cannot be maintained.[113]

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[112] The need for water safety is compounded by the proximity of Superfund sites to the proposed route. Possible contaminated sites that could be disturbed during construction include a Superfund site and 3 brownfield sites located in North Carolina close to the AP-2 section of the pipeline, as well as 9 leaking underground storage tank sites near AP 2 in North Carolina.

[113] DEIS p. 4-84.

The above protections are inadequate to assure that water supply wells will be protected, particularly in this area with vulnerable surficial aquifers. All pollution prevention plans prepared by Dominion to avoid or minimize impacts during construction and operation must be readily available to the public in plain language. The training of employees, inspectors and enforcement of construction violations at all stages must be transparent. Refueling or other handling of fuels and other toxic or hazardous materials must be prevented within 500 feet of wetlands, private water supplies or municipal water supply wells. Lesser setbacks in the DEIS, 100 - 400 feet, provides an inadequate margin of protection.

The DEIS says that a variance procedure is in place for requests to allow activities closer than specified setbacks. As is frequently the case, this mechanism can be dangerous and allow for reduced oversight and riskier activities with little documentation or recourse if contamination occurs. No variances must be permitted for reducing setbacks of at least 500 feet from areas where any hazardous or toxic materials will be handled.

The DEIS states in other sections that, in addition to Dominion-hired Environmental Inspectors ("EIs"), there would be third party inspectors accountable only to FERC to review compliance and prevent accidents or failures. The independent inspectors must report directly to the agency and inspection results must be available to the public. The EIs, who have the authority to stop work if violations have been detected during inspections, must have specified protections from pressure and adverse consequences from ACP or its construction contractors.

The DEIS further states “[a]lthough the natural gas received by ACP and SHP would be processed to remove natural gas liquids (NGL), small amounts of residual NGLs may still be present in the gas. Standard operating procedures minimize the risk of release of residual NGLs that may accumulate in the pipeline.” Natural gas liquids could be a substantial threat to groundwater quality, as the DEIS notes, and must therefore be included in annual well water testing throughout the operational life of the pipeline.

The Public Interest Groups strongly disagree that no long term impacts to groundwater can be anticipated. The lack of key information for this assessment and failure to include protocols to ensure that no impact will occur or will be quickly detected are failures to meet NEPA requirements.

H. The DEIS does not address water quality impacts from the proposed ACP or provide any information on mitigation.

The DEIS fails to meet basic informational requirements necessary to assess surface water, wetland impacts, and key unique ecosystems. Supplemental information has not been consolidated as part of the DEIS to fully disclose and enable assessment of the potential impacts of the proposed ACP on surface water and wetland resources or methods to mitigate those impacts. Here are several examples of deficiencies identified that make credible assessment impossible:

a. Detailed site-specific crossing plans (e.g., locations of temporary bridges, bridge types, cofferdam locations, water discharge structure locations, pump locations) and mitigation measures (e.g., analysis of alternatives to reduce impacts, restoration requirements, avoidance of cumulative impacts) are not provided as part of the DEIS;

b. A detailed evaluation of flood zones and susceptibility of property through which the pipeline is proposed to pass is necessary to fully define potential water quality impacts of tropical storms and/or hurricanes. Information on Special Flood Hazard Areas is inadequate and requires updating based on recent historic flooding events in the watersheds in the route of the proposed ACP.[114]

c. Pre- and post-construction water quality monitoring is not sufficiently defined to ensure accurate assessment of water quality impacts resulting from construction activities. A properly designed monitoring plan is required and must be publicly available as part of the DEIS. Additional information needed for a complete assessment includes sampling timelines, locations, replication, and controls.

d. The assessment of impacts associated with wetlands crossings and disruption is inadequate. This assessment should take into account wetland types and significance, susceptibility to fragmentation and irreversible impacts, including those associated with their ecological services such as water filtration, flood control, and biotic community impacts, and proposed mitigation of these potential impacts.

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[114] The Designated Flood Zones referenced in the DEIS are based on the existing100-year floodplain maps. These designations must now be compared with flooding from Hurricanes Floyd and Matthew. The DEIS also notes that "the Fayetteville and Pembroke M&R stations would be within Special Flood Hazard Areas." It seems inappropriate to place crucial infrastructure, such as the metering and regulation stations, in these areas.

e. There is insufficient detail regarding the sourcing of water for hydrostatic testing, impacts on localized water quantity, and the disposition of contaminated water following "pigging" of the pipeline.

f. As noted above, erosion, sedimentation, and turbidity are identified as potential water quality impacts, but the DEIS lacks sufficient detail to evaluate impacts from land cover changes resulting from construction and operation activities, impacts on aquatic life (benthic and pelagic). Reliance on recommended Best Management Practices (BMPs) as mitigation for these identified issues cannot be assumed to be sufficient and inspection and enforcement mechanisms are vague.

g. There is insufficient evaluation of cumulative impacts of construction and operation activities on each of the large number of watersheds that will be impacted. General assertions of minimal or no significant impact are completely unsubstantiated in the DEIS.

h. The DEIS does not evaluate, account for, nor even acknowledge the potential for impacts to headwater streams and wetlands of the Lumber River, a state park, and a state-recognized Natural and Scenic River and a federally-recognized Wild and Scenic River.

These deficiencies are representative of the information that is necessary, not only for FERC to fully evaluate the environmental impacts of the proposed ACP, but to allow the public to fully evaluate these impacts and to meaningfully participate in the NEPA process.

