



February 6, 2020

Via Email: Title_VI_Complaints@epa.gov and USPS First-Class Mail

U.S. Environmental Protection Agency
Mail code 230A
1200 Pennsylvania Avenue, NW
Washington, DC 20460

**Re: Complaint Against the North Carolina Department of Environmental Quality
Pursuant to Title VI of the Civil Rights Act of 1964 and EPA Implementing
Regulations**

Dear Director Dorka and External Civil Rights Compliance Office:

Friends of the Earth and The North Carolina Climate Solutions Coalition (“Complainants”) submit this complaint against the North Carolina Department of Environmental Quality (“DEQ”) for approving and subsequently failing to revoke a permit issued to Atlantic Coast Pipeline, LLC (“ACP”) under § 401 of the Clean Water Act of 1972 (“CWA”) in violation of Title VI of the Civil Rights Act of 1964, 42 U.S.C. §§ 2000d to 2000d-7, and the United States Environmental Protection Agency’s (“EPA”) implementing regulations, 40 C.F.R. Part 7. DEQ’s actions will have an unjustified disproportionate impact on the basis of race and ethnicity against Native Americans and African Americans in violation of Title VI and agency regulations.

Complainants submit this complaint to preserve their rights in a timely way and will supplement the complaint with additional information in support of their claims. Below please find a brief summary of the basis for EPA’s jurisdiction: in short, the complaint meets all jurisdictional requirements: Complainants assert claims that (1) allege discrimination on the basis of race, color, or national origin; (2) raise claims against a recipient of federal funds; and (3) file this complaint in a timely way.

I. Basis for Complaint & Allegation of Discrimination

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance. EPA’s

implementing regulations, authorized by § 602 of the statute, 42 U.S.C. 2000d-1, prohibit actions with an unjustified disparate impact. 40 C.F.R. 7.35(b). Specifically EPA regulations prohibit using “criteria or methods of administering [a] program or activity which have the effect of subjecting individuals to discrimination because of their race, color, national origin, ... or have the effect of defeating or substantially impairing accomplishment of the objectives of the program or activity with respect to individuals of a particular race, color, [or]national origin....” 40 C.F.R. 7.35(b). The regulations also prohibit choosing “a site or location of a facility that has the purpose or effect of excluding individuals from, denying them the benefits of, or subjecting them to discrimination under any program or activity to which this part applies on the grounds of race, color, or national origin ...; or with the purpose or effect of defeating or substantially impairing the accomplishment of the objectives of this subpart.” 40 C.F.R. 7.35(c).

As described in a civil rights complaint filed by Complainant Friends of the Earth and a number of other environmental justice organizations in North Carolina against DEQ on May 15, 2018, DEQ’s decision to issue permits for the Atlantic Coast Pipeline will adversely and disproportionately affect Native Americans, who are “over-represented in the North Carolina segments of the ACP area by a factor of ten compared to statewide demographics –13% of affected population along the route versus 1.2% Native Americans in the North Carolina population.” Letter from John D. Runkle, Attorney at Law, to External Civil Rights Compliance Office (“ECRCO”), 7 (May 15, 2018) (Title VI Environmental Justice Complaint against NC Department of Environmental Quality) (Appendix A). More generally, the complaint alleged that the permit would disproportionately affect communities of color, citing a study by the Research Triangle Institute, “Environmental Justice Concerns and the Proposed Atlantic Coast Pipeline Route in North Carolina,” March 2018, which concluded, “The counties crossed by the proposed ACP route collectively have a significantly higher percentage minority population than the rest of the counties in the state.” Appendix A at 8. The complaint further alleged that DEQ had ignored alternative routes, which were less discriminatory than the approved action. Appendix A at 8.

On August 24, 2018, EPA concluded that the complaint was not ripe for review on the basis that two permits issued by federal agencies still had to be modified before there would be a final order authorizing construction of the Pipeline. Letter from Dale Rhines, Deputy Director, ECRCO, to John D. Runkle, Attorney at Law, 2 (August 24, 2018) (Rejection without Prejudice of Administrative Complaint) (Appendix B). EPA dismissed the complaint without prejudice.

Information disclosed since that time strengthens the conclusion that the risks of the ACP and its related projects will fall most heavily in North Carolina on members of the Lumbee community – the largest community of Native Americans east of the Mississippi River. As Complainants wrote in an August 13, 2019 Petition to DEQ seeking revocation of the § 401 Water Quality Certification that DEQ had issued to the ACP, Letter from Donna Chavis, Friends of the Earth, and Rev. Mac Legerton, NC Climate Solutions Coalition, to Michael S. Regan (August 13, 2019)

(Atlantic Coast Pipeline – Petition for Revocation of 401 Water Quality Certification) (Appendix C), analysis of information now available shows that the ACP “threatens to inflict a wide variety of harms” to the Lumbee community, “including interference with their enjoyment of land, disruption and destruction of unmarked ancestral burials and sacred places, contamination of groundwater and aquifers, and general marring of the natural environment.” Appendix C at 20. Adverse impacts of the pipeline include among others: increased risk of flooding, aggravation of the climate crisis through the increased use of fracked gas, increased risk of groundwater contamination, increased risk of contact with toxic air pollution, and diminution in property value. See Appendix C.

Under Section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341, states have the authority to review and approve, condition, waive, or deny water quality certification for any activity that is subject to a federal permit or license and may result in a discharge to waters of the United States. Under 40 C.F.R. § 122.64, the DEQ Division of Water Resources (“DWR”) grants and may revoke a permit for reasons including obtaining a permit by misrepresentation, failure to disclose fully all relevant facts, or a change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. Under 40 C.F.R. § 122.62, permits may be revoked if the Director has received new information that was not available at the time of the permit issuance, including any information indicating that cumulative effects on the environment are unacceptable. Complainants’ August 13, 2019 Petition asked DEQ to rescind its approval of the pipeline based on new information demonstrating, among other things, disparate and cumulative impacts posed by the project on the Lumbee community. To date, DEQ has failed to respond to the Petition and failed to rescind its approval of the ACP.

As the 4th Circuit recently stated in *Friends of Buckingham v. State Air Pollution Control Bd.*, 947 F.3d 68 (4th Cir. 2020), “[E]nvironmental justice is not merely a box to be checked” and in that case, the court found that the Virginia State Air Pollution Control Board had not met its obligation to consider the disproportionate impact on communities of color living closest to the Compressor Station in Union Hill, Virginia by evaluating only compliance with air quality standards. *Friends of Buckingham*, 947 F.3d at 92. Civil rights obligations, like environmental justice obligations under Virginia law, stand in addition to responsibilities under environmental laws, and DEQ, no less than The Virginia State Air Pollution Control Board, must evaluate whether its decisions have a disproportionate impact on the basis of race, color, or national origin and come into compliance with Title VI where, as here, its actions will cause unjustified disproportionate impacts.

II. DEQ Receives EPA Funds

DEQ is a recipient of EPA funds. As the attached report from [USAspending.gov](https://www.usaspending.gov), attached as Appendix D, reflects, in FY2019, DEQ received at least \$67.6 million from the EPA.

III. Timeliness

Time limits for such complaints are intended to prevent individuals from sitting on their civil rights and coming forward too late after significant investment has been made on a project or action. The Complainants here have made a number of good faith efforts to notify DEQ as to their civil rights claims, including Friends of the Earth's initial May 15, 2018 civil rights complaint to EPA and Complainants' subsequent August 13, 2019 Petition for revocation of the § 401 certification. Notably, federal permits continue to be held up in litigation. *See Cowpasture River Pres. Ass'n v. Forest Serv.*, 911 F.3d 150 (4th Cir. 2018), cert. granted *sub nom. United States Forest Serv. v. Cowpasture River Pres. Ass'n*, 140 S.Ct. 36, 204 L. Ed. 2d 1193 (2019), and cert. granted *sub nom. Atl. Coast Pipeline, LLC v. Cowpasture River Pres. Ass'n*, 140 S. Ct. 36, 204 L. Ed. 2d 1193 (2019) (finding by the 4th Circuit that the Forest Service violated the National Environmental Policy Act, among other laws, by issuing a special use permit and record of decision authorizing construction of the pipeline through parts of national forests and granting right of way across the Appalachian National Scenic Trail).¹ If, based on EPA's reasoning in support of its decision to close Friends of the Earth's May 15, 2018 complaint, EPA finds that this complaint is not yet ripe, Complainants ask that EPA hold this complaint in abeyance until federal decisions are final or again close the complaint on ripeness grounds without prejudice. Complainants can then assert their rights in a timely way if and when such decisions are final.

A. Complainants Assert a Timely Claim that DEQ's Decision to Approve the ACP was Discriminatory.

EPA regulations state that complaints "must be filed within 180 calendar days of the alleged discriminatory acts, unless the OCR [now ECRCO] waives the time limit for good cause." 40 CFR § 7.120(b)(2). Complainant Friends of the Earth filed a timely complaint on May 15, 2018, alleging that DEQ had failed to adequately assess the disproportionate impacts of the decision to grant the permits and that, in fact, DEQ's action would have a disparate impact on the basis of race and national origin. Appendix A. EPA dismissed the claim as not ripe given that permits issued by federal agencies still needed to be modified. Appendix B at 2. Under this reasoning, a

¹ In August 2018, the 4th Circuit Court of Appeals vacated two permits issued to ACP; one was a Fish and Wildlife Service ("FWS") take permit; another was a permit issued by the National Park Service ("NPS") allowing ACP to intersect the Blue Ridge Parkway. *Sierra Club v. United States Department of the Interior*, 899 F.3d 260 (2018). FERC issued a stop work order following this decision, but lifted the order after FWS and NPS reissued permits on September 11 and September 14, 2018, respectively. The new FWS permit was again successfully challenged and the 4th Circuit vacated the biological opinion incidental take statement and remanded the case back to FWS. *Defenders of Wildlife v. Department of Interior*, 931 F.3d 339, 342 (4th Cir. 2019) (finding FWS's decision arbitrary and capricious). On December 13, 2018 the 4th Circuit vacated the Forest Service's decision to issue a permit to ACP under the Mineral Leasing Act. *Cowpasture River Pres. Ass'n*, 911 F.3d at 183. The project is halted until these permit are reissued and the Supreme Court makes a decision on *Cowpasture River Pres. Ass'n.*, 911 F.3d 150, cert. granted *sub nom. United States Forest Serv.*, 140 S.Ct. 36, cert. granted *sub nom. Atl. Coast Pipeline, LLC*, 140 S.Ct. 36.

challenge to DEQ's approval of the ACP may still not be ripe and Complainants would thus ask that ECRCO hold this complainant in abeyance or again dismiss without prejudice.

In the alternative, EPA should waive the 180-day timeline in this instance, given Complainants' good faith effort to notify DEQ of their claims, prior civil rights complaint filed with EPA, receipt of new information supporting their claims that was not disclosed at the time of DEQ's 2018 decision, and subsequent Petition asking DEQ to rescind its approval. *See* EPA, Case Resolution Manual, 10-11 (2017), *available at* https://www.epa.gov/sites/production/files/2017-01/documents/final_epa_ogc_ecrco_crm_january_11_2017.pdf ("ECRCO will independently assess the record to determine whether a waiver is appropriate").

B. Complainants Assert Timely Claims Challenging DEQ's Failure to Rescind the Issuance of the § 401 Certification.

Information discovered by the Complainants demonstrates that the issuance of the § 401 certification was based on incomplete and inaccurate information that grossly underestimated the impacts of the project. New information disclosed after DEQ's 2018 approval of the ACP formed the basis of Complainants' April 13, 2019 Petition. Failure to revoke or modify the § 401 certification, allowing the project to go forward, will have adverse and disproportionate impacts on the Lumbee community and other communities of color.

DEQ's failure to respond to the Petition – and failure to rescind the Permit – can be challenged as a failure to act, which is subject to review for compliance with Title VI, or, in the alternative, as a constructive denial of the Petition.

Complainants' challenge to DEQ's failure to rescind approval of the ACP is timely filed because it is within 180 days of their August 13, 2019 Petition. A violation of Title VI and agency regulations can be established where a recipient fails to act. *See, e.g., United States v. Maricopa Cty., Ariz.*, 915 F. Supp. 2d 1073, 1080-81 (D. Ariz. 2012) (plaintiffs alleging failure to provide language assistance state a claim of national origin discrimination on the basis of disparate impact); *U.S. v. Town of E. Haven*, No. 3:12-cv-1652, 2012 WL 5869974, ¶ 43 (D. Conn. filed Nov. 20, 2012); *see generally* DOJ, Title VI Legal Manual, VII.1.a (identifying the facially neutral policy or practice), *available at* <https://www.justice.gov/crt/fcs/T6Manual7#E> ("the importance of identifying a specific practice does not necessarily mean that practice must be affirmatively undertaken; sometimes the relevant policy or practice could be the failure to do something, or even the failure to have a policy. In other words, inaction can exert a disproportionate adverse effect.")²

² DEQ's failure to respond to the Petition can be deemed a constructive denial of the Petition. The North Carolina Administrative Procedure Act ("APA") requires DEQ to respond to a rulemaking petition within 120 days. NC ST § 150B-20 (b). Failure of the agency to grant or deny the Petition within this time frame is considered denial. *Id.* at (d). Denial of a rulemaking decision is considered a final agency decision and subject to judicial review. *Id.* The

Conclusion

As the initial Friends of the Earth civil rights complaint alleged, DEQ's decision to issue a § 401 permit to Atlantic Coast Pipeline will have an unjustified disproportionate impact on the basis of race and ethnicity against Native Americans and African Americans in violation of Title VI and agency regulations. Complainants submit this complaint to preserve their rights and plan to supplement this complaint with additional supporting information. We request an opportunity to discuss the timeline for proceeding and look forward to hearing from you in the coming days.

Thank you for your investigation of this important matter.

Sincerely,



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APA sets even shorter timelines for other procedures, such as a 30-day limit to grant or deny a request for a declaratory ruling. NC ST § 15B-4(1). Taking the longer period allowed for DEQ to respond, DEQ's constructive denial of the Complainants' Petition occurred on December 11, 2019 — 120 days after the submission of the Petition on August 13, 2019. This Complaint is filed with 60 days of December 11, 2019.

On behalf of:

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CC:

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APPENDIX A

Initial Title VI Complaint and Attachments
Complaint Dated May 15, 2015

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VIA EMAIL & MAIL

May 15, 2018

U.S. Environmental Protection Agency
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External Civil Rights Compliance Office (ECRCO)
Mail Code 1201A
1200 Pennsylvania Avenue, NW
Washington, DC 20460
[Title VI Complaints@epa.gov](mailto:Title_VI_Complaints@epa.gov)

Re: Title VI Environmental Justice Complaint against
NC Department of Environmental Quality

To Whom It May Concern:

Pursuant to Title VI of the Civil Rights Act of 1964, 42 USC ¶ 2000d, now comes NC WARN; Clean Water for NC; Blue Ridge Environmental Defense League ("BREDL") and its chapters, Concerned Stewards of Halifax County, Nash Stop the Pipeline, Wilson County No Pipeline, No Pipeline Johnston County, Cumberland County Caring Voices; EcoRobeson; Concerned Citizens of Tillery; Concerned Citizens of Northampton County; Friends of the Earth; and the NC Environmental Justice Network (collectively the "Environmental Justice Groups"), by and through the undersigned counsel, with a complaint against the NC Department of Environmental Quality ("DEQ") for discriminatory actions the agency has taken in issuing permits for the proposed Atlantic Coast Pipeline ("ACP").

The Environmental Justice Groups allege DEQ discriminated on the basis of race and color in issuing permits and certifications to the ACP as part of the permitting process. The failure to assess the environmental justice impacts of the proposed ACP on communities of color along the route led to the improper actions taken by DEQ through

the Division of Water Resources, the Division of Air Quality, and the Division of Energy, Mineral and Land Resources (collectively the “State agencies”).

As part of this complaint, the Environmental Justice Groups request a prompt and complete investigation of their allegations by the General Counsel and the External Civil Rights Compliance Office (“ECRCO”) pursuant to 40 CFR ¶ 7.120, including a public hearing on the matter in North Carolina.

BACKGROUND

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 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.

The Federal Energy Regulatory Commission (“FERC”) has the 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.

As part of its review process, FERC prepares environmental documents, and in this case, a Draft Environmental Impact Statement (“DEIS”) was prepared and released on December 30, 2016. On October 13, 2017, FERC granted a conditional certificate for the pipeline, with the most significant conditions based on subsequent actions by the State agencies.¹

The certificate issued by FERC is not final, in that FERC has not ruled on pending motions for rehearing – a necessary step to judicial review – by several parties, including NC WARN, BREDL, and Clean Water for NC.