The DEIS contains other deficiencies relating to the impacts of the proposed ACP on water quality-related issues. For wetland crossings in most areas, an attempt would be made to dig up topsoil and keep it separate from subsoil so that it can be replaced after the pipeline is filled. However, the DEIS acknowledges that "[t]opsoil segregation generally would not be possible in saturated soils." It is likely that substantial loss of ecological integrity would result from mixing topsoils and subsoils in refilling trenches through wetlands. The DEIS's bald conclusion "we have determined that ACP and SHP would not significantly impact wetlands" is simply not substantiated by the information provided in the DEIS.

The DEIS section on North Carolina vegetation resources acknowledges that North Carolina pocosins, Carolina Bays, canebrake communities, and bottomland hardwood and pine forests that would be disturbed. The DEIS notes "[c]lay-based Carolina Bay wetlands (herbaceous wetlands) would be crossed by ACP; these bays are particularly abundant in Robeson, Hoke, and Scotland Counties." While the DEIS further notes the importance of these unique areas are for birds and especially amphibians, the list of federally endangered plants leaves out several key species, including the American chaffseed (*Schwalbea americana*). The Carolina Bays are extremely important ecological systems and are just briefly mentioned in the DEIS. Of importance are facts not included in the DEIS; "an estimated 79 percent of the bays in NC and SC have been cleared of native vegetation," and the "unaltered bays are wildlife habitat for several endangered animals and rare plants and support a unique community of species." Researcher Timothy Nifong counted 65 "special status" plant species in these bays.[115]

The importance of isolated wetlands is ignored by the DEIS. Many of these isolated wetlands are small, but the cumulative impact of disrupting or destroying so many at the same time needs to be assessed. In addition to the larger forested wetlands, the ACP threatens small wetlands, like the southern Carolina Bays, headwater and isolated wetlands. These wetlands harbor at least 80 species of rare or endangered plants. Statewide, about 70 percent of the rare and endangered plants and animals depend on wetlands.

Similarly. the DEIS lists some of the natural areas, unique aquatic and terrestrial communities that are listed as of state and global biological diversity significance, including some that are seriously imperiled. The DEIS even acknowledges there would be some permanent impacts, yet concludes that the impacts are not significant. A credible and comprehensive assessment of these areas must be included to fulfill the requirements of NEPA.

The DEIS fails to acknowledge the critical importance of NC coastal wetlands and their key ecological and economic role to North Carolina. Because of the large size of some eastern North Carolina wetlands and their proximity to coastal waters, these wetlands are important regulators of freshwater, nutrient, and sediment inputs to North Carolina estuaries. Almost one-half of North Carolina's wetlands are bottom-land hardwood forests, which are valuable habitats for waterfowl breeding and

[115] University of North Carolina, Department of Biology. See summary of Dr. Nifong's findings in https://ncseagrant.ncsu.edu/coastwatch/previous-issues/2015-2/autumn-2015/carolina-bays-another-mans-treasure/

overwintering and for anadromous fish spawning. Approximately 90 percent of the State's commercial fish harvest is derived from estuary-dependent species. In 2014, sales impacts for the North Carolina fisheries commercial fishing industry, which includes nearly 20,000 jobs, totaled $1.5 billion with an additional $1 billion in value-added impacts. The potential to permanently impact these wetlands given their value to the Albemarle-Pamlico Estuary and its significance to commercial and recreational fisheries is too high a risk both environmentally and economically.

The DEIS defines temporary impacts in a way that makes the entire corridor a "temporary" impact; "[a]reas where no permanent structures, aboveground facilities, or roads would occur are considered temporary impacts." The impacts of corridor construction, and operation, will have a long-term and lasting impact on surface water, wetland impacts, and key unique ecosystems. The DEIS section on general impacts and mitigation of these impacts becomes completely inadequate, allowing Dominion to merely restore topography and plant seeds to restore the vegetation. At the same time, there are no detailed plans on how this would be accomplished, what the final result is likely to be, and what the long-term water quality impacts will be.

IV. The DEIS fails to adequately assess greenhouse gas emissions and climate change impacts.

The DEIS does not adequately evaluate the potential impacts of, alternatives to, and mitigation measures for the proposed project on greenhouse gas (GHG) emissions, public health, and the impacts of climate change.[116] As discussed in detail below, the

[116] www.psr.org/assets/pdfs/too-dirty-too-dangerous.pdf

DEIS must be revised to properly evaluate the lifecycle GHG emissions of the ACP project, including:

a. Using the most recent values for methane's global warming potential (GWP);

b. Disclosing methodologies used to calculate GHG emissions;

c. Quantifying projected upstream and downstream direct and indirect GHG emissions where possible and conducting a strong qualitative assessment if quantitative analysis may not be warranted;

d. Fully analyzing all of the direct, indirect, and cumulative GHG emissions resulting from the ACP project and using this analysis to compare alternatives and develop mitigation measures to address such emissions; and

e. Assessing the impacts of the quantified direct, indirect, and cumulative GHG emissions resulting from the full lifecycle of the ACP project.

A. FERC utilizes an outdated methane global warming potential in the ACP DEIS.

The ACP DEIS uses an outdated global warming potential (GWP) value for methane. The authors state that "the 100-year GWP of...CH_4 is 25."[117] This is the 100-year methane GWP from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4),[118] but the IPCC has since released a newer version, the Fifth Assessment Report (AR5).[119] Methane GWPs were updated in AR5, as shown in the table below.[120]

[117] DEIS p. 4-390.

[118] Intergovernmental Panel on Climate Change (hereafter referred to as IPCC), Climate Change 2007: The Physical Science Basis: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html

[119] IPCC, Climate Change 2013: The Physical Science Basis: http://www.ipcc.ch/report/ar5/wg1/

[120] IPCC Fifth Assessment Report, Figure VI.A: Table 8.7.

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 up-to-date-science, the correct 100-year GWP for methane with carbon climate feedback is 36.[121] Due to its short lifetime in the atmosphere – 12.4 years – the GWP of methane should be calculated using the 20-year timeframe, which makes it 86 times as potent as carbon dioxide. Thus, relative to carbon dioxide, methane has much greater climate impacts in the near term than in the long term. A short-term measure of climate impacts is most effective when considering policies that can avoid significant warming within the time horizon of the United States' international commitment to reduce GHG emissions or, independently, the time horizon within which swift action must be taken to avoid catastrophic impacts of climate change.

[121] 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.

B. FERC fails to adequately assess the emissions and impacts resulting from the ACP.

As acknowledged in the DEIS, on August 1, 2016, the White House Council on Environmental Quality (CEQ) issued its "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," ("CEQ final guidance") which outlines the analyses and documentation of GHG emissions and climate change impacts that agencies should include to facilitate compliance with existing NEPA requirements.[122] FERC states in the ACP DEIS that "[a]s recommended in this new guidance, to the extent practicable, the FERC staff has presented the direct and indirect GHG emissions associated with construction and operation of the projects and the potential impacts of GHG emissions in relation to climate change."[123] However, FERC's GHG analysis in the DEIS falls short of the requirements of NEPA as explained in the CEQ final guidance. FERC summarily concludes in the DEIS that "[c]urrently, there is no standard methodology to determine how the proposed projects' relatively small incremental contribution to GHGs would translate into physical effects of the global environment. The GHG emissions from the construction and operation of the ACP and the EEP would be negligible compared to the global GHG emission inventory."

As discussed above, FERC has promulgated guidance on the preparation of environmental documents. The most recent is the 2017 guidance document and it begins to add issues relating to climate change into the environmental analysis of a

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[122] 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*: www.whitehouse.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance .pdf

[123] DEIS p. 4-516.

project. From the scarcity of relevant information in the present DEIS, it is clear its preparers of it were not following either the 2017 guidance document or the CEQ directive.

The CEQ final guidance, which addresses compliance with existing NEPA obligation, explicitly states that this purported reasoning – that a particular project has a small contribution to emissions relative to global emissions – is not an appropriate excuse to avoid fully assessing the GHG impacts of a project, 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 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.[124]

The CEQ final guidance also lists various appropriate methodologies for analyzing the greenhouse gas emissions 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." In fact, CEQ provides a compilation of GHG accounting tools, methodologies, and reports.[125]

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[124] CEQ final guidance at 10-12.

[125] Executive Office of the President Greenhouse Gas Accounting Tools: https://ceq.doe.gov/current_developments/GHG-accountingtools.html.

Additionally, even if “no standard methodology” is available, as FERC claims, the CEQ final guidance states that this is not a valid excuse for failing to assess impacts and that, at a minimum, a qualitative analysis must be performed. 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.”[126]

The CEQ final guidance also states that agencies should quantify a proposed agency action’s projected direct and indirect GHG emissions. The final guidance explains how the scope of the proposed action should be considered:

> “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.”

In the ACP DEIS, FERC fails to follow the requirements of NEPA as explained in the directives of the CEQ final guidance and its own 2017 guidance document. FERC states that “induced or additional natural gas production is not a ‘reasonably foreseeable’ indirect effect resulting from the proposed ACP and the EEP, and this topic need not be addressed in this EIS,” and that “the environmental effects resulting from natural gas production are not linked to or caused by a proposed pipeline project.”[127]

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[126] CEQ final guidance at 13.

[127] DEIS pp. 1-22 – 1-23.

This reasoning directly contradicts the requirements of NEPA, given that, as explained in great detail in Section IX of these comments, 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 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.”[128]

In the DEIS, FERC only includes estimates of GHG emissions from (1) pipeline construction, (2) compressor stations, and (3) “Total annual emissions.” FERC fails to provide reasoning or methodology for its GHG emissions estimates for the ACP pipeline construction, compressor stations, and total annual emissions, making it impossible for the public to independently evaluate the adequacy of these calculations. The direct emissions sources that FERC should have considered in the ACP DEIS include but are not limited to CH_4 and CO_2 emissions from:

a. Pipeline leaks;

b. Meter and Regulation (M&R) Stations;

c. Dehydrator vents;

d. Pneumatic devices; and

e. Malfunctions and upsets, e.g. blowdowns/venting.

[128] CEQ final guidance at 14.

Indirect emissions sources that should have included in the ACP DEIS – 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 carbon dioxide and methane emissions from:

a. Drilling;

b. Completion, including hydraulic fracturing;

c. Wells;

d. Wellsite equipment, e.g. heaters, separators, dehydrators, etc.;

e. Gathering and boosting stations;

f. Pipeline leaks;

g. Pneumatic devices;

h. Tanks;

i. Malfunctions and upsets;

j. Processing plants; and

k. Distribution pipeline and M&R station leaks.