While FERC was conducting its certificate process, the State agencies received and reviewed applications from the ACP for various certifications and permits.² After public hearing processes, the State agencies issued each of the permits.

¹ FERC Order Issuing Certificates, October 13, 2017. Available at: www.documentcloud.org/documents/4108369-FERC-ACP-Order.html

² The applications and permits are available at <https://deq.nc.gov/about/divisions/energy-mineral-land-resources/ACP> and are incorporated herein by reference.

1. The Division of Water Quality issued the 401 Water Quality Certification for the entire route in North Carolina on January 26, 2018.
2. The Division of Energy, Mineral and Land Resources issued the Erosion and Sedimentation Control Permit for the entire route in North Carolina on February 1, 2018.
3. The Division of Energy, Mineral and Land Resources issued the Stormwater Permits for activities in Nash and Cumberland Counties on February 2, 2018.
4. The Division of Air Quality issued the Air Quality Permit for the Northampton compressor station on February 27, 2018.

It should be noted a Memorandum of Understanding (“MOU”) between the ACP and N.C. Governor Cooper was released on January 25, 2018.³ It provided, among other commitments, the ACP would provide \$58.7 million into a trust fund for the mitigation of environmental damages caused by the pipeline’s construction and operation. The permits were issued soon after the MOU was made public.

THE PUBLIC INTEREST GROUPS

The Environmental Justice Groups are not-for-profit corporations acting in the public interest and community groups organized to protect the family and property of their members. The Environmental Justice Groups have members adjacent to or in close proximity to the proposed ACP corridor and blast zone. Many of the members of the Environmental Justice Groups are African-American and Native American who will face disproportionate impacts from the proposed ACP.

- a. NC WARN is a statewide group concerned about the climate crisis and the impacts of natural gas infrastructure, including the disproportionate impact on families who are most affected.
- b. Clean Water for NC is a statewide group with a long history of working for environmental justice for North Carolina communities, including providing support for its members along the proposed pipeline route.
- c. BREDL is a regional environmental and social justice organization with at least five chapters with members directly on the path of the proposed pipeline. The chapters are: Concerned Stewards of Halifax County, Halifax County, NC; Nash Stop the Pipeline, Spring Hope, NC; Wilson County No Pipeline, Kenly, NC; No

³ The Mitigation Project MOU between the ACP and Governor Cooper is available at https://files.nc.gov/governor/documents/files/2018_01_25_MOU.pdf?K8Jzy_R7221YZ3Am3iXOaTtI0joZiDZX

Pipeline Johnston County, Johnston County, NC; and Cumberland County Caring Voices, Eastover, NC.

- d. EcoRobeson is a community-based group in Robeson County, NC, whose members are primarily Native American.
- e. Concerned Citizens of Tillery is a community-based group in Halifax County, NC, whose members are primarily African-American.
- f. Concerned Citizens of Northampton County is a community-based group in Northampton County, NC, whose members are primarily African-American.
- g. Friends of the Earth is a national organization with members in North Carolina and an office in Durham, NC, working to reduce the impacts of climate change and to provide a healthier environment for all people.
- h. NC Environmental Justice Network is a North Carolina group promoting health and environmental equality for all people of North Carolina.

The Environmental Justice Groups and their members will be significantly affected and aggrieved by the proposed ACP. Many of the economic concerns and environmental impacts affecting the Environmental Justice Groups and their members, and especially those in communities of color, have not been taken into consideration by FERC in its conditional issuance of the Certificate or by the State agencies which adopted the FERC's DEIS.

The Environmental Justice Groups allege, among other issues, FERC and the State agencies failed to assess the impacts on families and communities along the route, the environmental and health impacts from the construction and operation of the pipeline, and its cumulative impacts, including the worsening of the climate crisis. The increased usage of fracked gas has aggravated the effects of climate change and the most vulnerable communities along the ACP route are in many cases the same communities being most harmfully impacted by climate change.

Several of the same Environmental Justice Groups brought concerns about the impacts on communities of color to FERC in its hearing process and additionally submitted comments and testimony to the State agencies on the permits.⁴ The Environmental Justice Groups and their members attended numerous hearings and public meetings on issues related to the ACP and submitted comments on the proposed permits to the agencies. In addition to the environmental justice concerns, the Environmental Justice

⁴ The JOINT COMMENTS BY PUBLIC INTEREST GROUPS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT, April 5, 2017, by 20 public interest groups (including many of the Environmental Justice Groups herein) submitted to FERC and the State agencies is available at www.ncwarn.org/wp-content/uploads/ACP-DEIS-Joint-Comments.pdf. Among other issues, well-documented concerns about environmental justice were presented.

Groups allege the procedures for the issuance of the permits *sub judice* were not fair and impartial.

The members of the Environmental Justice Groups will be significantly affected and aggrieved by the construction and operation of the proposed ACP. The actions allowed by the permit decisions would have a significant and adverse impact on the health and well-being of the members of the Environmental Justice Groups, and on their families, the use and enjoyment of their property, the value of their property and other economic interests. Again, members in communities of color would bear a disproportionate impact.

Many of the families on the ACP route are having their property taken by the ACP through eminent domain. Many of the families are within the blast zone and / or evacuation zones around the proposed pipeline. Many of the families have drinking water wells which may be negatively impacted by groundwater contamination from the proposed pipeline. Many of the families will be significantly and adversely impacted by the toxic air pollutants emitted by the pipeline and the proposed compressor station in Northampton County.

BASIS FOR COMPLAINT

Title VI of the Civil Rights Act of 1964 prohibits recipients of federal financial assistance from discriminating on the basis of race, color, or national origin in their programs or activities. In this matter, the Environmental Justice Groups allege the State agencies discriminated on the basis of race and color because they failed to assess the disproportionate impacts of the proposed ACP on communities of color.

The State agencies receive financial assistance from the U.S. Environmental Protection Agency ("EPA"). In the Schedule of Expenditures of Federal Awards, the NC Office of State Controller provided a spreadsheet showing the State agencies received approximately \$71.5 million from EPA in the latest fiscal year. ATTACHED. The State agencies have received similar financial assistance from EPA over the past several years.

Because of the financial assistance from EPA, the State agencies are required to comply with relevant civil rights law, including Title VI. In her letter of January 18, 2017, to the State agencies Lilian S. Dorka, ECRCO Director, presented the U.S. EPA's External Civil Rights Compliance Office Compliance Toolkit ("Toolkit"), which is a clarification of existing law and policy intended to provide guidance to promote and support EPA recipients' compliance with federal civil rights laws.⁵ Ms. Dorka, in her letter, reiterated EPA's position on this: "All applicants for and recipients of EPA financial assistance have an affirmative obligation to comply with federal civil rights obligations." ECRCO has the duty to investigate complaints against these recipients of EPA financial assistance to determine if they comply.

⁵ www.epa.gov/sites/production/files/2017-01/documents/toolkit-chapter1-transmittal_letter-faqs.pdf

ALLEGATION OF DISCRIMINATION

The State agencies in issuing their permits did not adequately address sociological and demographic issues in order to assess discrimination based on race and color pursuant to Title VI. The Environmental Justice Groups herein use the term “environmental justice” as a shorthand for this discrimination, i.e., a determination of whether the actions would have a disproportionate impact on African-American and Native American families along the proposed route of the ACP.

The State agencies relied on a flawed analysis conducted by ACP in its application and by FERC in its Order and the state agencies failed to conduct a sufficient analysis of their own. The issuance of the permit did not reflect the disproportionate impacts on communities of color.

This failure is especially troublesome in that the State agencies have their own Environmental Equity Initiative, effective October 19, 2000. ATTACHED. Like the Federal agencies’ requirements to comply with Title VI of the Civil Rights Acts, this policy initiative requires the State agencies to assess the potential impacts of permit decisions on low-income communities and communities of color, and specifically to review Title VI compliance. The State agencies cannot rely on analyses by other agencies such as FERC, especially as it is apparent those analyses are flawed.

In most instances, the State agencies follow the NC Department of Transportation Title VI guidelines.⁶ This restricts their analysis to comparing the demographics at the county level with the directly impacted community within a one-mile radius. Local level data is used to recognize any variations with the county rather than look at other actions, such as alternate routes, that may have a far less impact on communities color. Only the following conditions are flagged as potential communities of concern: (1) 10% or more in comparison to the county average; (2) 50% or more minority, i.e. people of color; or (3) 5% or more in comparison to the county average for poverty. Similar to the FERC analysis, this process produces flawed conclusions that systematically discount the disproportionate impacts.

In its Order granting its conditional certificate for the ACP, FERC states it is not required to comply with Executive Order 12898 which mandates that specified federal agencies make achieving environmental justice part of their missions by identifying and addressing, as appropriate, disproportionately high and adverse human or environmental health effects of their programs, policies, and activities on minorities and low-income populations. FERC’s unsupported position is one of the issues raised by the request for rehearing of FERC’s decision by some of the Environmental Justice Groups.

Regardless of FERC’s flawed position, the State agencies are required to review the impacts of their decisions on low-income communities and communities of color

⁶ www.ncdot.gov/programs/titleVI/

pursuant to both the EPA directives and their own internal policy. The State agencies certainly cannot simply rely on the ACP / FERC analysis of the environmental justice impacts.

Even FERC recognizes the ACP would have an impact on low-income families, yet fails to further assess the impacts on these low-income communities and communities of color. More than half of North Carolina counties along the route are below the median income for the State with concentrations of African-American and Native American families.

Notably, although FERC's study appropriately compares *poverty data* in census tracts within one mile of the pipeline corridor to poverty data for the State as a whole, but when it comes to *population percentages for communities of color*, FERC compares census tracts near the pipeline only with the percentage of minorities in the county in which the census tract is located.

As most of the North Carolina counties along the proposed ACP corridor have communities of color significantly above the State average this decision greatly minimizes the apparent disproportionality in minorities impacted. The decision to use county-level reference statistics for race and ethnicity left regulators unable to determine whether any pipeline route through these specific counties would place a disproportionate burden on minority populations when compared to the broader population of North Carolina, a population that would reportedly benefit from the project through electricity generation.

Northampton County, for instance, is 58 percent African-American, compared to a State average of 22 percent. A comparable analysis to disproportionate impacts on low income residents would use a comparison to State non-white populations, and would result in a dramatically different conclusion.

Native Americans are over-represented in the North Carolina segments of the ACP area by a factor of ten compared to statewide demographics --13% of affected population along the route versus 1.2% Native Americans in the North Carolina population. Disproportionate impact analysis can only be conducted using the right comparisons.

In the NAACP's report, "Fumes Across the Fence-Line: The Health Impacts of Air Pollution from Oil & Gas Facilities on African American Communities," November 2017, the health and safety impacts of compressor stations have been well documented. ATTACHED.⁷ Much of the natural gas infrastructure, including the proposed ACP in North Carolina, is being sited in communities of color, and as a result those communities are disproportionately impacted.

⁷ Additionally available online at www.naacp.org/wp-content/uploads/2017/11/Fumes-Across-the-Fence-Line_NAACP_CATF.pdf

The State agencies appear to have relied on FERC's flawed analysis of environmental justice without any separate analysis. In its lack of understanding of the simple term "disproportionate," FERC asserts that because impacts may be happening in low population areas, fewer people would be hurt and therefore it cannot see evidence of disproportionate impact. As noted above, FERC's Order ¶ 255 concludes "[t]hese impacts would occur along the entire pipeline route and in areas with a variety of socioeconomic background." Just because there is a low population concentration does not mean people of low income or people of color would not be disproportionately impacted.

A recently published study by the Research Triangle Institute, "Environmental Justice Concerns and the Proposed Atlantic Coast Pipeline Route in North Carolina," March 2018, demonstrates both the failures of FERC's analysis and ACP's impacts on communities of color.⁸ ATTACHED. The study concludes, "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)."

In addition to the fundamental flaws in the methodology used by FERC and adopted by the State agencies, the analysis fails to identify the major impacts on Native American populations living along the preferred pipeline route.⁹ Data show that in North Carolina alone, approximately 30,000 Native Americans live in census tracts along the route. This number represents one quarter of the State's Native American population and one percent of the entire Native American population of the U.S. FERC and State agencies' analysis is silent on this issue.

FERC simply concluded the preferred route has no disproportionate impacts on the African-American and Native American communities. It draws this conclusion by counting the number of census tracts with "meaningfully greater" minority populations than the county in which they are located. Failure of the environmental justice analysis to detect these impacts is based on serious flaws in the methodology.

FERC, and the State agencies, further fail to compare the currently preferred route with other alternative routes. It should be noted at least one of the earlier proposed routes would have passed through wealthier and predominately white communities near Raleigh, NC.

Compounding the failure of a proper environmental justice analysis, FERC refused formal consultation with the tribal councils along the route of the ACP. This consultation

⁸ Wraight, S., Hofmann, J., Allpress, J., and Depro, B. (2018). Environmental Justice Concerns and the Proposed Atlantic Coast Pipeline Route in North Carolina. RTI Press Publication No. MR-0037-1803. Research Triangle Park, NC: RTI Press. <https://doi.org/10.3768/rtipress.2018.mr.0037.1803>

⁹ Emanuel, R., Flawed Environmental Justice Analyses, Science Magazine, July 21, 2017. ATTACHED. Emanuel, R., Comments to the Federal Energy Regulatory Commission on the Draft Environmental Impact Statement for the Atlantic Coast Pipeline, LLC, Dominion Transmission, Inc. and Atlantic and Piedmont Natural Gas. Co., Inc., April 6, 2017. ATTACHED.

on tribal sites, and cultural and environmental resources known both profoundly and intimately by members of the Indian tribes should have occurred as an integral part of the review process, not as an afterthought. 18 C.F.R. § 2.1c(e) states “(e) [FERC], 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.”

Representatives of the State agencies met with representatives of the tribes at the NC Council of Indian Affairs on August 9, 2017. However, the limited process did not allow detailed concerns to be incorporated into the State agencies’ decisions.

FERC’s summary analysis in the environmental documents 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 Native American and African-American families and communities along the route. Along with FERC, the State agencies have discriminated against these populations.

CONCLUSION

EPA, after the investigation by ECRCO and public hearing in North Carolina, should require DEQ to rescind each of the permits and demand a new environmental justice analysis based on demographic data that considers reference populations more carefully.

Pursuant to 40 CFR ¶ 7.120(d), it is our understanding ECRCO is required to notify us within 20 calendar days of acknowledgement of this complaint and of your subsequent actions regarding it.

FOR THE ENVIRONMENTAL JUSTICE GROUPS

Respectfully submitted,

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ATTACHMENTS

Schedule of Expenditures of Federal Awards

NCDEQ (formerly NCDENR) Environmental Equity Initiative

NAACP, "Fumes Across the Fence-Line: The Health Impacts of Air Pollution from Oil & Gas Facilities on African American Communities"

Research Triangle Institute, "Environmental Justice Concerns and the Proposed Atlantic Coast Pipeline Route in North Carolina"

Emanuel, R., "Flawed Environmental Justice Analyses"

Emanuel, R., "Comments to the Federal Energy Regulatory Commission on the Draft Environmental Impact Statement for the Atlantic Coast Pipeline, LLC, Dominion Transmission, Inc. and Atlantic and Piedmont Natural Gas. Co., Inc."

NORTH CAROLINA OFFICE OF THE STATE CONTROLLER
Single Audit Reporting Package
Schedule of Expenditures of Federal Awards
For the Fiscal Year Ended June 30, 2017

Agency No. 16
Agency Name Department of Environmental Quality

CFDA Programs :

<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>	<u>(10)</u>
Federal Agency Number	Federal CFDA Number	Additional Award Identifying Information	Direct/ Indirect (D / I)	Program Cluster Enter "NC" if no assigned cluster	Total Federal Awards Expended	Amount Provided to Subrecipients	CFDA (Program) Title as listed in the Catalog of Federal Domestic Assistance https://www.cfda.gov/
66	66.001	A00406015	D	RD	1,848,130		Air Pollution Control Program Support
66	66.034		D	NC			Surveys, Studies, Research, Investigations, Demonstrations, and Special Purpose Activities Relating to the Clean Air Act
66	66.040	DS00D23114	D	NC	69,758		State Clean Diesel Grant Program
66	66.202	XP-97455902	D	NC	532,047		Congressionally Mandated Projects
66	66.419	I95471716	D	RD	6,639,328		Water Pollution Control State, Interstate, and Tribal Program Support
66	66.432	F00429617	D	NC	2,932,217		State Public Water System Supervision
66	66.433	G00435617	D	NC	105,293		State Underground Water Source Protection
66	66.454	C60047715-17	D	NC	314,391		Water Quality Management Planning
66	66.456	CE00D20614	D	NC	528,862		National Estuary Program
66	66.458	CS37000116	D	CWSR	24,112,999	23,148,480	Capitalization Grants for Clean Water State Revolving Funds
66	66.460	C999465713-16	D	NC	3,638,060		Nonpoint Source Implementation Grants
66	66.461	CD00D5115-316	D	RD	44,617		Regional Wetland Program Development Grants
66	66.462	CD00D40215	D	NC	63,265		National Wetland Program Development Grants and Five-Star Restoration Training Grant
66	66.468	FS98433816	D	DWSR	24,019,376	17,757,726	Capitalization Grants for Drinking Water State Revolving Funds
66	66.472	CU00D16413	D	NC	252,235		Beach Monitoring and Notification Program Implementation Grants
66	66.708	NP00D38815	D	RD	83,501		Pollution Prevention Grants Program
66	66.801	D00406917	D	NC	2,028,159		Hazardous Waste Management State Program Support

66	66.802	V00D37215,315	D	NC	1,268,011	Superfund State, Political Subdivision, and Indian Tribe Site-Specific Cooperative Agreements
66	66.804	L95414316	D	NC	855,933	Underground Storage Tank Prevention, Detection and Compliance Program
66	66.805	LS00D45016	D	NC	2,009,857	Leaking Underground Storage Tank Trust Fund Corrective Action Program
66	66.809	V00D37115	D	RD	152,422	Superfund State and Indian Tribe Core Program Cooperative Agreements
					71,498,461	40,906,206
					Total	Total

Note: Federal Agency 66 is USEPA.



P O L I C Y

Section: Administration

Subject: Environmental Equity Initiative

Approved By: DENR Secretary

Eff. Date: Oct 19, 2000

Revised:

Page 1 of 2

Environmental Equity Policy

The Environmental Equity Initiative supports the NC DENR's mission of protecting our state's precious human and natural resources. We do this by ensuring clean air, clean water, and proper and safe disposal of pollutants in a manner consistent with sustainable development. Our key focus is to address issues as they arise, establish lines of communication with industries and affected communities, and bridge the gap of misunderstanding that often becomes a significant barrier in problem resolution. By fostering meaningful participation and greater understanding, we reduce risk, share responsibility and enjoy mutual benefits. By building consensus with our two primary customers (community and industry) and assuring that we protect our silent customer (nature), we allow all parties to become true stakeholders in the environmental regulatory process.

Low income and minority communities often believe that they are burdened with a disproportionate share of our state's environmental risks. This belief in some instances, may be well founded. However, these beliefs can also create a hostile environment in which good-faith efforts to resolve disputes, address concerns, and seek consensus solutions are nearly certain to fail. The NC DENR's Environmental Equity Initiative attempts to create opportunities for successful and productive communication between the agency, local community, and neighboring industries. Providing all citizens the opportunity for meaningful input into decision-making processes is critical to effective government.

DENR Goals for Environmental Equity:

- To ensure that agency programs substantially affecting human health or the environment operate without discrimination,

- To provide information for citizens and neighborhood groups to allow meaningful participation in regulatory processes,
- To respond in a meaningful manner to allegations of environmental injustice,
- To provide a link for communication and information between the community, industries and the government,
- To increase awareness of environmental conditions in minority and low-income communities.

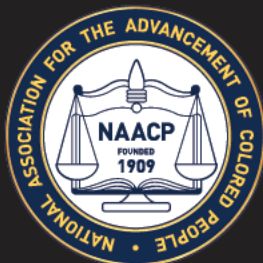
To Meet The Goals, DENR Will:

- Inform potentially affected and protected communities about the Environmental Equity Initiative which seeks first to fully understand environmental issues as raised by the community, staff, industry, or other interested parties, and then attempts to address them in an environmentally sensitive manner that is consistent with sustainable economic development.
- Address environmental equity issues in permitting decisions for projects potentially having a disparate impact on communities protected by Title VI of the Civil Rights Act of 1964,
- Promote greater use and analysis of demographic information to identify communities that may be disproportionately impacted by sources of pollution,
- Use demographic information to determine whether there is: 1) a need for greater outreach to community in order to encourage more meaningful participation, or 2) special health risks based on the nature of the population,
- Develop guidelines for assessing the cumulative effects of permitted facilities.
- Provide opportunities for interested parties to raise concerns on Environmental Equity in DENR's decisions,
- Develop a process for intervention or mediation specific for each instance with a focus on mutually acceptable solutions,
- Resolve environmental equity complaints, consistent with the protection afforded by Title VI of the Civil Rights Act of 1964,
- Develop a full record of environmental equity issues.

NOVEMBER 2017

Fumes Across the Fence-Line

The Health Impacts of Air Pollution from Oil & Gas Facilities
on African American Communities



CLEANAIR
TASK FORCE

Fumes Across the Fence-Line:

The Health Impacts of Air Pollution
from Oil & Gas Facilities on African
American Communities



November 2017

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fumes-across-the-fence-line](http://www.naacp.org/climate-justice-resources/fumes-across-the-fence-line)

[http://catf.us/resources/publications/
files/FumesAcrossTheFenceLine.pdf](http://catf.us/resources/publications/files/FumesAcrossTheFenceLine.pdf)

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Executive Summary

The oil and gas industry dumps 9 million tons of methane and toxic pollutants like benzene into our air each year. Methane is a greenhouse gas 87 times more potent than carbon dioxide at driving climate change and the oil and gas industry is now the largest source of methane pollution in the U.S. But methane is just one harmful air pollutant from the oil and gas industry. This paper sheds light on the health impacts of air pollutants from oil and gas facilities that specifically threaten the health of African American communities living near oil and gas facilities and in areas far from oil and gas production.

The life-threatening burdens placed on communities of color near oil and gas facilities are the result of systemic oppression perpetuated by the traditional energy industry, which exposes communities to health, economic, and social hazards. Communities impacted by oil and gas facility operations remain affected due to energy companies' heavy polluting, low wages for dangerous work, and government lobbying against local interests. The nature of the vulnerability of African American and other person of color fence-line communities is intersectional—subject to connected systems of discrimination based on social categorizations such as race, gender, class, etc.

Health impacts from the natural gas supply chain (natural gas facilities as well as oil production facilities with associated gas) were quantified in two reports published by Clean Air Task Force (CATF). As demonstrated in the CATF's *Fossil Fumes* report, many of these toxic pollutants are linked to increased risk of cancer and respiratory disorders in dozens of counties that exceed U.S. EPA's level of concern. These pollutants from the natural gas supply chain also contribute to the



The life-threatening burdens placed on communities of color near oil and gas facilities are the result of systemic oppression perpetuated by the traditional energy industry, which exposes communities to health, economic, and social hazards.

ozone smog pollution that blankets the U.S. in the warmer months. The 2016 *Gasping for Breath* report, published by CATF, found that ozone smog from natural gas industry pollution is associated with 750,000 summertime asthma attacks in children and 500,000 missed school days. Among adults, this pollution results in 2,000 asthma related emergency room visits and 600 hospital admissions and 1.5 million reduced activity days. (Chapter 2)

This paper also shows the health impacts from petroleum refinery pollution. While we do



Air pollution is emitted from dozens of types of equipment and processes throughout the oil and gas sector. Many proven, low-cost technologies and practices are available to reduce these emissions, while also reducing emissions of methane, the main constituent of natural gas.

not quantify health impacts from oil refineries, as we did for impacts from natural gas facilities, we include case studies and stories from community members that have been impacted by pollution from these facilities. In this chapter, we focus solely on petroleum refineries, not the entire petroleum supply chain. (Chapter 3)

Many African American communities face serious health risks caused by air pollution. Higher poverty levels increase these health threats from air pollution translating into a bigger health burden on African American communities. And, companies often site high polluting facilities in or near communities of color, furthering the unequal distribution of health impacts. This paper for the first time quantifies the elevated health risk that millions of African Americans face due to pollution from oil and gas facilities. Specifically, the paper finds that:

- More than 1 million African Americans live within a half mile of existing natural gas facilities and the number is growing every year.
- As a result, many African American communities face an elevated risk of cancer due to air toxics emissions from natural gas development: Over 1 million African Americans live in counties that face a cancer risk above EPA's level of concern from toxics emitted by natural gas facilities.
- The air in many African American communities violates air quality standards for ozone smog. Rates of asthma are relatively high in African American communities. And, as a result of ozone increases due to natural gas emissions during the summer ozone season, African American children are burdened by 138,000 asthma attacks and 101,000 lost school days each year.
- More than 6.7 million African Americans live in the 91 counties with oil refineries.

The impacts described in this paper are just one layer of the many public health issues that these communities face. For example, this analysis only accounts for the risks associated with air pollution from oil and gas facilities—water and soil contamination may also harm communities living near oil and gas facilities. We also only included health impacts directly linked to oil and gas facilities—oil and gas development may also bring increased truck traffic, oil trains, and changes in land use, which can have significant public health impacts. In addition, many African American communities are located near other major sources of pollution, like power plants, chemical plants, hazardous waste facilities, and others. These communities already face high levels of pollution from various sources, and the added health threats from oil and gas development exacerbate their problems.

Air pollution is emitted from dozens of types of equipment and processes throughout the oil and gas sector, such as wells, completion equipment, storage tanks, compressors, and valves. Many proven, low-cost technologies and practices are available to reduce these emissions, while also reducing emissions of methane, the main constituent of natural gas. Thus, policies that

reduce pollution from the oil and gas industry can help protect the health of local communities while addressing global climate change. In the Waste Not report, Clean Air Task Force (CATF), the Natural Resources Defense Council (NRDC), and the Sierra Club called for EPA regulations to cut methane emissions from the oil and gas industry by half. These methane standards would also significantly cut toxic and ozone-causing air pollution, which could have important benefits for air quality and public health in and downwind of oil and gas producing areas. In addition, stringent standards specifically for toxic and ozone causing pollutants emitted throughout the oil and gas supply chain are needed to ensure compliance with the Clean Air Act and protect public health.

Defending the safeguards finalized during the Obama administration and pushing for additional protections against pollution from the oil and gas industry will help improve the health of many African American communities while addressing global climate change. In June 2016, the EPA finalized strong methane standards covering new and modified oil and gas facilities. Although cutting methane from new oil and gas facilities is a step in the right direction, more important is cutting pollution from the nearly 1.3 million existing oil and gas facilities. These standards will reduce the risk from the air toxics and ozone smog-forming pollutants from this industry, but without a comprehensive standard, the vast majority, at least 75 percent, of all of the wells and oil and gas infrastructure in use today, will remain virtually unregulated and can continue to pollute without limit. Existing facilities spewed over 8 million metric tons of methane in 2015—equivalent in near-term warming potential to the greenhouse gas emissions from 200+ coal-fired power plants. To reduce the risk from air toxics and smog-forming pollution from this industry, EPA must require pollution reductions from all oil and gas facilities, and not roll back the protections that are already in place.

Environmental and energy justice issues are multilayered. Thus, the approach to tackling these issues must also be multilayered. People of color

and low-income communities are disproportionately affected by exposure to air pollution, and standards that protect communities from this pollution are critical. In addition, these communities have a lot to gain from the transition from the current fossil fuel energy economy to one based on equitable, affordable, and clean energy sources. African American and other fence-line communities, such as people who are low-income, can organize to fight the intentional polluting of their neighborhoods. The first step is to address the many ways fossil fuels taint our communities, including the air pollution from oil and gas development.



Equipment at a gas well.

Defending the safeguards finalized during the Obama administration and pushing for additional protections against pollution from the oil and gas industry will help improve the health of many African American communities while addressing global climate change.

CHAPTER 1

Environmental Pollution and the Health Impact in African American Communities

The racial disparities among communities impacted by environmental pollution in the United States are stark. African Americans are exposed to 38 percent more polluted air than Caucasian Americans, and they are 75 percent more likely to live in fence-line communities than the average American.¹ Fence-line communities are communities

that are next to a company, industrial, or service facility and are directly affected in some way by the facility's operation (e.g. noise, odor, traffic, and chemical emissions). Most fence-line communities in the United States are low-income individuals and communities of color who experience systemic oppression such as environmental racism.

It is not a coincidence that so many African Americans live near oil gas development. Historically, polluting facilities have often been sited in or near African American communities.

Many African Americans are exposed to high levels of pollution.

The air in many African American communities violates air quality standards intended to protect human health.

Over 1 million, or two percent of African Americans, live in areas where toxic air pollution from natural gas facilities is so high that the cancer risk due to this industry alone exceeds EPA's level of concern.² And, over 1 million African American individuals live within a half mile of an oil and gas facility—those within this half mile radius have

cause for concern about potential health impacts from oil and gas toxic air pollution.³ These figures only account for air pollution from wells and natural gas compressors and processors—the numbers would be much higher if pollution from oil refineries was factored.

It is not a coincidence that so many African Americans live near oil gas development. Historically, polluting facilities have often been sited in or near African American communities. Companies take advantage of communities that have low levels of political power.⁴ In these communities, companies may face lower transaction costs associated with getting needed permits, and they have more of an ability to influence local government in their favor.⁵

African Americans and other environmental justice communities face heavy burdens because of the millions of pounds of hazardous emissions released by the oil and gas industry each year. Many African American communities face serious health risks as a result of toxic pollution from industrial facilities that are often located blocks from their homes. These life-threatening burdens are the result of systemic oppression perpetuated by the traditional energy industry, which exposes communities to health, economic, and social hazards. Communities impacted by oil and gas facility operations remain affected due to energy companies' heavy polluting, low wages for dangerous work, and government lobbying against local interests.⁶ African American and other person of color living in fence-line communities experience connected systems of discrimination based on

social categorizations such as race, gender, class, disability, etc. These communities are impacted by the negative health impacts of oil and gas facility operations because of discrimination.

The impacts described in this paper are just one layer of the many public health issues that

African American and other communities of color face as a result of oil and gas operations. For example, this analysis only accounts for the risks associated with air pollution from oil and gas facilities—the exposure risks from water and soil contamination may also harm communities living near

CASE STUDY

Siting of natural gas infrastructure in environmental justice communities

The Atlantic Coast Pipeline (ACP), North Carolina, Virginia, and West Virginia

Set for completion in 2019, Duke Energy and Dominion Resources have begun steps to build a 600-mile transmission pipeline from West Virginia through eastern North Carolina. The Atlantic Coast Pipeline (ACP), being built to bring natural gas from hydraulic fracturing sites in West Virginia and Pennsylvania to power plants in North Carolina.¹⁰ This expansion of coastal infrastructure along the densely populated East Coast, will increase the likelihood of facilities being sited in heavily populated areas. Typically, areas with a high concentration of low-income and people of color, as well as other fence-line communities.

The North Carolinian coastline from the Outer Banks north to the Virginia line, is heavily populated by low-income, African American residents. The proposed route of the ACP directly impacts a number of African-American, and other vulnerable communities, in the state. In seven of the eight counties along the proposed route the African American population ranges from 24.3 to 58.4 percent, compared to the 21.3 percent at the state level. These counties also reflect income vulnerability, as seven of the eight counties have median household incomes below the statewide median of \$46,693. Seven of the eight counties along the proposed route have poverty levels higher than the state average (17.2 percent), ranging from 17.6 to 33.1 percent.¹¹ The expansion of the ACP and other natural gas infrastructure along the North Carolinian coast would have unavoidable adverse impacts on already vulnerable communities.

The pipeline is not the only piece of infrastructure to be established as a part of the project. As part of the plan for the Atlantic Coast Pipeline, Dominion intends to build a compressor station in Northampton County, North Carolina, a county that share's a border with Virginia. Northampton's African American population is 54.6 percent, and the median household income in \$31,453, nearly \$15,000 below the state average. Almost 32 percent of Northampton residents live in poverty, compared to 17.2 percent statewide.¹²

The overall cancer rate in Northampton County exceeds that for the state of North Carolina at 516.6 per 100,000 (the state average is 488.9 per 100,000 people). Lung and bronchial cancers, two forms of cancer caused by common air pollutant, are specifically elevated: 80.5 per 100,000 people compared to 70.1 per 100,000.¹³ Given the current state of vulnerable populations in the area of impact of the proposed pipeline, particularly in in North Hampton, a compressor station, pipeline, and other natural gas infrastructure, could exacerbate health problems from increased air pollution.

For more on the communities affected by the ACP project visit the [Southern Environmental Law Center, Path of the Pipeline](#).¹⁴

oil and gas facilities.⁷ We also only included health impacts directly associated with oil and gas facilities—oil and gas development may also entail increased truck traffic, oil trains, and changes in land use, which can have significant public health impacts.⁸ In addition, many African American communities are located near other major sources of pollution, like power plants, chemical plants, hazardous waste facilities, and others.⁹ These communities already face high levels of pollution from various sources, and the added health threats from oil and gas development exacerbate their problems.