As justification for not including these upstream and downstream activities that can cause indirect impacts, FERC states in the DEIS that

> [w]hile we know generally that natural gas is produced in the Appalachian Basin, there is no reasonable way to determine the exact wells providing gas transported in the ACP pipelines, nor is there a reasonable way to identify the well-specific exploration and production methods used to obtain those gas supplies.[129]

[129] DEIS p. 1-22.

However, it is not necessary to know the exact locations of all of the wells that will supply gas to the pipelines, or the methods used to obtain that gas, in order to analyze the potential impacts. FERC supplies the total capacity of the pipelines in the ACP DEIS. 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,[130] and can then be used to estimate the number of wells and the type of equipment and production methods necessary to supply the full pipeline capacity. Information can also be requested from producers and marketers who have contracts to supply gas or have expressed interest in supplying gas to the pipeline.[131]

FERC acknowledges in the DEIS that such producers should already be known.[132] In his statement, former chairman Bay states that he believes FERC should perform a life-cycle greenhouse gas emissions study, and notes that DOE already does this type of analysis when issuing permits for Liquefied Natural Gas ("LNG") terminals. Bay says "[t]his information may be of use to the Commission, the public, and industry in examining the broader issues raised in certification proceedings." The results of this analysis can and should have been used to analyze the potential GHG impacts and to

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[130] The Pennsylvania Department of Environmental Protection, Oil and Gas Reporting*:* www.paoilandgasreporting.state.pa.us/publicreports/Modules/Welcome/Welcome.aspx

[131] As explained in Section I, significant information is available concerning the specific locations of the gas holdings of the drilling companies and their affiliates who have contracted to ship gas on the MVP.

[132] DEIS p. 1-22. In its discussion of considering impacts from additional drilling, FERC suggests that gas supplies will already be identified before pipeline development begins, stating, "…once production begins in an area, shippers or end users will support the development of a pipeline to move the natural gas to markets."

develop alternatives and mitigation strategies to offset the emissions resulting from the ACP.

C. Information on compressor, meter and regulating, and valve control stations is incomplete.

Compressor stations, metering and regulating (M&R) stations and valve control stations are part of the ACP.[133] Compressor stations generally run 24 hours per day, 365 days a year, and are not very efficient, with the majority of fuel burned producing only pollution and heat. Problems include:

a. High amounts of pollution are emitted, including sulfur dioxide, carbon monoxide, hazardous air pollutants, greenhouse gases, and particulates, including high amounts of formaldehyde;

b. In cold weather, compressor stations can emit up to 13 times more pollution;[134]

c. Excessive noise and stress for persons living nearby, since they run 24/7;

d. Lack of pollution control devices;[135] and

e. Serious environmental justice issues, since they are often located in lower income areas and communities of color.

The ACP states that there will be only one new compressor station in North Carolina, located in Northampton County. The Northampton compressor station is expected to

[133] Compressor stations boost the pressure inside the natural gas pipeline to move the gas further downstream, and since pipeline pressure decreases with distance, compressor stations are required to push the gas to the next location where it will be taken out of the pipeline. M&R stations contain equipment to measure the amount of gas entering or leaving a pipeline system and, sometimes, regulate gas pressure. Valve control stations include mechanical devices (valves) that are installed in a pipeline, and used to control the flow of gas or liquid. See http://www.pipelineawareness.org/residents-businesses/glossary/

[134] http://www.bredl.org/pdf5/161207_air_pollution_report-FINAL.pdf

[135] http://www.bredl.org/pdf5/Factsheet_compressor_stations.pdf

push gas over 180 miles through the ACP in North Carolina, which seems unlikely. The DOE reports that a compressor station is needed every 50 to 100 miles along a pipeline. It's possible that the ACP will add at least one and perhaps as many as four additional compressor stations to move the gas nearly 180 miles through the pipeline. In fact, DOE reports that the existing Transco pipeline that runs through NC for approximately the same number of miles as the ACP has four compressor stations.[136]

D. Compressor stations release excessive emissions, resulting in excessive environmental impacts.

Compressor stations are also a large source of toxic emissions. According to studies by ICF International, compressor stations constitute the "primary source of vented emissions" in the transmission of natural gas.[137] People who live near compressor stations experience skin rashes, gastrointestinal, respiratory, neurological, and psychological problems. Air samples show elevated levels of many toxics, including volatile organic compounds, particulates and gaseous radon. Areas surrounding compressor stations are known in the gas industry as "sacrifice zones" – for good reason. For example, in October 2014, a notice of violation and proposed civil penalty was issued against Spectra Energy for excessive emissions from a compressor station.

As more gas is fracked and piped across the U.S., more people are being exposed to the air pollution and noise from compressor stations. Under the Natural Gas Act, compressor stations are under the radar of environmental laws, and communities

[136] https://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngcompressor/ngcompressor.pdf

[137] www.edf.org/sites/default/files/content/canada_methane_cost_curve_report.pdf, p. 2-4.

are putting up with increasing levels of noise and pollution.[138] The ACP's Resource Report 9 on Air and Noise Quality states:

> This Resource Report addresses the effects of the ACP and SHP (Projects) on the existing air and noise environment and describes proposed measures to mitigate the effects. This Report also presents the long-term impacts of operation of the additional compressor units.

However, Report 9 does not actually address the "long-term impacts of operation of the additional compressor units" at all. Report 9 does not mention significant additional air pollution from hazardous air pollutants, including benzene and formaldehyde. Because the compressor stations are located in 'attainment' areas as defined by the Clean Air Act, the DEIS states that further review is not required.[139] We do not agree.