This paper sheds light on the health impacts many African American communities face from oil and natural gas production, processing, and transmission facilities. It also underscores both the need to implement commonsense standards that reduce pollution from these facilities, and the need to transform the current energy economy

into one that is based on clean energy sources and the principles of energy democracy (local energy choice) and energy sovereignty (local control of energy systems). This new energy economy will need to address the overlapping systems of oppression that allow whole communities to be poisoned.

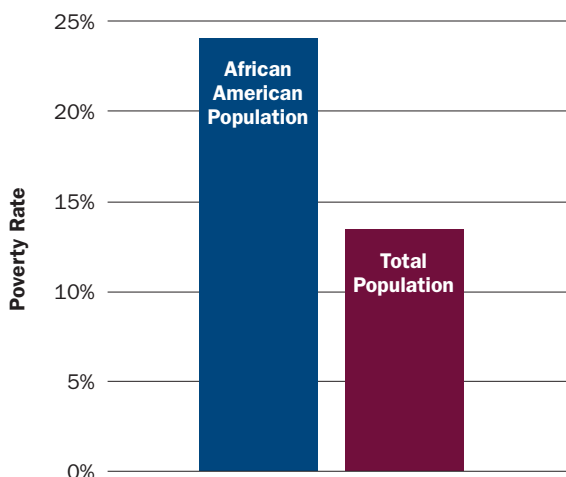
Asthma threatens the health of children in African American communities.

Approximately 13.4 percent of African American children have asthma (over 1.3 million children), compared to 7.3 percent for white children.¹⁵ The death rate for African American children with asthma is one per 1 million, while for white children it is one per 10 million.¹⁶

Many African Americans are particularly burdened with the health impacts from air pollution, due to high levels of poverty and relatively lower rates of health insurance.

Individuals living below the poverty level are particularly burdened by the effects of air pollution. In 2015, 24 percent of the African American population (including 32 percent of African American children) were living in poverty, compared to 14 percent for the overall US population (and 20 percent of US children).¹⁷ High poverty rates restrict housing options for African American families. African Americans are also somewhat less likely to have health insurance than the population as a whole. In 2015, 11.5 percent was the uninsured rate for African Americans under the age of 65, versus 10.8 percent for the population as a whole and 7.5 percent for the white population.¹⁸ The combination of higher poverty rates and lower prevalence of health insurance exacerbates the impact air pollution has on low-income African American families.

FIGURE 1
Poverty Rate



Source: U.S. Census Bureau, National Center for Health Statistics

“Common sense would suggest that a pipeline carrying a highly flammable substance and a massive polluting industrial facility should not be placed in any residential community, much less an environmental justice community.”

— Congressman Sanford D. Bishop, Jr. John Lewis, Hank Johnson Jr., and David Scott in a 2015 response to the Saber Trail Pipeline Project in Alabama, Southern Georgia, and Central Florida.¹⁹

COMMUNITY STORY

“My parents grew up on the Permian Basin where we have some of the largest frack fields and very old oil wells, as well. Thinking about the impacts of these chemicals and toxins that persist in the area, I realized that I never been out of this stuff. Even in the womb of my mother and her own sort of chemistry and biology that she grew up with having spent her whole life there.... The city of Houston did a study and identified 12 carcinogens and that research is available and some of the highest concentrations are in areas that I grew up in and spent majority of my childhood in. Some of the things that I experienced were frequent headaches, irritability, and nose bleeds, gastrointestinal problems, a lot of things that I said I can show and we have seen are the same symptoms are as a result from being exposed to some of these carcinogens.”

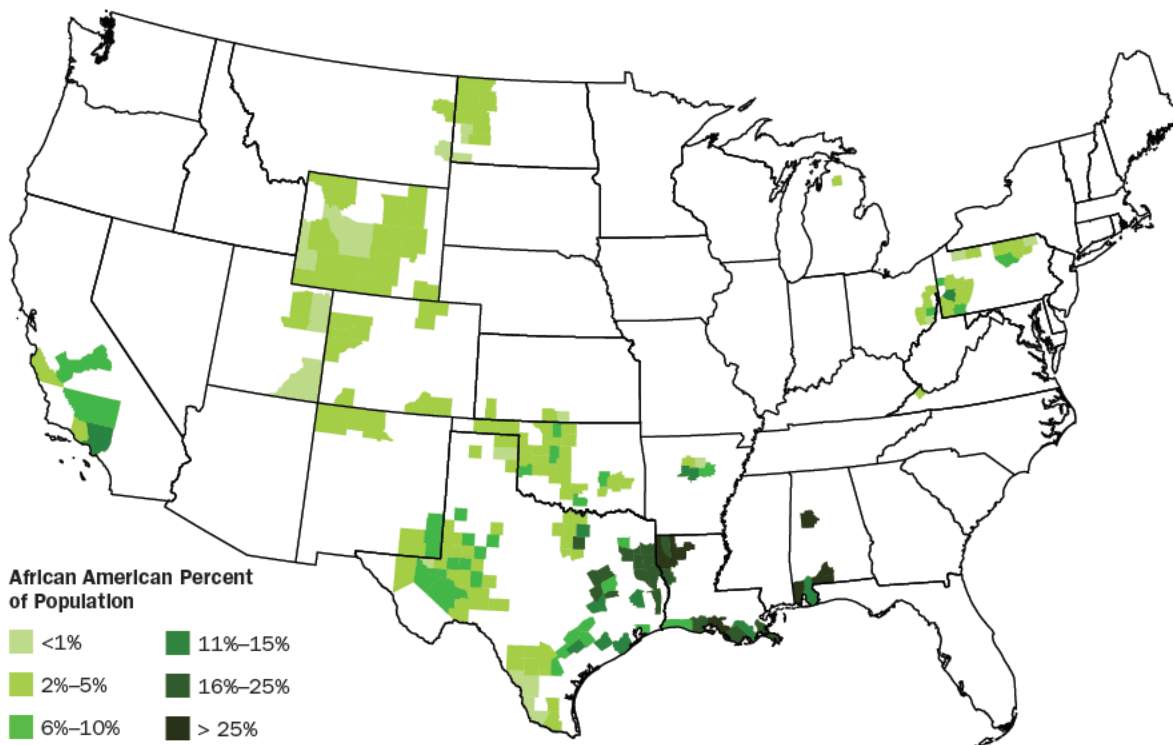
— Bryan Parras, Houston, TX

A large number of African Americans live in states with large numbers of polluting oil and gas facilities.

Many of the states with the highest amount of oil and gas development also have large African American populations. In three of the top ten oil and gas production states of 2015—Louisiana,

Texas, and Pennsylvania—African Americans made up more than 10 percent of the population. And, in two of the other top oil and gas states—North Dakota and Wyoming—the African American population has grown significantly since 2000, a time when oil and gas production in these states has also grown.²⁰

FIGURE 2
African American Percent of Population In 200 Counties with Highest Oil and Gas Production (2015)



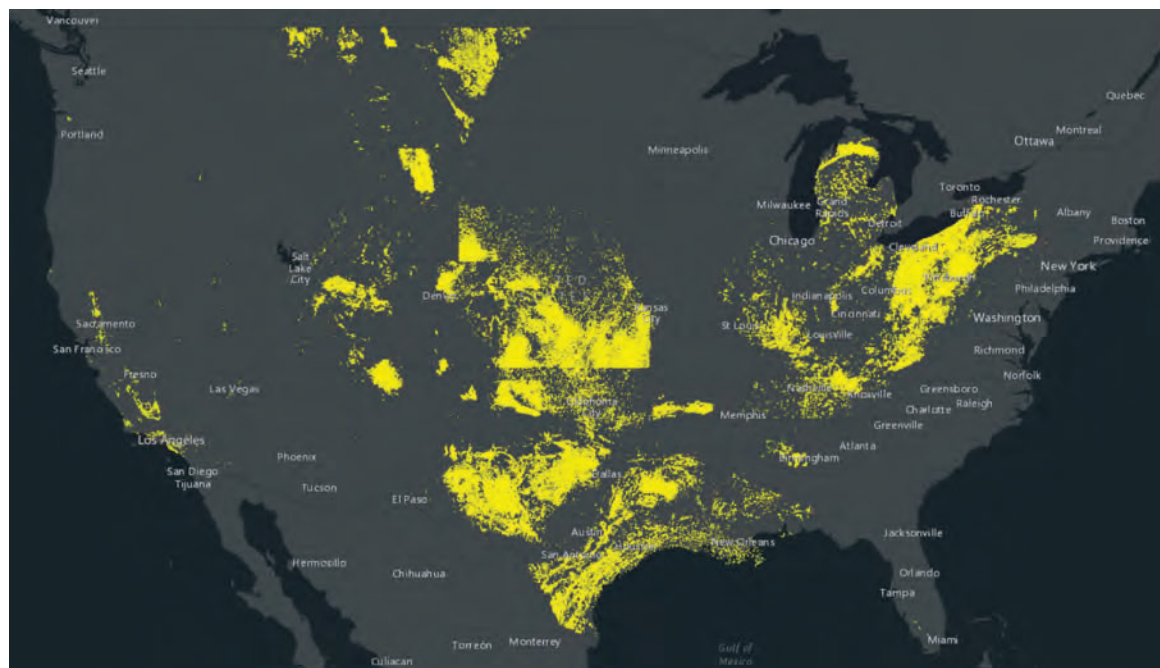
Source: U.S. Census Bureau, DI Desktop

Earthworks released the “Oil and Gas Threat Map,” an interactive map of the nearly 1.3 million active oil and gas wells, compressors and processors in the U.S.²¹ The map shows how many African Americans live within a half mile of oil and gas facilities, and it indicates that those within this radius have cause for concern about potential health impacts from oil and gas pollution. It is

not a declaration that those near oil and gas facilities will definitely have negative health impacts, and it also does not mean that people living further than a half mile are safe from health impacts. As we document later in this paper, there is ample evidence that the pollution from oil and gas operations impacts individuals and communities both close to and far from these facilities.

FIGURE 3

Threat Radius—The Area within a Half Mile of Active Oil and Gas Wells, Compressors, and Processing Plants



The oil and gas well data was downloaded directly from state government agencies, and it includes all active conventional and unconventional wells in 2016 and 2017. Gas compressor and processing plant data were primarily taken from a variety of state and federal databases. State and federal agencies do not monitor compressors and processing plants as closely as they do wells, so this data is not comprehensive in all states.

Source: <http://oilandgasthreatmap.com/threat-map>

COMMUNITY STORY

“Fortunately, no one was seriously injured as a result of the explosion, but nearby residents were concerned about what they might be exposed to as a result of the explosion [BP Amoco and Enterprise Products, LLC gas processing plant in Jackson County, MS]...Unlike oil and chemical plants, gas processing plants are not required to report the list and quantity of hazard pollutants they release to the Environmental Protection Agency’s Toxic Release Inventory (TRI) Program.”

— Steps Coalition, Biloxi, MS

More than 1 million African Americans nationally (2.4 percent of the total African American population) live within a half mile radius of oil and gas facilities (see Table 1).

- Ohio, Texas, and California have the most African Americans living within a half mile radius of oil and gas facilities.
- And, in Oklahoma, Ohio, and West Virginia, approximately one in five African Americans in the states live within the half mile radius of oil and gas facilities.

TABLE 1

Top 10 States by African American Population Living within a Half Mile Radius of Oil and Gas Facilities (2010 Census)

State	African American Population within a Half Mile Radius	Percent of African American Population in State within a Half Mile Radius
Texas	337,011	10%
Ohio	291,733	19%
California	103,713	4%
Louisiana	79,810	5%
Pennsylvania	79,352	5%
Oklahoma	73,303	22%
West Virginia	13,453	17%
Arkansas	10,477	2%
Mississippi	10,448	1%
Illinois	10,227	1%
TOTAL	1,052,680	2%

Source: <http://oilandgasthreatmap.com>



Equipment at a gas well.

© CATF

BOX 1**Air Pollutants & Associated Health Concerns from Oil and Gas**

Methane, the primary component of natural gas, is over 80 times more potent than carbon pollution's projected disruption to our climate over the coming decades. Methane also contributes to ozone smog formation.

Toxic and Hazardous Air Pollutants include a wide range of chemicals that are known or probable carcinogens and/or cause other serious health impacts. Among other chemicals of concern, oil and natural gas facilities are responsible for the following air pollutants, either emitted as a component of raw natural gas or a by-product of natural gas combustion that occurs at these sites. Exposure studies based on air measurements have identified levels of benzene, hydrogen sulfide, and formaldehyde near oil and gas sites that exceed health-based thresholds.

- **Benzene** has been linked to cancer, anemia, brain damage, and birth defects, and it is associated with respiratory tract irritation.²² Over time, benzene exposure can also lead to reproductive, developmental, blood, and neurological disorders. A 2012 study estimated a 1.0 in a million cancer risk—well over EPA's level of concern—for residents near a well pad, attributable primarily to benzene levels measured in the air near the well site.²³ The EPA's National Emissions Inventory (NEI) estimates that over 20,000 tons of benzene was emitted by oil and gas sources in 2011.²⁴ Benzene is a constituent of raw natural gas, so leaks and vents are the primary source of benzene pollution from the oil and gas industry.
- **Ethylbenzene** has been associated with respiratory and eye irritation, as well as blood and neurological disorders.²⁵ The NEI estimates that over 2,000 tons of ethylbenzene was emitted by oil and gas sources in 2011.²⁶ Like benzene, ethylbenzene is a constituent of raw natural gas and leaks and vents of gas are the primary sources of ethylbenzene.
- **Hydrogen sulfide** gas is primarily found near wells producing "sour gas." At high concentrations, it can cause severe respiratory irritation and death. At lower levels, it can lead to eye, nose, and throat irritation; asthma attacks; headaches, dizziness, nausea, and difficulty breathing.²⁷
- **Formaldehyde** has been linked to certain types of cancer, and chronic exposure is known to cause respiratory symptoms.²⁸ The NEI estimates that nearly 22,000 tons of formaldehyde was emitted by oil and gas sources in 2011.²⁹ Formaldehyde is primarily emitted from combustion sources such as flares and compressor engines.

Volatile Organic Compounds (VOCs) are precursors to ground level ozone smog. Ozone smog can impair lung function, trigger asthma attacks, and aggravate conditions of people with bronchitis and emphysema.³⁰ Children, the elderly, and people with existing respiratory conditions are the most at risk from ozone pollution.

BOX 2

Air Pollution Sources in the Oil and Gas Industry

The oil and gas industry includes a large number of industrial sites across the country. These include hundreds of thousands of wellpads where oil and gas are produced, thousands of compressor stations which move natural gas from wells to markets, and hundreds of processing plants which prepare gas for high-pressure pipelines that take it to markets.

Raw natural gas (i.e., gas as it is produced from underground formations, before significant processing is done) usually contains significant amounts of ozone-forming volatile organic compounds (VOCs) and often contains significant amounts of toxic hazardous air pollutants (HAPs), though gas varies in composition from source to source. The HAPs in raw gas include hexane, benzene, and other aromatic chemicals; poisonous gases like hydrogen sulfide can also be present. As such, natural gas wellpads and the natural gas gathering pipeline and compression systems that move gas from wells emit substantial amounts of VOCs and HAPs, as do the processing plants that separate natural gas liquids (VOC species that are valuable components of raw natural gas) from the natural gas that is sent through pipelines to customers. Some of those pollutants remain in the gas even after processing. Emissions from facilities further downstream in the natural gas supply chain, like transmission compressor stations and local distribution equipment, still include some of these pollutants.

Crude oil production operations also emit substantial amounts of VOCs and HAPs. Methane, as the main constituent of natural gas, is emitted from all types of oil and natural gas facilities, from wellpads to the natural gas distribution systems in urban areas.

- **Oil and Gas Production:** The oil and gas production segment includes many diverse activities, such as production of hydrocarbons from underground geologic formations; separation of natural gas, oil, and water; and collection of gas from multiple wells through natural gas gathering pipeline and compressor systems. These activities in turn involve processes such as well drilling, hydraulic fracturing or other well stimulation, and well workovers; and they require equipment such as tanks, piping, valves, meters, separators, dehydrators, pipelines, and gathering compressors.
- **Natural Gas Processing:** Gas processing plants separate raw natural gas into natural gas liquids and processed natural gas that meets specifications for transport in high-pressure pipelines and consumption in furnaces and power plants. Natural gas liquids are hydrocarbons such as propane, butane, etc., which are valuable products of gas processing. The processing removes most of the toxic components from the gas, but some toxins remain.
- **Natural Gas Transmission and Storage:** Natural gas transmission pipelines carry gas from production regions to markets. This segment also includes facilities where gas is stored, either underground or in tanks. Compressor stations along pipelines maintain pressure and provide the energy to move the gas.
- **Natural Gas Distribution:** Finally, natural gas is delivered to customers (residential, commercial, and light industrial) via low-pressure underground distribution pipelines.
- **Oil Refineries:** Refineries are large industrial plants that process crude oil into various petroleum products, such as gasoline, diesel fuel, jet fuel, and others. Emissions of toxic and hazardous pollution from these facilities are very high, while methane emissions are relatively small.

CHAPTER 2

Health Impacts from Natural Gas Facilities

Natural gas facilities emit toxic air pollution and pollution that forms ozone smog. In two previous reports, “Fossil Fumes” and “Gasping for Breath,” CATF presented the public health impact of toxic air

pollution and ozone smog, respectively, from the natural gas industry. Here, we break out and discuss the public health impacts of these pollutants specifically for African American communities.

The health impacts described in this chapter are the result of air pollution that is directly due to natural gas facilities and equipment (for impacts of

petroleum refineries, see Chapter 3).³¹ As noted above, we are not fully accounting for the public health impact of natural gas development: water pollution and soil contamination can also have a significant public health impact, as can ancillary activities such as increased truck traffic. As such, the impacts presented in this chapter should be understood as minimum amount of impact; the true public health impact of natural gas development is certainly much higher.

In this chapter, we discuss the following public health impacts of natural gas facilities:

- Excessive concentrations of ozone (smog)
- Increased risk of cancer due to toxic air emissions.

“Just because the oil company brings jobs and other benefits, doesn’t mean it can do it at the expense of my health and well-being.”

— Charles Zacharie, Baldwin Village resident, Los Angeles, CA³²

The air in many African American communities violates air quality standards for ozone.

High ozone levels are caused by emissions from a variety of industries, but it is possible to separate out the increase in ozone that can be directly attributed to emissions from natural gas facilities and its associated health impact.³³ CATF’s “Gasping for Breath” describes an ozone modeling analysis that compares ozone levels in a 2025 “Baseline” case and a 2025 “Zero Natural Gas Emissions” case. The difference in ozone levels between these two cases is the ozone that can be directly attributable to natural gas.³⁴

The increased level of ozone can be associated with an increase in a variety of health impacts. The EPA uses peer-reviewed literature to estimate how these changes in ozone will affect public health.³⁵ Using the same studies and methodology as the EPA used in its recent Ozone National Ambient Air Quality Standards (NAAQS) rulemaking process, CATF’s ozone modeling estimates the impact on public health that can be directly attributable to ozone caused by emissions from the natural gas sector. Nationally, CATF estimates that over 750,000 asthma attacks for children and over 500,000 lost school days during the summer ozone season are due to ozone increases resulting from natural gas emissions.³⁶ After adjusting these total incidence rates based on the county level African American population, the African American population is burdened by approximately 138,000 asthma attacks and 101,000 lost school days attributable to natural gas air pollution each year. The burden of these health impacts falls more heavily on populations that already

FIGURE 4

Number of Asthma Attacks Experienced by African American Children Caused by Ozone Attributable to Oil and Gas by Metropolitan Area

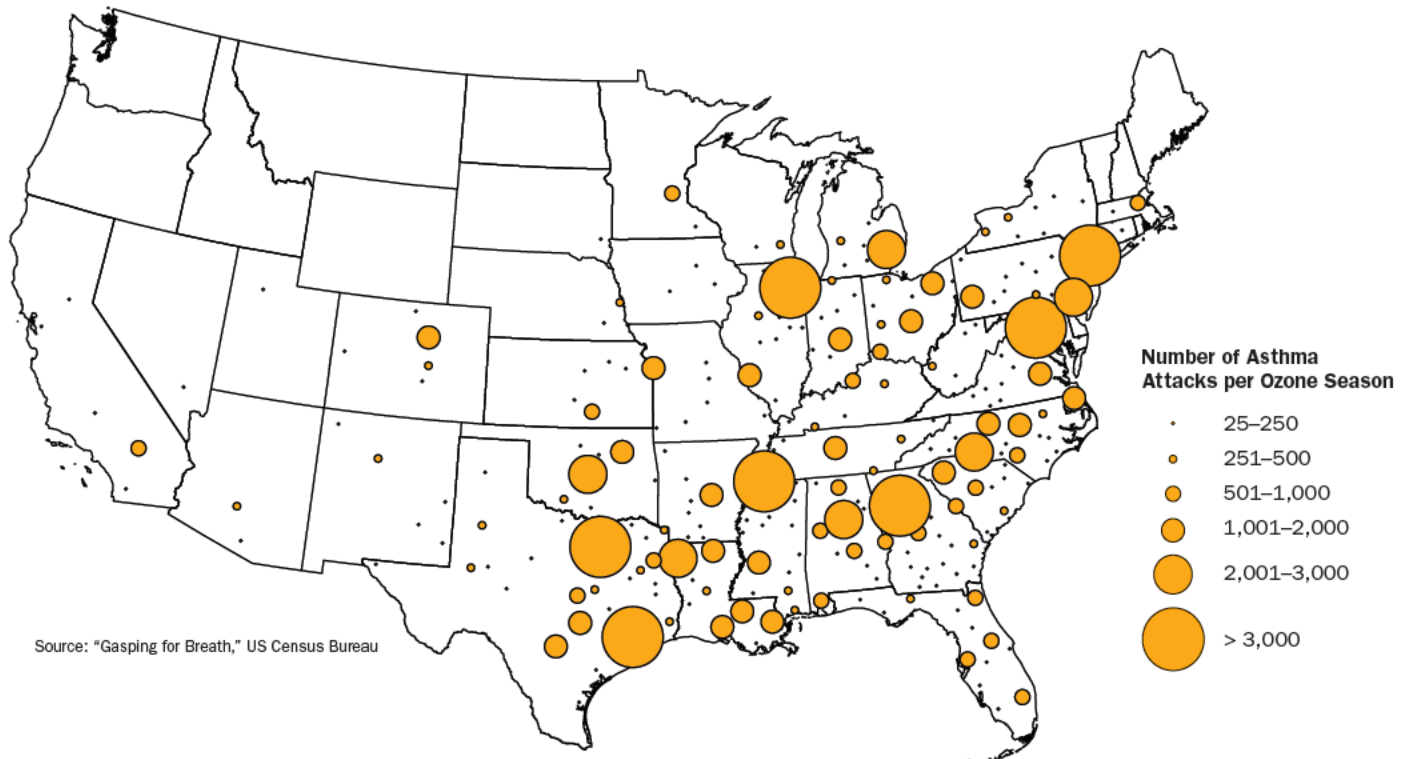


TABLE 2

Top 10 Metropolitan Areas by African American Health Impacts Attributable to Ozone caused by Natural Gas Pollution

Metropolitan Area	Asthma Attacks (per year)	Lost School Days (per year)
Dallas-Fort Worth (TX, OK)	8,059	5,896
Atlanta (GA)	7,499	5,469
Washington-Baltimore (DC, MD, VA, WV, PA)	7,216	5,269
New York-Newark (NY, NJ, CT, PA)	5,235	3,821
Houston (TX)	4,256	3,111
Chicago (IL, IN, WI)	3,777	2,760
Memphis (TN, MS, AR)	3,674	2,692
Philadelphia (PA, NJ, DE, MD)	2,887	2,104
Shreveport-Bossier City (LA)	2,536	1,871
Detroit (MI)	2,402	1,751
National African American Total	137,688	100,564

Source: "Gasping for Breath," US Census Bureau

have high levels of asthma or who are already systemically oppressed. Figure 4 on page 15 shows the number of asthma attacks due to natural gas air pollution among African American children in metropolitan areas across the country each year.³⁷

Two of the ten metropolitan areas with the most asthma attacks attributable to natural gas ozone pollution are located in Texas: the areas in

and around Dallas and Houston. The Shreveport, Louisiana metropolitan area is located near natural gas production. In addition, the air pollution from natural gas facilities has a large impact on some metropolitan areas that are located far from natural gas producing regions, like in Atlanta, Washington DC, New York, Chicago, Memphis, Philadelphia, and Detroit.

CASE STUDY

Downwind Air Pollution in the Mid-Atlantic Baltimore, MD

While health risks are greatest near the original sources of pollution, airborne pollution from oil and gas facilities can have health impacts far downwind. The air pollution from natural gas facilities in Pennsylvania and West Virginia has had significant impacts on air quality in Maryland, particularly in the Baltimore—District of Columbia (D.C.) corridor where there is a high concentration of African Americans and other people of color.

A 2015 study from the University of Maryland evaluated the longer-term and long-range effects of hydraulic fracturing on regional air pollution. The study analyzed hourly measurements of air pollutants, including ethane—gases found in natural gas mixtures—in Baltimore and Washington, D.C. between 2010 and 2013. It found that ethane measurements increased by 25 percent between 2010 and 2013 in the region. Ethane is the second-most abundant compound in natural gas, which when inhaled can cause nausea, headaches, and dizziness. While there has been an overall decline in non-methane organic carbons and improvement in air quality since 1996, the atmospheric concentration of ethane in the region managed to rise between 2010 and 2013.³⁸

Maryland officially banned the practice of hydraulic fracturing in 2017, although even before the ban, hydraulic fracturing was a rare practice. After comparing the rise in ethane to natural gas extraction in neighboring states, the researchers found a correlation. After tracking the wind direction, distribution, and speed in the Marcellus shale play region, researchers determined that Baltimore and other areas in Maryland and Washington DC were on the tail end of natural gas emissions originating from sites in Pennsylvania, West Virginia, and Ohio.

In 2015, people in Baltimore experienced 89 days of elevated smog, and on 20 days it was at unhealthy levels, increasing the risk of premature death, asthma attacks, and other adverse health impacts.³⁹ Baltimore is a predominately African American city, with African Americans accounting for 63 percent of the city's population. The city's fence-line neighborhoods have a history steeped in toxic fumes, industry dumping, and hazardous air pollutants. The impacts of methane and other gases from out of state have further worsened of air quality in these communities and the entire region. With poor air quality already, residents of Baltimore should not also be exposed to pollution from oil and gas development in other states.

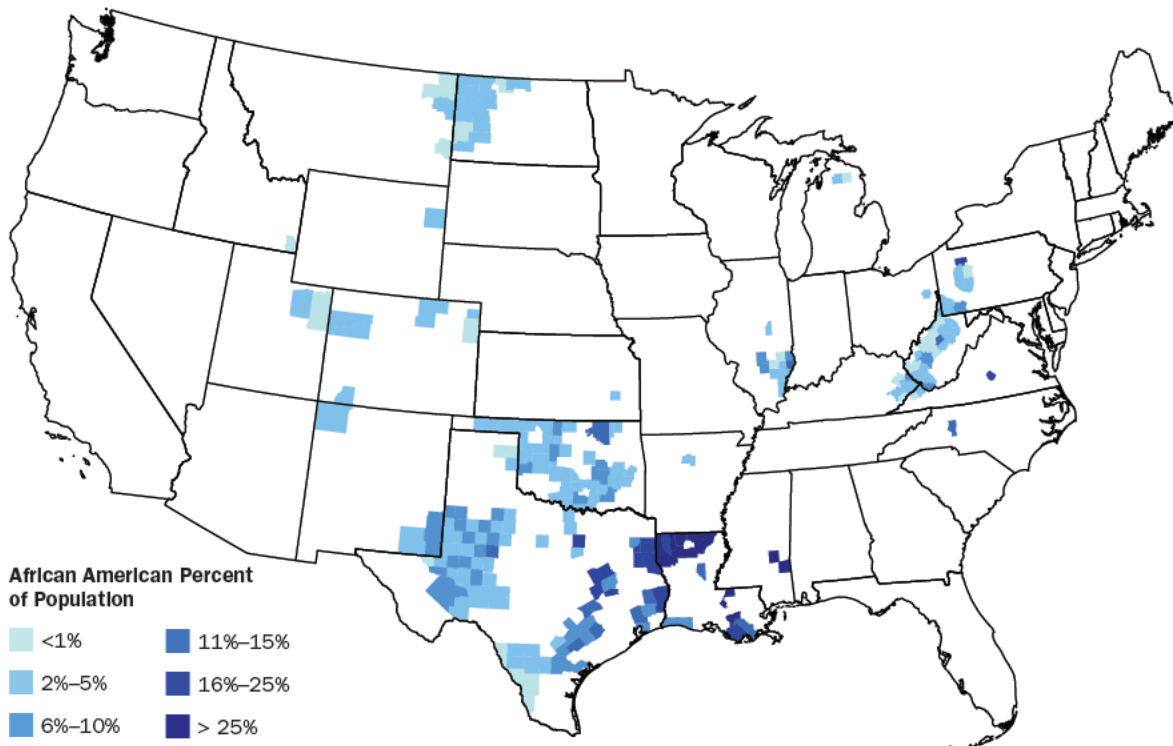
COMMUNITY STORY

“Over 200 cities in Texas have local ordinances regulating oil and gas activity where people are living with these consequences. Cities all over Texas have ordinances regulating things like reasonable distances for drilling away from neighborhoods. They have rules to protect fresh water to decide where pipelines can be constructed. They even regulate where trucks can drive and the hours in which facilities can operate and these are all locally regulated... Ordinances like Dallas’s and any of the other ordinances across Texas could be overturned as soon as the company sues the city and future ordinances have to move industry standards.... This is a human rights violation because people pass these laws to protect their health and safety from explosions and to prevent water and air pollution and the state agencies and the federal government will not. It was a power grab and it weakens our most democratic institution.”

— Melanie Scruggs, TX

FIGURE 5

African American Percent of Population in Counties above EPA's Level of Concern for Cancer Risk from Oil and Gas Emissions



Source: “Fossil Fumes,” U.S. Census Bureau

Many African American communities face an elevated risk of cancer due to toxic air emissions from natural gas development.

In the EPA’s National Air Toxics Assessment (NATA), the EPA identifies and prioritizes air toxics, emission source types, and locations that are of greatest potential concern when looking at health

risk from air emissions in populations. NATA estimates cancer risk that can result from toxic air emissions. The metric for cancer risk is the number of cancer cases per million people exposed; areas with cancer risk above one-in-a-million are considered to be above EPA’s level of concern. In CATF’s *Fossil Fumes* report, 238 counties in

21 states faced a cancer risk above EPA's one-in-a-million level of concern due to toxic emissions from natural gas operations.⁴⁰ In 2015, over 9 million people lived in these counties, of whom 1.1 million were African American.

Of the African Americans living in counties above EPA's level of concern for cancer risk, most live in Texas, Louisiana, and Oklahoma.

The inventory that our analysis relied on, the National Emissions Inventory, may underestimate the total emissions of toxics from natural gas.⁴¹ Many peer-reviewed studies based on independent measurements conducted in both natural gas producing basins and urban areas consuming natural gas have concluded that official emissions

inventories such as the National Emissions Inventory (NEI) underestimate actual emissions from natural gas.

While the cancer risk estimates are based on the EPA's most recent NEI projections, there is still a degree of uncertainty regarding emissions levels reported to the NEI. For example, in 2015, an expert review analysis in California identified the need to update emissions estimates, particularly in relation to understanding health threats for communities in the Los Angeles Basin. Thus, while no counties in California are above EPA's level of concern in the current analysis, this may be a result of underestimated emissions reported to EPA, not an actual indication of low risk levels.

TABLE 3

Top 10 States with African American Population Living in Counties Above EPA's Level of Concern for Cancer Risk (2015 Population Data)

State	Number of Counties Above EPA's Level of Concern for Cancer Risk	Total Population in High Risk Counties	Total African American Population in High Risk Counties	Percent of Population in High Risk Counties that is African American
Texas	82	4,189,179	528,357	13%
Louisiana	19	1,027,556	354,952	35%
Oklahoma	40	796,695	37,130	5%
West Virginia	28	804,850	30,589	4%
Pennsylvania	8	624,764	25,071	4%
North Carolina	1	169,866	22,682	13%
Mississippi	2	37,135	17,039	46%
Colorado	6	419,023	7,458	2%
Illinois	13	205,829	7,417	4%
New Mexico	3	247,495	7,093	3%
Total	238	9,086,228	1,050,372	12%

Source: "Fossil Fumes," US Census Bureau

COMMUNITY STORY

"Oil and gas development poses more elevated health risks when conducted in areas of high population density, such as the Los Angeles Basin, because it results in larger population exposures to toxic air contaminants."

— The California Council on Science & Technology

CASE STUDY

A History of Urban Drilling

Inglewood Oilfield, Inglewood, CA

Los Angeles has a long history of urban oil drilling. Across Los Angeles, drilling pumps can be found in and near public parks, as well as throughout commercial and residential areas. The 1000-acre Inglewood Oil Field, operated by Freeport-McMoRan Oil and Gas, is one of the largest urban oil fields in the United States. The field contains 959 wells that extract over three million barrels of oil a year. The environmental hazards of this urban drilling have caused countless environmental and public health issues, lawsuits, and community actions.