Table 9.1.4-4 of the DEIS Resource Report 9 lists Clean Air Act criteria pollutants (NOx, CO, Volatile Organic Compounds, SO2, Particulate Matter, and COe or Carbon Dioxide Equivalent) for the compressor station engines. While Report 9 says that "additional emissions are expected," and fugitive emissions from methane leaks and ancillary sources such as generators and heaters are not included, these additional emissions "will be incorporated" in future filings. Emissions from construction of compressor stations for all criteria pollutants are listed as "TBD" – To Be Determined, as are emissions from burning biomass from the forested areas to be cleared for the ACP and compressor stations. While the DEIS claims that these additional emissions will not trigger violations of air quality standards required by the Clean Air Act, with so little hard data about additional air pollution provided, it is impossible for FERC or the public to tell.

[138] https://sites.google.com/site/metropolitanenvironmental/the-lowdown-on-gas-compressor-blowdown-the-dirty-truth-of-unreportable-emissions

[139] ACP Resource Report 9, Section 9.1.3.2.

E. The DEIS provides little information on “upgrades” to existing compressor stations.

The ACP Resource Report I, General Description, refers to an upgrade of Piedmont’s Clayton Compressor Station in North Carolina, but gives very little information about exactly what will be done to “upgrade” the compressor station. Page 1-70 of Resource Report 1, General Description, appears to allow the ACP to “utilize capacity in the Piedmont pipeline as if it were [ACP’s] own capacity,” yet this compressor station is somehow not included in the purview of this DEIS. Smithfield, Fayetteville, and Junction A are also listed as undergoing “modifications and additions,” but there is no further information given.

Similarly, there is very little information given on the North Carolina M&R stations, ‘pig’ launchers, or valve stations. M&R stations are listed for Smithfield, Fayetteville and Pembroke, but no details are provided. Page 5-44 states:

> Prior to the close of the draft EIS comment period, Atlantic shall provide an acoustical analysis for the Long Run, Smithfield, Fayetteville, Pembroke, Elizabeth River, Brunswick, and Greensville M&R stations identifying the distance and direction of the nearest NSA [Noise Sensitive Area] within 0.5 mile to each station; the existing ambient Ldn levels at each of the NSAs; the estimated noise levels attributable for maximum flow at the M&R stations; and any proposed mitigation to ensure that noise impacts from the M&R stations do not exceed an Ldn of 55 dBA at any of the nearby NSAs. (Section 4.11.2.2)

When notification is given so late in the process, it is useless, and a potential violation of the due process rights of those directly affected by the pipeline, compressor stations, M&R stations, valve stations, and eight sets of pipeline ‘pig’ launchers.

F. FERC’s proposed mitigation to offset GHG emissions is inadequate.

The mitigation proposed for the limited greenhouse gas (“GHG”) emissions sources that FERC analyzed in the DEIS (construction, operation of compressors, and “total yearly emissions”) is insufficient. Aside from a statement that “[a]dhering to good operating and maintenance practices would help minimize fugitive GHG and VOC leaks,” and providing a list of “feasible mitigation measures, based on review of EPA’s voluntary Natural Gas Star program for potential emission reduction measures,” the DEIS does not contain any detailed or specific mitigation plans to reduce the lifecycle GHG emissions from the ACP project.

A full suite of mitigation measures should have been fully analyzed to determine the ultimate impact of the project. FERC must therefore revise the DEIS to include specific actions that will be taken to reduce or prevent GHG emissions and develop detailed plans for carrying out those actions, including proposed timelines, and the ultimate impacts. As stated above, the DEIS must also consider a much broader range of direct, indirect, and cumulative impacts resulting from the ACP project to fully comply with NEPA, and it must use this information to develop alternatives and implement mitigation strategies for those impacts.

G. FERC failed to fully evaluate lifecycle GHG emissions.

More broadly, FERC must analyze the possibility that 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 FERC ultimately contributes to, or facilitates, increased GHG emissions into the atmosphere, FERC must fully evaluate these impacts, compare alternatives, and develop mitigation measures to address such emissions.[140] FERC's duty to analyze the lifecycle GHG emissions and the climate change implications of such emissions is required by NEPA, and is supported by recent case law interpreting NEPA in the context of climate change, CEQ's recently issued final guidance, and FERC's own 2017 guidance document.[141]

A recent report by Oil Change International exhaustively analyzed the potential climate impacts from the ACP, including methane emissions in GHG estimates. The study reports that annual emissions from the ACP will be 68 million metric tons of CO2e annually, equal to the annual emissions from 20 coal plants.[142]

H. FERC Failed to meaningfully evaluate the impacts of GHG emissions.

Another major flaw in FERC's climate change analysis is FERC's comparison of the total annual GHG emissions of the ACP Project to "the global GHG emission inventory."[143] This comparison serves only to minimize the ACP Project's GHG emissions and does not provide any meaningful information. EPA recently criticized FERC for comparing the estimated emissions of another major interstate gas pipeline,

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[140] Katherine Lee, *CEQ's Draft Guidance on NEPA Climate Analyses: Potential Impacts on Climate Litigation*, 45 Envtl. L. Rep. News & Analysis 10925 (2015).