Inglewood oil field, located in the north-western area of the Los Angeles Basin, has more than one million residents within five miles of the oil field. 50,000 households sit immediately next to the field.⁴² Many of these fence-line communities are predominately communities of color. The neighborhoods surrounding the oilfield include Baldwin Hills, Inglewood, and Culver City neighborhoods, which together are 50 percent African American. Residents and local organizations surrounding the Inglewood Oil Fields have expressed concerns about the environmental, health, and seismic effects of drilling in their community. Given the proximity of the oil field to residential areas, emissions from the site result in continuous human exposure.

People have detailed smelling diesel or industrial smells, as well as soapy smelling odor suppressants. A number of advocacy groups in Los Angeles, including the coalition Stand Together Against Neighborhood Drilling (STAND L.A.), have called for a 2,500 foot setback requirement for oil facilities to protect the health and safety of nearby residents. This distance is on the lower end of the range researchers have recommended as necessary to protect human health and quality of life from the impacts of toxic emissions and exposures.⁴³ Although community groups and members have come forward about the toxic nature of the fumes and other air pollutants coming from the Inglewood oilfield, local decision makers have not addressed these concerns, claiming that the public health impacts of this air pollution are still unknown.⁴⁴



Oil wells in a residential neighborhood in Los Angeles.

© CATF



Oil wells in a residential neighborhood in Los Angeles.

© CATF

CASE STUDY**Uneven Responses to Community Oil and Gas Air Pollution****Los Angeles, CA**

Not only are the rates of health impacts from oil and gas facilities drastically different between communities, so is local and state responses to air pollution from these facilities. Low-income and communities of color seldom receive the same amount of attention as higher income, white communities when faced with major pollution related events. From October 2015 to February 2016, the affluent, suburban Los Angeles neighborhood of Porter Ranch experienced the worst reported methane leak in the United States. The \$400,000 plus homes inside gated communities are located a mile away from the Aliso Canyon natural gas storage facility, which leaked a total of 96,000 metric tons of methane as well as other air pollutants over the course of five months.⁴⁵ This pollution caused many to experience symptoms including vomiting, rashes, headaches, dizziness, and bloody noses.⁴⁶

With the declaration of a state of emergency from Governor Jerry Brown, came an overwhelming response. Over 4,000 households in Porter Ranch were evacuated. Alongside community and state insistence for the shut-down of the facility, the city ordered the gas company to provide temporary housing for residents. As the largest methane leak in U.S. history, the Porter Ranch disaster, unique in its size and suddenness, deserved a substantial response. However, Los Angeles residents who live right next to some of the 5,000 active drilling sites in the city—disproportionately low-income communities of color—have dealt with similar issues for years and deserve a similar response to their plight.⁴⁷

Oil operations look a lot different in low-income communities of color, where drilling sites are often adjacent to residential areas. Jefferson Park, a South L.A. neighborhood impacted by drilling, is 90 percent African American or Latinx. This is in stark contrast to Porter Ranch, where the majority of the population is white and median household income is more than triple that of Jefferson Park and other neighborhoods.⁴⁸

The AllenCo drilling site in Jefferson Park—now closed but pending reopening—was 30 feet away from the nearest home. Residents filed hundreds of complaints about odors, nausea, body spasms, and respiratory illnesses, before the site was finally closed in 2013.⁴⁹ Despite the efforts of community members, the site was only closed after EPA officials became sick while investigating the site. Communities across Los Angeles have faced the same burdens from urban oil and gas drilling faced by the residents of Porter Ranch. The major difference is the amount of time and the nature of the response. Other communities have faced these health impacts for decades, with no evacuations or government response.

CHAPTER 3

Health Impacts from Oil Refineries

In this chapter, we include case studies and stories of community members that have been impacted by pollution from oil refineries. We do not quantify health impacts from oil refineries, as we did for impacts from natural gas facilities, but the case studies demonstrate the range of impacts that are felt by fence-line communities around the country. In addition, in this chapter, we focus solely on petroleum refineries, not the entire petroleum supply chain.

Refineries release toxic air pollution in communities in 32 states. This toxic mix of carcinogens, neurotoxins, and hazardous metals—such as benzene, hydrogen cyanide, and lead—can cause cancer, birth defects, and chronic conditions like asthma. While about 90 million Americans live within 30 miles of at least one refinery, 6.1 million Americans live within three miles of one refinery or more.⁵⁰ There are even cases, similar to natural gas and other oil facilities, where houses are a mere few feet away from refinery property lines.

There are 142 large refineries in the United States, the majority of which are sited in low-income areas and communities of color. In 2010, oil refineries reported approximately 22,000 tons of hazardous air pollution to the U.S. Environmental Protection Agency (EPA).⁵¹ However, this number fails to take into account unreported emissions from refinery sources, like flares, tanks, and cooling towers, as well as accidents, which can release 10 or even 100 times more pollution than what is reported.⁵² Proximity to oil refineries and other oil and gas facilities also poses serious risk during natural disasters. Air pollution from refineries during and after extreme weather events severely impacts fence-line communities. As during Hurricane

Harvey in August 2017, refineries in the Houston, TX metro area released thousands of pounds of toxic air pollutants, resulting in further evacuations and curfews for local residents. The full impact of these chemical released during natural disasters and other events are often immeasurable.

While about 90 million Americans live within 30 miles of at least one refinery, 6.1 million Americans live within three miles of one refinery or more.

Oil refineries are one of numerous plights for African American and other fence-line communities, who are subject to the environmental burdens of the fossil fuel industry. People of color, including African Americans and Hispanic Americans, have a higher cancer risk from toxic air emissions from refineries than the average person. Risk factors are increased when also looking at adults living in poverty.

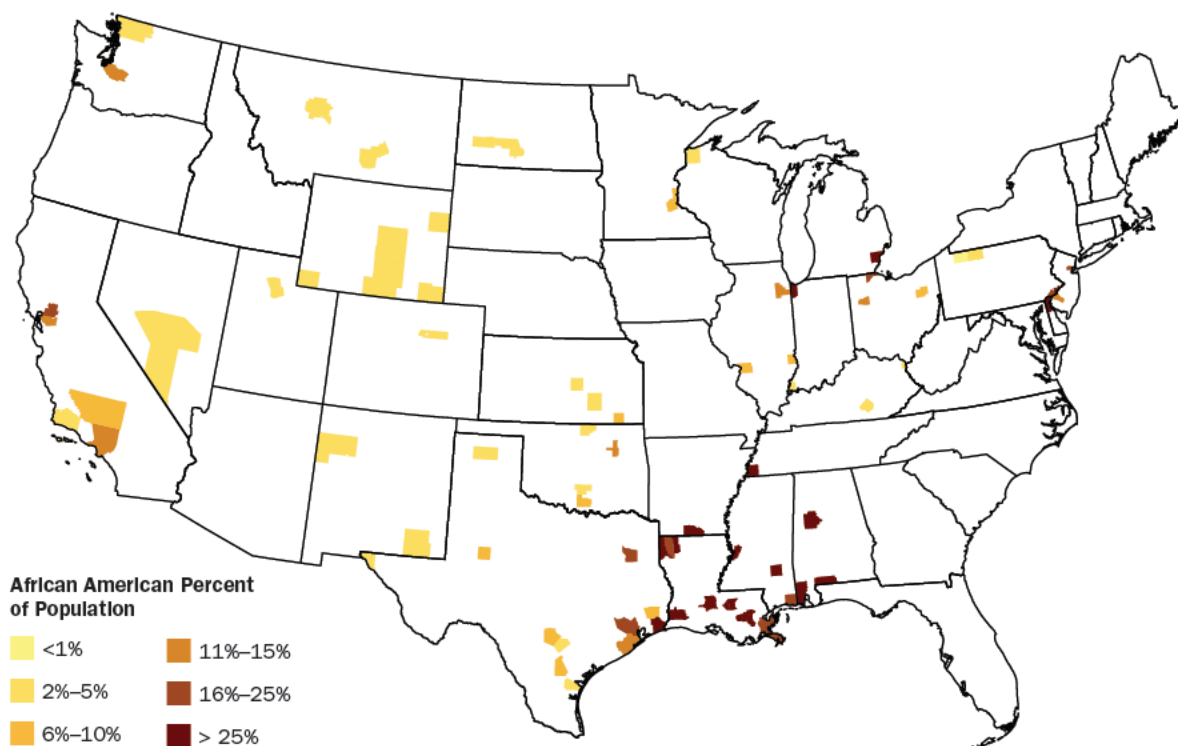
- Most counties with oil refineries and higher percentages of African American residents are concentrated in the Gulf Coast Basin (Texas, Louisiana, Alabama, and Mississippi).
- Texas, California, and Pennsylvania have the most African American residents living in counties with oil refineries.
- Michigan, Louisiana, and Tennessee have the highest percent of African American residents living in oil refinery counties.

Figure 6 (p. 22) shows the percent of African Americans in U.S. counties with oil refineries.

This chapter highlights the health impacts of oil refinery air pollution on predominately African American fence-line communities—communities that sit adjacent to polluting facilities and sources. We do not quantify health impacts using atmospheric models, as we did for air pollution from

natural gas facilities, as we did in Chapter 2. However, through case studies in Port Arthur, Texas; Baton Rouge, Louisiana; East Bay, California; and South Philadelphia, Pennsylvania we explore the various impacts oil refinery operation and related events impact African American and fence-line communities.

FIGURE 6
African American Percent of Population in Counties with Oil Refineries



Source: U.S. Census, Energy Information Administration Form 820

TABLE 4
Top 10 States by African American Population Living Counties with Oil Refineries

State	Total Population in Refinery Counties	African American Population in Refinery Counties	Percent African American in Refinery Counties
Texas	8,973,679	1,397,018	16%
California	13,060,074	1,302,860	10%
Pennsylvania	2,214,144	848,064	38%
Michigan	1,759,335	712,290	40%
Louisiana	1,358,443	540,435	40%
Tennessee	938,069	509,942	54%
Alabama	657,160	228,846	35%
New Jersey	847,265	173,852	21%
Delaware	556,779	148,994	27%
Ohio	913,279	146,192	16%
Total	39,793,311	6,709,206	17%

Source: U.S. Census, Energy Information Administration Form 820

CASE STUDY

East Bay Refinery Corridor

East Bay, CA

The burden placed on communities of color in the north coast of the East Bay region, which is home to a variety of petrochemical industry sites, cannot be ignored. The five petroleum refineries in this region emit a unique cocktail of toxic and carcinogenic compounds that impact cardiovascular health of surrounding communities. This region, nicknamed the “refinery corridor,” has a petroleum refining capacity of roughly 800,000 barrels per day of crude oil.⁵³ While there have been many strides to clean up these major sources of air pollution, health impacts in the region, including cancer rates, are still disproportionately high. The City of Richmond’s residents of color disproportionately live near the refineries and chemical plants.

CASE STUDY

Burdens of a Fence-Line Community: Valero Oil and Gas Refinery

West Port Arthur, TX

On the border of Texas and Louisiana lies the city of Port Arthur, Texas, which houses two notorious oil refineries: a 3,600-acre Motiva Enterprises plant, to the northeast, and a 4,000-acre plant owned by Texas-based Valero to the west. The two facilities refine more than 900,000 barrels of crude per day. Like many Gulf Coast cities and towns, Port Arthur is not only exposed to the hazards of neighboring oil and gas infrastructure, it is also downwind of nearly every coastal refinery in Texas, as well as other industrial facilities.⁵⁴

The western Valero refinery—one of the largest in the world—borders West Port Arthur, a predominately African American community (95 percent African American in 2013) with several complexes of low-income public housing that exist directly on the refineries’ fence. For decades, West Port Arthur’s enormous refineries have released and leaked benzene, carbon monoxide, sulfur dioxide, and other pollutants. The U.S. Environmental Protection Agency’s Toxics Release Inventory ranks Jefferson County, Texas among the worst nationally for chemical emissions known to cause cancer, birth defects, and reproductive disorders. Port Arthur is near the top of the list of offending cities.⁵⁵ According to the Texas Cancer Registry, cancer rates among African Americans in Jefferson County are 15 percent higher than for the average Texan. The mortality



The Carver Terrace housing project sits next to an oil refinery in West Port Arthur, Texas.

© AP Photo/LM Otero



**Valero Refinery
In West Port Arthur,
Texas**

© Eugene Richards, OnEarth

rate from cancer is more than 40 percent higher.⁵⁶ In addition to higher cancer rates, residents of Port Arthur were found to be four times more likely than people approximately 100 miles upwind to report suffering from heart and respiratory conditions; nervous system and skin disorders; headaches and muscle aches; and ear, nose, and throat ailments.⁵⁷

Community activists in Port Arthur have been fighting against the refineries polluting their communities' air for more than a decade. Organizations, such as the Community in-Power Development Association (CIDA, Inc.), work with community members in Port Arthur to collect and analyze air, water, and soil samples, conduct direct action events, lobby local and state legislatures, and hold large industries accountable for the pollution they create. CIDA has won many victories alongside other local groups in Port Arthur. In 2007, CIDA Inc. was able to negotiate an agreement for the Valero oil refinery to assist with health care cost for residents West Port Arthur residents and for the construction of a health clinic in the community.⁵⁸

The organization, with other major environmental groups, helped establish the national Start-up Shut-down and Malfunction (SSM) Law for refineries. SSM removes exemptions for large industrial pollution sources from meeting protective standards during facility start up, shutdown, or malfunction and bars the use of the "affirmative defense" by industrial facilities—the defense allowed facilities to avoid paying penalties if violations occurred because of malfunctions.⁵⁹

— CONTINUED —

COMMUNITY STORY

"Our communities have had to work hard to force the EPA to do something about the hazardous pollution from these refineries that we live with every day and we will keep fighting to protect our families' and our children's health. We refuse to just stand by while the petroleum industry tries to undo important progress to finally reduce the toxic air coming from oil refineries."

— **Hilton Kelley, executive director of Community In-Power & Development Association, Port Arthur, TX**

Challenges to SSM were denied by the Supreme Court in the summer of 2017.⁶⁰ The role of community organizations, like CIDA Inc., as well as community members themselves was critical and preserving this law.

In addition to air pollution from refinery operations, those from accidents and natural disasters must also be acknowledged. Air pollution from refineries during and after extreme weather events severely impacts fence-line communities. During Hurricane Harvey, in September 2017, many oil refineries along the Gulf Coast of Texas and Louisiana shutdown due to severe flooding. Refinery shutdowns, even under normal circumstances, are a major cause of abnormal emission events. Sudden shutdown events can release large plumes of sulfur dioxide or toxic chemicals in a matter of hours, worsening already life-threatening situations, exposing downwind communities to peak levels of pollution that increase the prevalence of negative health conditions.⁶¹ The Port Arthur community was not spared these extra pollutants in the wake of this storm.

The ills brought onto the West Port Arthur community violate basic human rights to a clean and livable environment. Air pollution from oil and gas facilities, permitted or otherwise, is a continued violation of this basic right.

A video by Hilton Kelley, a local Port Arthur environmental and community activist, and Executive Director of CIDA Inc., shows Valero refinery towers spewing huge flags of orange fire and thick, black smoke into over West Port Arthur.

CASE STUDY

Toxic Emission in South Philadelphia Pennsylvania, PA

Impacts are also severely felt by communities in South Philadelphia that share a neighborhood with the Philadelphia Energy Solutions (PES), the largest fossil fuel refinery on the East Coast and one of the oldest in the world. The refinery is responsible for 72 percent of the toxic air emissions in Philadelphia, which contributes largely to a citywide childhood asthma rate that is more than two times the national average.⁶² Toxics released from the refinery include ammonia, hydrogen cyanide, benzene, and sulfuric acid, which cause effects ranging from headaches to cancer.⁶³



Philadelphia Energy Solutions (PES) fossil fuel refinery in South Philadelphia.

© Grid Magazine

CASE STUDY

Accidents at Oil and Gas Facilities: ExxonMobil Refinery

Baton Rouge, LA

In 2010, there was significant increase in air pollution released due to accidents at oil and gas refineries in Louisiana. That year, facilities released 950,750 pounds of toxic pollution to the air. Between 2005 and 2014, Louisiana's refineries experienced 3,339 accidents that released 24 million pounds of air pollution. According to the Louisiana Bucket Brigade, from January to April 2017 there have been 647 petrochemical accidents. 117 of these accidents were reported from oil and gas facilities in April 2017 alone.⁶⁴ These accidents are common for the majority of oil and gas facilities nationwide. Leaks, holes, ruptures in pipelines and other infrastructure are common and often unreported. Over 200,000 people live within two miles of most of Louisiana's refineries. The potential public health impacts of oil and gas accidents is considerable.

In an effort to document the impact of petrochemical accidents on local communities, a number of community and labor groups in Louisiana—including the Louisiana Bucket Brigade, United Steelworkers, Standard Heights Community Association, and Residents for Air Neutralization—have produced a series of reports entitled, *Common Ground*, since 2009. The fourth publication, released in 2012, found that Louisiana's 17 oil and gas refineries reported 301 accidents that leaked over a million pounds of toxic chemicals into the air. Among these air pollutants were large quantities of benzene, a chemical known to cause cancer, and sulfur dioxide, which triggers asthma attacks. These types of accidents are an ongoing burden for Louisiana's vulnerable populations.

ExxonMobil, one of the many petrochemical companies present in Louisiana, reported the most accidents of any refiner in the state, in 2011. The company reported 138 accidents between two of its facilities in Chalmette and Baton Rouge. The 1,800-acre ExxonMobil Standard Heights plant in Baton Rouge, like many refineries, sits adjacent to a number of low-income and communities of color. The city of Baton Rouge is 50 percent African American and the child

— CONTINUED —

A mostly abandoned square of the Standard Heights neighborhood tucks into a corner of the Exxon Mobile plant in North Baton Rouge.



poverty rate in the Standard Heights neighborhood next to Exxon Mobil refinery is 45 percent. The Baton Rouge refinery is the second largest in the country and is part of a 67 million square foot (6.25 million m²) industrial complex. Tens of thousands of people live within two miles of the complex, which produces gasoline for much of the East Coast.⁶⁵

The state permits Exxon to release millions of pounds of air pollution each year from its Baton Rouge complex. However, air pollution exceeds allowed levels due to accidents and leaks. From 2008 to 2011 the Exxon Mobil Baton Rouge complex released four million pounds of unpermitted volatile organic compounds (VOCs).⁶⁶ VOCs contribute to increases in ozone concentration and smog. East Baton Rouge and adjacent parishes have teetered between normal and hazardous levels of ozone.

In 2016, the EPA finally indicated that the air quality in Baton Rouge was compliant with EPA standards. Despite this declaration, concerned community members still report accidents or otherwise unhealthy conditions. One citizen complaint received by the Louisiana Bucket Brigade in April 2017, detailed air contaminants from Exxon's Baton Rouge Refinery. One individual who lives close to the Exxon Refinery in north Baton Rouge, made 11 calls reporting:⁶⁷

- “foul gassy odor”
- “a strong odor of sulfur”
- “a smell that makes me sick of the stomach nauseous”
- “a flame that is burning real high and there’s a foul odor in the air”
- “a really strong odor that is like burning your nose.”

The constant release of air pollutants from oil and gas facilities, whether legal or illegal, intentional or accidental, contributes to the health problems plaguing African American and vulnerable communities. The efforts of local organizations in Louisiana to document accidents and make that information transparent to citizens has greatly benefited community action. Information gathered by community groups has been critical in the many actions against the construction of the Bayou Bridge Pipeline that will cut through more low income and communities of color in 11 South Louisianan parishes. To learn more about this pipeline and the impacts potential accidents may have visit the Louisiana Bucket Brigade website [here](#).

COMMUNITY STORY

“It’s often not worth risking a dangerous encounter in a small southern town to stop and record pollution. What we’re recording is another form of violence—this kind the long, steady attack of carcinogens and neurotoxins that ruin the health and the lives of those in Louisiana, usually African Americans, who are unfortunate enough to live cheek to cheek with Big Oil’s refineries.”

— Anna Rolfes, Founding Director, Louisiana Bucket Brigade

CHAPTER 4

Call to Action

Air pollution that affects many African American communities is emitted throughout the oil and gas sector. In the current regulatory environment, the disproportionate burden of pollution will only increase for low-income communities and communities of color. That means more “code red” air quality days, more trips to the emergency

Oil and gas infrastructure including drilling sites, pipelines, and refineries are typically located in low-income communities and communities of color. These are also the areas where drilling is likely to expand and new pipelines will likely be built.

room for asthma sufferers, and more instances of cancer and respiratory disease. It is critical to remember that:

- More than 1 million African Americans live within ½ mile of existing oil and gas facilities and the number is growing every year.
- Many African Americans are particularly burdened with health impacts from this air pollution due to high levels of poverty.
- The air in many African Americans communities violates air quality standards for ozone smog. Rates of asthma are relatively high in African American communities. And, due to ozone increases resulting from natural gas emissions, African American children are burdened by 138,000 asthma attacks and 101,000 lost school days each year.

- Many African American communities face an elevated risk of cancer due to air toxics emissions from natural gas development. Over one million Americans live in counties that face a cancer risk above EPA's level of concern from toxics emitted by oil and gas facilities.
- 6.7 million African Americans live in counties with petroleum refineries.

Oil and gas infrastructure including drilling sites, pipelines, and refineries are typically located in low-income communities and communities of color. These are also the areas where drilling is likely to expand and new pipelines will likely be built. The energy industry has and continues to commit the same oppressive behaviors that have ravaged communities of color for centuries. In order to create an energy economy that upholds communities' rights to a healthy environment, communities must demand changes in the oil and gas industry, and regulators and companies must be held accountable for the continued suffering of fence-line communities.

We must reform the energy and industrial sectors into cleaner, sustainable, and vibrant economies, that work for the communities they serve.

This means more than shifting to clean energy sources; it requires also giving local communities control over their energy sources and promoting local economic growth through stable employment opportunities. Intersectional issues demand intersectional solutions that uphold social, economic, and ecological justice. The just energy future will serve to reduce both the poverty and the pollution plaguing communities throughout the United States.

In order to combat the often overlooked, life-threatening actions of oil and gas operations, we must both implement commonsense standards that reduce pollution from these facilities, and transform the current energy economy.

It will take the combined effort of community members, decision-makers, industry, and others to create meaningful change, which is grounded in principles of energy democracy (local energy choice), energy sovereignty (local control over energy systems), and the right to live free from pollution. Before the transition to a clean energy economy can be achieved, it is first necessary to eliminate the injustices that are taking human life now. In the short term, more needs to be done to address the air pollution resulting from the oil and gas sector that harms the health of our families and our communities:

1. We must all learn about the oil and gas facilities that are located in our communities, and advocate for their decommissioning or removal.

Companies disproportionately build polluting facilities in or near communities of color, leading to unequal health impacts. In order to change this, we need to make more communities aware that their safety, health, and longevity are at stake. Go to www.oilandgasthreatmap.com to learn more about the oil and gas facilities that are located in your community. Be sure to learn about the impacts these facilities have in your community. The NAACP's Environmental and Climate Justice Program's publication, *Just Energy Policies and Practices Action Toolkit*, can be used to help guide community groups through energy justice campaigns. The toolkit provides resources and guidance for communities to organize around energy justice issues and execute community projects that move power back to communities and improve local quality of life. It is crucial to remember that any community can change, that every community can be healthy, and that every community has power.

It is now more important than ever for communities to become informed about and remove nearby polluting facilities. If the current administration has its way, the EPA's Office of Environmental



Completion equipment at a gas well.

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Justice will be dismantled. The purpose of this office has been to ensure that all communities, regardless of race, national origin, or income, have the same degree of protection from environmental and health hazards. The loss of this office means one fewer safeguard from the unequal impacts of all types of air pollution.

2. We must support technology that cuts air pollution.

Many proven, low-cost technologies and practices are available to reduce methane pollution and toxic chemicals released along with it. In fact, dozens of companies in the methane mitigation industry are providing technologies and services to the oil and gas industry to help reduce methane and other air polluting emissions. These companies employ people at 531 locations in 46 states and are often offering well-paying and secure manufacturing jobs.⁶⁸ The companies that do this work can create jobs that should be targeted to local communities.



3. We must urge national leaders to address the pollution from the oil and gas sector.

Defending the methane pollution safeguards finalized during the Obama administration and pushing for additional protections against pollution from the oil and gas industry will help improve the health of many African American communities while also addressing global climate change. In June 2016, the EPA finalized strong methane standards covering new and modified oil and gas facilities. The rule will cut 510,000 tons of methane pollution from new and modified oil and gas facilities—the equivalent of 11 coal-fired power plants, or taking 8.5 million cars off the road every year. In addition, the rule is also expected to reduce 210,000 tons of volatile organic compounds and 3,900 tons of air toxics annually by 2025. These EPA standards must be enforced, and more also needs to be done to address the nearly 1.3 million existing oil and gas facilities across the country. Without government intervention, the vast majority, at least 75 percent, of all of the wells and oil and gas infrastructure in use today, will remain virtually unregulated and can continue to pollute methane without limit.⁶⁹

Existing facilities spewed over 8 million metric tons of methane in 2014—equivalent to 200+ coal-fired power plants.⁷⁰ Common sense, low-cost standards can both cut methane pollution by at least half and also significantly cut toxic and ozone smog-forming air pollution, which would have important benefits for air quality and public health in and downwind of oil and gas producing areas.

4. We must urge our states to reduce oil and gas air pollution.

Several states have stepped up to work on cleaning up the existing infrastructure within their borders, including California, Colorado, and Wyoming, and we call on additional states to follow their lead and protect the health of communities.

Please visit www.methanefacts.org to learn more and connect with organizations involved in the campaign.

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Environmental and energy justice issues are multilayered. Thus, the approach to tackling these issues must also be multilayered. People of color and low-income communities are disproportionately affected by exposure to air pollution, and standards that protect communities from this pollution are critical. In addition, these communities have a lot to gain from the transition from the current fossil fuel energy economy to one based on equitable, affordable, and clean energy sources. The first step is to address the many ways fossil fuels taint our communities, including the air pollution from oil and gas development.

The fight against the oil and gas air pollution is not about making things better for fence-line communities; it is about eliminating poverty, racism, and other social and structural inequities that render communities vulnerable. The air pollution that plagues communities across the country does not have to and should not exist. It is time to ask ourselves, what are we willing to do to ensure a clean and healthy future?

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Fumes Across the Fence-Line

The Health Impacts of Air Pollution from Oil & Gas Facilities
on African American Communities



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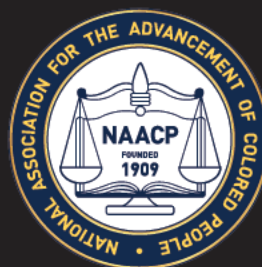


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Environmental Justice Concerns and the Proposed Atlantic Coast Pipeline Route in North Carolina

Sarah Wraight, Julia Hofmann, Justine Allpress,
and Brooks Depro



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Abstract

This report describes publicly available data sets and quantitative analysis that local communities can use to evaluate environmental justice concerns associated with pipeline projects. We applied these data and analytical methods to two counties in North Carolina (Northampton and Robeson counties) that would be affected by the proposed Atlantic Coast Pipeline (ACP). We compared demographic and vulnerability characteristics of census blocks, census block groups, and census tracts that lie within 1 mile of the proposed pipeline route with corresponding census geographies that lie outside of the 1-mile zone. Finally, we present results of a county-level analysis of race and ethnicity data for the entire North Carolina segment of the proposed ACP route. Statistical analyses of race and ethnicity data (US Census Bureau) and Social Vulnerability Index scores (University of South Carolina's Hazards & Vulnerability Research Institute) yielded evidence of significant differences between the areas crossed by the pipeline and reference geographies. No significant differences were found in our analyses of household income and cancer risk data.

Introduction

The Atlantic Coast Pipeline, LLC, (ACP) is a new underground natural gas transmission pipeline project that is proposed to run approximately 600 miles through West Virginia, Virginia, and North Carolina (Atlantic Coast Pipeline to build \$5 billion natural gas system, 2015). In August 2016, the Federal Energy Regulatory Commission (FERC) established an environmental review timeline that included the delivery of draft and final environmental impact statements (EISs) required by the National Environmental Policy Act (NEPA). One of the purposes of EISs is to provide a “full and fair discussion of significant environmental impacts and ... inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment” (40 C.F.R. § 1502.1, 1978). The draft EIS was prepared by FERC and released in late December 2016, marking the start of a 90-day public comment period. The final EIS was published in July 2017.

Since 1997, existing federal guidance (Council on Environmental Quality, 1997; Clinton, 1994) indicates that EIS documents should address environmental justice in minority populations and low-income populations. To help achieve this goal during the NEPA process, the Federal Interagency Working Group on Environmental Justice established the NEPA Committee to “improve the effective, efficient and consistent consideration of environmental justice issues in the NEPA process through the sharing of best practices, lessons learned, research, analysis, training, consultation, and other experiences of federal NEPA practitioners” (US Environmental Protection Agency [EPA], 2016b, p. 6). The NEPA Committee’s recently published *Promising Practices* report provides researchers with examples of methods that are used to consider environmental justice during NEPA processes (EPA, 2016b).

In the spirit of the *Promising Practices* report, we developed this report, which describes quantitative methods local communities may find useful for evaluating environmental justice concerns with respect to pipeline projects. Our basic methodology

compares the characteristics of census blocks, block groups, and tracts that lie within a 1-mile zone of the proposed route with corresponding census geographies that lie outside of the 1-mile zone. We have conducted the analysis for two counties (Northampton and Robeson) that would be affected by the proposed ACP.

Rather than focus on the environmental impacts of the pipeline itself, our study looks at preexisting characteristics of communities that would be in the path of this infrastructure project. We evaluate whether ACP would disproportionately burden certain groups of people more than others, simply by virtue of its alignment. Natural gas pipelines and appurtenant pipeline operations facilities can impose a variety of environmental burdens on the communities that they cross. Potential impacts include: visual impacts; adverse effects on sensitive flora and fauna; damage to water supply sources during construction activities;* intensive water usage during construction; wetland impacts (primarily during construction); forest fragmentation; noise impacts from compressor stations and meter and regulating stations; air quality impacts and related health concerns resulting from compressor station emissions; land use restrictions for properties crossed by the pipeline; and increased risk to life and property from pipeline explosions (FERC, 2016; US Department of Health and Human Services, Agency for Toxic Substances and Disease Registry [ATSDR], 2016a, 2016b; Brown, Lewis, & Weinberger, 2015; Brown, Weinberger, Lewis, & Bonaparte, 2014; Macey et al., 2014; Smith, 2015).† Through various mitigation efforts, these impacts can be reduced, but not entirely eliminated. At a minimum, a community that hosts a pipeline faces heightened risk of accidents during construction and operation.

Although none of the ACP’s potential impacts would directly alter the demographic or environmental characteristics examined in this study, our results provide valuable contextual information for

* Damage can result from trenching in areas with shallow groundwater or from accidentally spilling hazardous materials used by construction equipment, like fuels, solvents, or lubricants (FERC, 2016).

† Pipeline explosion risk can vary over time as infrastructure ages and operators modify pipeline pressure in response to fluctuating market demand.

evaluating whether potential impacts are equitably distributed. Our approach aligns with the NEPA Committee's recommendation to compare the general population's exposure to adverse impacts with the exposure of minority and low-income populations (EPA, 2016b). Impacts that are "predominantly borne by minority populations or low-income populations" may be disproportionately high and adverse (EPA, 2016b, p. 46). In considering preexisting environmental burdens, this study also responds to the NEPA Committee's call for scrutiny of any impact that "occurs in minority populations and low-income populations affected by cumulative or multiple adverse exposures from environmental hazards" (EPA, 2016b, p. 46).

In addition, our study offers the following benefits:

- Uses publicly available census data that can be easily accessed on the Internet
- Employs simple classical statistical methods
- Makes available our computer code for external review and replication
- Uses new environmental and social vulnerability data not considered in the ACP's draft EIS.

The analysis in this report is designed to be shared with all interested parties to establish a common understanding of demographic, environmental quality, and vulnerability data and the analytical methods used to understand environmental justice.

Methods

To start the analysis, we acquired maps of the proposed pipeline route through Northampton and Robeson Counties from Atlantic (the pipeline company) on October 19, 2016, and November 17, 2016, respectively (Dominion, 2017). Using a geographic information system (GIS), we geo-referenced the pipeline route maps and created a GIS shapefile of the pipeline for each county. The proposed location of the compressor station in Northampton County was added to the GIS in the same manner.

Next, to identify populations that live near potential impacts, we mapped a 1-mile "study zone" around the proposed pipeline route. The selected distance is

the same distance FERC (2016) uses for demographic analysis. A review of recent compressor station impact analyses also suggested that a 1-mile distance was appropriate for capturing the area that could be affected by the proposed Northampton County compressor station (ATSDR, 2011, 2016a; Brown et al., 2014; Madison County Department of Health, 2014). The zone was then overlaid with census geographies (blocks, block groups, and tracts) to determine which geographies are located wholly or partially within the 1-mile area. Appendix A provides maps of the 1-mile zone and selected census data sets.