[141] See generally CEQ final guidance; see, e.g., *High Country Conservation Advocates v. United States Forest Service*, 52 F.Supp.3d 1174 (D.Colo. 2014); *Ctr. for Biological Diversity v. Nat'l Hwy. Traffic Safety Admin*., 538 F.3d 1172, 1216 (9th Cir. 2008) (cumulative impacts analysis inadequate where agency failed to "discuss the *actual* environmental effects resulting from [greenhouse gas] emissions" (emphasis in original)).

[142] http://priceofoil.org/2017/02/15/atlantic-coast-pipeline-greenhouse-gas-emissions-briefing/

[143] DEIS p. 4-516.

the Leach Xpress Project, "to state GHG emission levels."[144] EPA explained that "[c]omparing one project's direct and indirect emissions to aggregated totals is not an appropriate way to consider the impact of emissions" and is inconsistent with the CEQ GHG Guidance's explanation of existing NEPA requirements. In order to assess those impacts, FERC should have utilized available tools such as the "social cost of carbon," developed by EPA and other federal agencies.[145] Because FERC failed to analyze the impacts of the GHG emissions associated with the proposed projects, the DEIS does not satisfy NEPA.

VI. The DEIS fails to adequately consider all reasonable direct and indirect impacts and cumulative impacts, including those impacts associated with gas development.

A. There is a clear causal connection between the proposed ACP and shale gas development.

In analyzing the potential impacts of its approval of the ACP, FERC 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. … Indirect effects are defined broadly, to 'include growth inducing effects and other effects related to induced changes in the pattern of land use, population

[144] EPA Comments on the Leach Xpress Pipeline DEIS p. 7, June 6, 2016, Docket No. CP15514-000, Accession No. 20160613-5177.

[145] EPA, *The Social Cost of Carbon*, https://www.epa.gov/climatechange/social-cost-carbon.

[297] 40 C.F.R. § 1508.8(b).

density or growth rate, and related effects on air and water and other natural systems, including ecosystems.'"[146]

For several years, however, FERC has categorically refused to consider induced gas development as an indirect effect of pipeline projects such as the ACP. FERC's argument is usually two-fold. First, FERC claims that gas drilling and pipeline projects are not "sufficiently causally related" to warrant a detailed analysis.[147] Second, FERC 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. The DEIS continues this head-in-the-sand approach, failing to consider the indirect effects of shale gas development. FERC claims that "it is not likely that [ACP] would lead to additional drilling and production" of natural gas. "In fact," FERC 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."

FERC'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 FERC 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.[148]

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[146] *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)).

[147] *Nat'l Fuel Gas Supply Corp.*, 150 FERC ¶ 61,162, at P 44 (2015).

[148] Opening Brief of Petitioners Catskill Mountainkeeper, Inc., et al. at 22-23, *Catskill Mountainkeeper, Inc., et al. v. FERC*, No. 16-345-L (2d Cir. July 12, 2016).

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,[149] meaning that new production could be induced to continually supply a pipeline throughout its lifespan.[150] Therefore, the indirect effects of FERC's certificate approvals, including induced production, must be included in its NEPA analysis of the ACP project.

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."[151] 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 or well shut-ins that occur when transport from producing areas to liquid pricing points is constrained.*[152]

[149] http://www.ingaa.org/file.aspx?id=10751

[150] http://www.newsweek.com/2014/07/18/how-long-will-americas-shale-gas-boom-last-html

[151] *Sylvester v. U.S. Army Corps of Eng'rs*, 884 F.2d 394, 400 (9th Cir. 1989).

[152] http://www.ingaa.org/file.aspx?id=21498, pp. 1, 8-9. (emphasis added)

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, FERC attempts to avoid its duty to consider induced gas drilling by claiming that "it is not likely that [ACP] would lead to additional gas drilling" because, according to FERC, "the opposite causal relationship is more likely."[153] 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."[154] In other words, an increase in infrastructure to transport a product results in an increase in production of that product.

As the West Virginia Oil and Gas Association stated in its motion to intervene in the Certificate Application proceeding for the ACP, 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 . . . pipeline."[155] Without the pipeline to move the gas from the production areas, the drilling would simply not be economical

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[153] DEIS p. 1-22.

[154] http://www.eia.gov/analysis/hgl/pdf/hgl.pdf, p. 6.

[155] Motion to Intervene of the West Virginia Oil and Gas Association at 2, October 22, 2105, Docket No. CP15-554.

and would not occur. 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 FERC itself only proves the causal connection between FERC's decision to approve pipeline projects and shale gas development.

B. The impacts of shale gas development are reasonably foreseeable.

Shale gas development is not only causally related to construction of the ACP, 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."[156] "[W]hen the *nature* of the effect is reasonably foreseeable but its *extent* is not, [an] agency may not simply ignore the effect."[157] "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."[158] 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, FERC is well aware of the nature of the effects of shale gas development and, therefore, may not ignore those effects.

FERC, however, has consistently claimed that, even if there is a sufficient causal relationship between projects such as the one under review here and induced gas

[156] *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992).

[157] *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).

[158] *WildEarth Guardians v. U.S. Office of Surface Mining*, 104 F. Supp. 3d 1208, 1230 (D. Colo. 2015).

production, "such production is not reasonably foreseeable as contemplated by CEQ's regulations and case law."[159] There, FERC said that it "need not address remote and highly speculative consequences."[160] FERC 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."[161] Finally, FERC said that even if it knew the "identity of a supplier of gas . . . and even the general area where the producer's existing wells are located," it does not mean that FERC can engage in forecasting future development. The DEIS for the ACP adopts this flawed interpretation of "reasonably foreseeable."

FERC'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.[162] FERC's practice "would require the public, rather than the agency, to ascertain the cumulative effects of a proposed action."[163] "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.'"[164] Compliance with NEPA "is a primary duty of every federal agency; fulfillment of this vital responsibility should not depend on the vigilance and

[159] *Nat'l Fuel Gas Supply Corp.*, 150 FERC ¶ 61,162, at P 46 (2015).

[160] *Id*. (citing *Hammond v. Norton*, 370 F. Supp. 2d 226, 245-46 (D.D.C. 2005).

[161] *Id*. (citing *N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1078 (9th Cir. 2011)).

[162] *Mid States Coal.*, 345 F.3d at 549.

[163] *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."

[164] *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)

limited resources of environmental plaintiffs."[165] Thus, FERC's insistence that it is 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.'"[166] Here, FERC 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 ACP, thus violating NEPA.[167]

Contrary to FERC's assertions, there is ample information about existing and projected shale gas development for FERC to engage in reasonable forecasting. According to a report by the research investment firm Morningstar, several companies, including EQT, have "identified between 10 and 30 years of drilling locations across the Marcellus, which should fuel several more years of production growth at relatively low cost."[168] EQT's Analyst Presentation identifies its core development areas in which it is

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[165] *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 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)).

[166] *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).

[167] *Delaware Riverkeeper*, 753 F.3d at 1310

[168] http://marcelluscoalition.org/wpcontent/uploads/2014/03/Morning-Star_EnergyObserverFebruary2014.pdf, p. 17 (emphasis added)

"strategically focused."[169] Thus, FERC should be able to work with EQT in identifying reasonably foreseeable gas wells within this area.

Reasonable forecasting of the impacts of the type of future drilling that would be necessary to supply the ACP 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 Conservation Plan (O&G HCP).[170] 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.[171] 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.

C. The DEIS fails to adequately consider cumulative impacts, including those impacts associated with gas development.

In addition to considering the direct and indirect effects of the project, FERC must also consider cumulative impacts, especially in the Marcellus play in Pennsylvania and West Virginia.[172] A cumulative impact is:

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[169] Analyst Presentation at 10, 12, 13, and 28.

[170] 81 Fed. Reg. 85, 250 (Nov. 25, 2016).

[171] *Id*. at 85,251.

[172] 40 C.F.R. § 1508.7.

> "The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Cumulative impact analyses that contain "cursory statements" and "conclusory terms" are insufficient.[173] FERC's cumulative impact analysis for the ACP is insufficient because it is needlessly and impermissibly restrictive both in terms of time and geography and relies on cursory statements and conclusory terms that seek to minimize impacts to an array of environmental resources. As noted above, FERC has not done an adequate job in assessing the direct and indirect impacts from the pipeline construction. Conclusory statements are not analysis of the impacts.

FERC's cumulative impacts analysis is fatally flawed because it substantially limited the analysis area to the vicinity of the ACP pipeline and associated facilities. FERC should have broadened the scope to consider cumulative impacts on water resources and wetlands. FERC also should have selected analysis areas for vegetation, land use, and wildlife that were rationally connected to those particular resource areas. Demographic data of the ACP route and alternative routes would have provided the necessary information to make conclusions on the cumulative and disproportionate impacts on sensitive populations.

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[173] *Delaware Riverkeeper Network v. F.E.R.C.*, 753 F.3d 1304, 1319-20 (D.C. Cir. 2014); see also *Natural Resources Defense 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").

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*.[174]

(emphasis added). 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.

EPA guidance on cumulative impacts states that "[s]patial and temporal boundaries should not be overly restrictive in cumulative impact analysis."[175] EPA specifically cautions agencies to not "limit the scope of their analyses to those areas over which they have direct authority or to the boundary of the relevant management area or project area." Rather, agencies "should delineate appropriate geographic areas including natural ecological boundaries" such as ecoregions or watersheds.

The analysis required in the cumulative impact sections should include effects of shale gas development on vegetation and wildlife. FERC acknowledges that oil and gas

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[174] CEQ, Considering Cumulative Effects under the National Environmental Policy Act, 1997, p. 12. (emphasis added)

[175] EPA, Consideration of Cumulative Impacts in EPA Review of NEPA Documents, 1999, p. 8.

development contributes to cumulative impacts on vegetation and wildlife impacts.[176] With regard to vegetation, FERC concluded that cumulative impacts "are expected to be minor, considering the limited area affected within the geographic scope, the large amount of undisturbed vegetation, including forests, remaining in each watershed … and because the other projects are expected to take the required precautions and mitigation measures." The impacts from the fragmentation of habitat should be address over much wider areas.

FERC'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 explained,

> "By any responsible account, the exploitation of the Marcellus Shale Formation will produce a detrimental effect on the environment, on the people, their children, and future generations, and potentially on the public purse, perhaps rivaling the environmental effects of coal extraction."[177]

It is critical that FERC consider the detrimental effects of shale gas well and pipeline infrastructure developments on a much broader level than it used in the DEIS. According to recent research published in Environmental Science & Technology:

> "Potential effects [of shale gas drilling] on terrestrial and aquatic ecosystems can result from many activities associated with the extraction process and the rate of development, such as road and pipeline construction, well pad development, well drilling and fracturing, water removal from surface and ground waters, establishment of compressor stations, and by unintended accidents such as spills or well casing failures. … The cumulative effect of these potential stressors will depend in large part on the rate of development in a region. Depending on extent

[176] DEIS pp. 4-504 – 4-507.

[177] *Robinson Twp. v. Commonwealth of Pennsylvania*, 83 A.3d 901, 976 (Pa. 2013).

> of development, oil and gas extraction has the potential to have a large effect on associated wildlife, habitat and aquatic life."[178]

Shale gas development "changes the landscape" as "[l]and is cleared for pad development and associated infrastructure, including pipelines, new and expanded roads, impoundments, and compressor stations." "Seismic testing, roads, and pipelines bisect habitats and create linear corridors that fragment the landscape." As noted above, "Compressor stations, which are located along pipelines and are used to compress gas to facilitate movement through the pipelines, are a long-term source of noise and continuous disturbance."

As explained by the Pennsylvania Department of Conservation and Natural Resources in its assessment of the impacts of exploration and development in the Marcellus play:

> "Natural gas exploration and 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. … Compressor stations commonly are used in association with gas production and pipelines. Compressor stations increase the gas pressure at the well bore or within pipelines to overcome friction or production volume decreases. 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

[178] 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).

greatest potential to cause forest conversion and fragmentation due to the length and quantity of pipelines required."[179]

The fact that gas wells "would need to comply with federal, state, and local air regulations" does not excuse FERC from its obligation of analyzing these cumulative impacts. FERC has an independent duty to review the environmental and human health impacts of the project and cannot simply rely on the regulatory efforts by the EPA and DEP.[180] Moreover, the issuance of a permit simply means that a polluting source has met a "minimum condition;" it does not establish that a project will have no significant impact under NEPA.

FERC failed to take a hard look at cumulative impacts on land use, recreation, special interest areas, and visual resources. FERC used different standards in assessing cumulative impacts on these resources areas. For example, for impacts to prime farmland, FERC used specific acreages to describe the impacts of the ACP. For recreation and special-interest lands, however, FERC provided no acreages. Instead, FERC simply stated that there could be cumulative impacts on recreation and special-interest areas "if other projects affect the same areas or feature at the same time" that ACP are constructed. FERC should have determined the acreage of recreation and special-interest lands impacted by both the ACP as well as other projects, including shale gas well and infrastructure development projects. Again, conclusory statements are not sufficient analysis.

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[179] PA DNCR Shale Gas Monitoring Report, April 2014: www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20029147.pdf

[180] *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").

Because FERC 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 DEIS's cumulative impacts analysis does not meet the requirements of NEPA. FERC must remedy those defects in a revised DEIS and provide that analysis for public comment.

VI. The DEIS ignored the environmental and socioeconomic impacts of the Piedmont Pipeline.

A major deficiency in the DEIS is the failure to include environmental and socioeconomic impacts from the approximately 26-mile spur line from Junction A in Robeson County to the Smith Energy Complex near Hamlet in Rockingham County (the "Piedmont Pipeline").[181] The DEIS classifies it as a nonjurisdictional facility, even though it is owned by one of the owners of the ACP, Duke Energy's wholly-owned subsidiary, Piedmont, going to one of the Duke Energy generating facilities. The site houses two natural gas combined-cycle units, which generate 1,084 MW, and five natural gas combustion turbine units. The burning of the natural gas by these plants has been used by Dominion to justify the need for the ACP; it is one of the long-term contracts discussed above.

Dominion erroneously maintains FERC "has no authority over the siting, permitting, licensing, funding, construction, or operation of the proposed pipeline facilities" and claims the North Carolina Utilities Commission is the lead agency with jurisdiction over the Piedmont Pipeline and related facilities. Contrary to this position,

[181] Dominion Resource Report 1 (General Project Description), pp. 1-69 – 1-72.

the Piedmont Pipeline is part and parcel to the ACP. The sole purpose of the Piedmont Pipeline is to carry the natural gas flowing on the ACP to one of its major end users. The ACP does not end at Junction A but continues on to the Smith Energy Complex, making it a link in the ACP corridor. The ACP terminates at the Smith Energy Complex rather than the Junction A interconnect. FERC should therefore claim its authority over the Piedmont Pipeline as part of the ACP.

The DEIS should be supplemented to include the impacts from the Piedmont Pipeline. The piecemealing of projects – eliminating a major component of a project -- is discouraged by NEPA. “From a procedural standpoint, NEPA “provides the vehicle for agency [and public] consideration of overall project-related impacts prior to the permit decision. Ideally, EISs present comprehensive, rather than piecemeal, environmental impact and regulatory analysis.”[182]

The new corridor will have many of the same environmental impacts as does the rest of the ACP, such as impacts on stream crossings, water quality, wildlife habitat, and farms and families. Important to the comments on cultural resources and environmental justice described above, the Piedmont Pipeline will have a significant and disproportionate impact on members of the Lumbee Indian Tribe. Equally important, the cumulative impacts of air pollution and methane release from the Duke Energy natural gas plants should be quantified and included in the ACP DEIS.

[182] www.yalelawjournal.org/note/nepa-eiss-and-substantive-regulatory-regimes

CONCLUSION

For all of the reasons stated above, the DEIS for the proposed ACP does not comply with the minimum requirements of NEPA and the Commission's guidance documents. In order to meet statutory and regulatory requirements, FERC must remedy the flaws identified herein and reissue a revised DEIS for review and comment by the public.

Please inform me of any and all actions FERC takes relating to the proposed ACP and I will notify my clients of these actions.

ON BEHALF OF THE PUBLIC INTEREST GROUPS

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