In the last step before the quantitative comparisons, we collected income, race/ethnicity, and vulnerability characteristics at various geographic scales: census blocks, census block groups, census tracts, and counties. Tracts are composed of census block groups, each with a population of between 600 and 3,000 people. Census block groups are, in turn, partitioned into census blocks, which are the smallest geographic boundaries defined by the census. Census blocks are defined using landscape features and property or legal boundaries (US Census Bureau, 2012a, 2012b; Rossiter, 2011).

To determine whether there was a statistically significant difference between income, race/ethnicity, and vulnerability characteristics for geographies within the 1-mile zone relative to geographies outside the zone, we used common classical statistical methods such as comparison of means with *t*-tests. For comparisons of mean household incomes, we had to perform additional steps to account for sampling errors associated with the American Community Survey (ACS) by calculating test statistics using the following equation provided by the US Census Bureau (n.d.):

$$Z = (A - B) / ([SE(A)]^2 + [SE(B)]^2)^{1/2},$$

where

- *Z* is the test statistic,
- *A* is the mean household income of census tracts (or block groups) lying within the zone,
- *B* is the mean household income of census tracts (or block groups) lying outside the zone,

- SE(A) is the standard error of the mean household income of census tracts (or block groups) lying within the zone, and
- SE(B) is the standard error of the mean household income of census tracts (or block groups) lying outside the zone.

Income Data

Appendix B provides ACS 2010–2014 5-year data estimates for aggregate income. The draft EIS reports median income data and the total percentage of the population living below the poverty level (FERC, 2016, Appendix U). For both variables, however, FERC omits the standard errors that the ACS uses to measure the difference of a sample estimate from the average of all possible samples. Because some of these standard errors are large relative to the sample estimate (see Table 1), researchers need to acknowledge the uncertainties associated with sampling and how they influence FERC’s analysis conclusions. In addition, when making group comparisons and performing statistical tests of

differences, researchers must consider standard errors when performing certain calculations for statistical tests.

Race/Ethnicity Data

We downloaded 2010 decennial census block-level race and ethnicity data (Table P5, Hispanic or Latino Origin by Race) from American FactFinder (US Census Bureau, 2017). Because census block-level data are only reported for the decennial census, these were the most recent data we could obtain. We examined three variables at the census block level: black or African American, American Indian and Alaska Native (AI/AN), and Hispanic or Latino. The US Census Bureau considers “Hispanic or Latino” to be an ethnicity and the other two variables to be races. Because the US Census Bureau’s definition of ethnicity overlaps with race identity, some of the individuals who were included in our analysis of “Hispanic or Latino” populations were also included in our race variable analyses. Although analyzing each demographic group separately provides a more detailed picture of the populations that are affected

Table 1. Income and poverty data, as reported in ACS 2010–2014 5-year estimates for census tracts within 1 mile of proposed pipeline route

County	Census tract number	Median income of individuals in past 12 months	Standard error: median income of individuals in past 12 months	Population with poverty status below 50% of poverty level	Standard error: population with poverty status below 50% of poverty level	Population with poverty status of 50%–99% of poverty level	Standard error: population with poverty status of 50%–99% of poverty level
Northampton	9201	\$24,813	\$1,872	374	124	463	134
Northampton	9203	\$17,625	\$1,263	651	151	1145	264
Robeson	9601.01	\$17,859	\$1,915	857	241	888	235
Robeson	9601.02	\$17,449	\$1,516	474	105	658	138
Robeson	9602.01	\$19,557	\$1,310	592	221	730	172
Robeson	9602.02	\$18,844	\$1,121	656	165	805	173
Robeson	9603	\$16,283	\$1,013	1,292	325	1,792	268
Robeson	9604.01	\$17,623	\$1,759	1,821	387	992	210
Robeson	9604.02	\$19,864	\$3,253	540	150	536	144
Robeson	9605.01	\$17,737	\$2,879	541	163	626	181
Robeson	9606	\$17,718	\$1,139	942	205	1,039	192
Robeson	9607.01	\$19,694	\$2,124	1,080	221	1,150	286

Note: All dollar amounts are in 2014 US dollars.

Source: US Census Bureau (2014): Tables B06011 (median income columns) and C17002 (poverty-level columns).

by the proposed pipeline route, the potential for double-counting precludes composite analyses of those data. For race variables, we excluded data from individuals who reported multiple races; we counted only individuals who identified as AI/AN alone or black or African American alone. Tables 2 and 3 present descriptive statistics for race and ethnicity

data for each county as a whole, as well as population tallies inside and outside the 1-mile zones. Figures 1 and 2 illustrate the population distribution of the largest demographic group in each county: black or African American (Northampton County) and AI/AN (Robeson County).

Table 2. Census block race/ethnicity data for Northampton County, by zone

1-mile zone	Black/African American		White		American Indian/Alaska Native (AI/AN)		Hispanic/Latino	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Outside	10,593	54.9	8,216	42.6	82	0.4	287	1.5
Inside	2,303	82.2	452	16.2	19	0.7	18	0.6
Total	12,895		8,668		101		305	

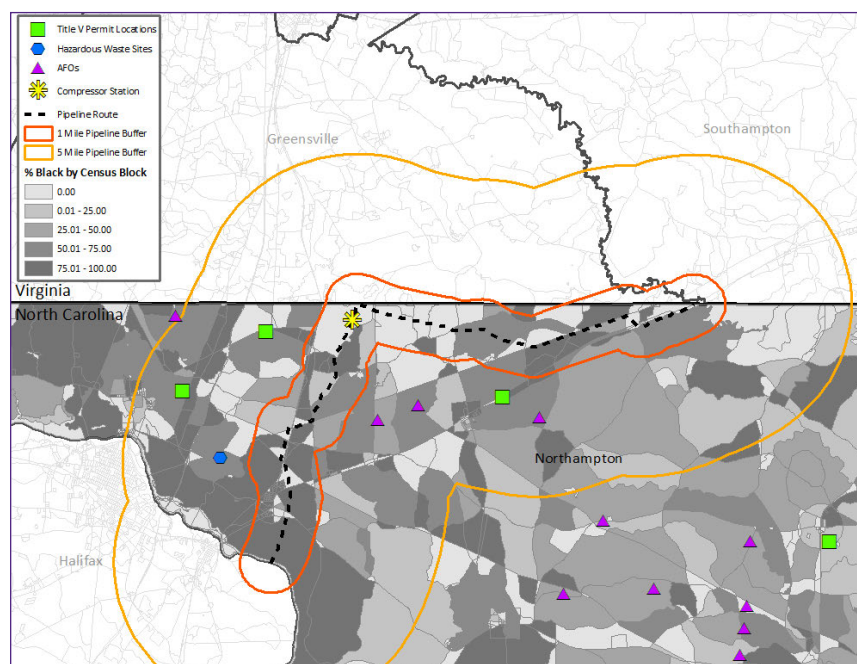
Source: US Census Bureau (2010).

Table 3. Census block race/ethnicity data for Robeson County, by zone

1-mile zone	Black/African American		White		American Indian/Alaska Native (AI/AN)		Hispanic/Latino	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Outside	31,344	25.4	36,469	29.5	46,009	37.2	9,276	7.5
Inside	1,293	12.3	2,408	22.8	5,493	52.1	1,656	15.7
Total	32,637		38,877		51,502		10,932	

Source: US Census Bureau (2010).

Figure 1. Percentage of black or African American residents, by census block, the proposed pipeline route and zone, and selected facilities of interest in Northampton County



Source: US Census Bureau (2010); North Carolina Department of Environmental Quality (2016a, 2016b); North Carolina Division of Waste Management, Hazardous Waste Section (2016).

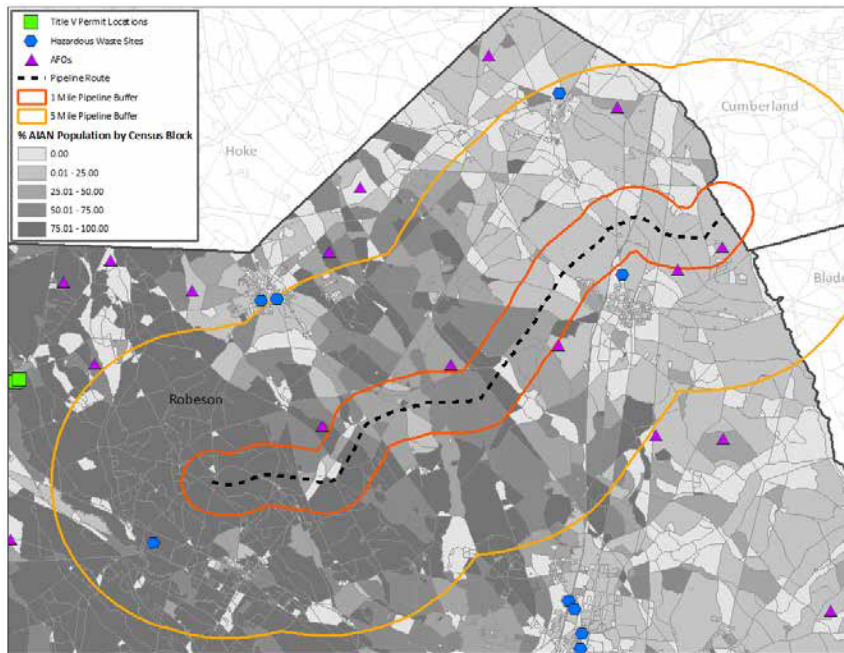


Figure 2. Percentage of American Indian and Alaska Native residents, by census block, the proposed pipeline route and zone, and selected facilities of interest in Robeson County

US Census Bureau (2010); North Carolina Department of Environmental Quality (2016a, 2016b); North Carolina Division of Waste Management, Hazardous Waste Section (2016).

Vulnerability Data

In addition to the demographic characteristics associated with the pipeline route, we worked with community advocates to identify various vulnerability indicators: a social vulnerability index, cancer risk, and preexisting facilities with the potential to contribute to environmental justice concerns (animal feeding operations [AFOs] facilities, hazardous waste sites, and facilities with Title V air quality permits). With the exception of hazardous waste sites, none of these indicators that we analyzed were incorporated into the draft EIS.

The first indicator is a general social vulnerability measure developed by the University of South Carolina (USC) Hazards & Vulnerability Research Institute. The 2006–2010 Social Vulnerability Index (SoVI) is a widely used index comprising 27 variables (drawn primarily from decennial and ACS census data), which are collectively associated with patterns in communities' natural hazard preparedness,

response, and recovery (USC, 2017; Dunning & Durden, 2013).[‡] Higher index scores suggest greater social vulnerability and lower resilience to natural hazards (Table 4).

The second indicator is cancer risk. We obtained cancer risk data from the most recent (2011) EPA (2016a) National Air Toxics Assessment (NATA) (Table 5). NATA uses emissions data to model ambient and exposure concentrations of various air pollutants and estimate cancer risk and noncancer health impacts resulting from chronic inhalation exposure (EPA, 2015). Total cancer risk is reported as the likelihood that several people (out of a million) would develop cancer if exposed continuously (24 hours per day) to current (modeled) pollutant concentrations over 70 years (an assumed lifetime) (EPA, 2015).

[‡] The foundation of SoVI index scores is principal components analysis. For more information about its calculation, see USC (2017) and USC (2011).

Table 4. Descriptive statistics for 2006–2010 Social Vulnerability Index values in all census tracts in Northampton and Robeson Counties

County	Number of tracts	Mean	Median	Minimum	Maximum	Standard deviation
Northampton	5	2.56	1.75	0.90	5.15	1.86
Robeson	31	5.80	5.83	-0.01	10.31	2.78

Source: University of South Carolina, Hazards & Vulnerability Research Institute (2010).

Table 5. Descriptive statistics for total cancer risk in all census tracts in Northampton and Robeson Counties

County	Number of tracts	Mean	Median	Minimum	Maximum	Standard deviation
Northampton	5	36	36	34	40	2.5
Robeson	31	41	38	36	62	6.6

Source: 2011 National Air Toxics Assessment (EPA, 2016a).

Lastly, we noted the presence of facilities with the potential to contribute to environmental justice concerns. From the North Carolina Department of Environmental Quality (NCDEQ), we obtained a list of AFO facilities that were permitted as of November 4, 2016 (NCDEQ, 2016b). We geocoded and mapped all facilities with active permits, regardless of size.[§] The North Carolina Division of Waste Management, Hazardous Waste Section (2016) publishes a geospatial data set with the locations of all hazardous waste facilities regulated under the federal Resource Conservation and Recovery Act. We used the shapefile (dated March 4, 2016) to map the permitted facilities. Finally, under the Clean Air Act, Title V operating permits are required of all major sources of air pollution, as well as some minor sources. The permits specify what measures each source needs to take to control its air pollution (EPA, 2017). We downloaded from the NCDEQ website a list of all facilities in North Carolina with Title V permits as of November 15, 2016 (NCDEQ, 2016a). We plotted facility latitude/longitude coordinates in ArcMap. Tables 6 and 7 present counts of each type of facility in relation to the 1-mile zone for Northampton and Robeson Counties.

[§] North Carolina General Statute § 143–215.10B defines “animal operations” as follows: “any agricultural feedlot activity involving 250 or more swine, 100 or more confined cattle, 75 or more horses, 1,000 or more sheep, or 30,000 or more confined poultry with a liquid animal waste management system, or any agricultural feedlot activity with a liquid animal waste management system that discharges to the surface waters of the State” (North Carolina General Assembly, 2017).

Table 6. Numbers of animal feeding operations (AFOs), hazardous waste facilities, and Title V facilities in relation to the 1-mile zone: Northampton County

1-mile zone	AFOs	Hazardous waste facilities	Title V facilities
Outside	21	2	4
Inside	0	0	0
Total	21	2	4

Source: NCDEQ (2016a, 2016b); North Carolina Division of Waste Management, Hazardous Waste Section (2016).

Table 7. Animal feeding operations (AFOs), hazardous waste facilities, and Title V facilities in relation to the 1-mile zone: Robeson County

1-mile zone	AFOs	Hazardous waste facilities	Title V facilities
Outside	46	20	4
Inside	5	1	0
Total	51	21	4

Source: NCDEQ (2016a, 2016b); North Carolina Division of Waste Management, Hazardous Waste Section (2016).

Results

For income comparisons within each county, we did not find differences in mean household incomes^{**} in areas within the 1-mile zone compared with areas outside of the zone. However, we did detect differences in most of the race/ethnicity populations included in our study.

Unlike the income and race/ethnicity data, the vulnerability data collected for this study did not lend themselves well to statistical testing. Almost no AFOs, hazardous waste facilities, or Title V facilities were

^{**} We chose to focus on mean income data because the statistical testing procedures for evaluating median income data (as reported in the ACS) were too complex for the scope of this study.

located within the 1-mile zone. We compared only the SoVI and cancer risk data in Robeson County because sample sizes were too small in Northampton County. We found SoVI indices were higher in the 1-mile zone, but cancer risks were similar inside and outside of the zone.

Comparisons of Income Data

In the Northampton and Robeson Counties census-tract analyses, our calculations produced test statistics of 1.34 and -0.53, respectively. Because these test statistics fall between the critical Z-values of -1.645 and 1.645 (90 percent confidence level), we cannot conclude that there is a statistically significant difference in the mean household income of the census tracts lying within the 1-mile zone and those lying outside of the zone for either Northampton County or Robeson County. In other words, we do not detect differences in the mean household incomes for the groups inside and outside of the 1-mile zone.

At a finer geography level, census-block groups, the test statistics obtained for Northampton and Robeson Counties are -0.69 and -1.08, respectively. We cannot conclude that there is a statistically significant difference (at the 90 percent confidence level) between the mean household income of census block groups lying within the zone and the mean household income of census block groups lying outside the zone for either county.

Comparisons of Race and Ethnicity Data

In Northampton County, we performed a *t*-test comparing mean percentages of black residents in census blocks inside and outside the 1-mile zone, and we performed a similar test for AI/AN populations. Both tests yielded statistically significant results, with *t*-statistics of -5.2036 and -2.2541, respectively. These results indicate that the mean percentages of black or African American and AI/AN residents inside the 1-mile zone are statistically higher than outside the zone at the 95 percent confidence level. Performing a similar test for Hispanic/Latino populations yielded a *t*-statistic of 1.3523 (falling within the critical values of -1.645 and 1.645), so we cannot conclude there is a statistically significant difference (at the 95 percent confidence level) between mean percentages of

Hispanic/Latino residents inside versus outside the 1-mile zone. The *t*-tests performed are statistically significant for black or African American, AI/AN, and Hispanic/Latino populations in Robeson County, with *t*-statistics of 4.0633, -9.0788, and -4.8019, respectively, suggesting a statistically significant difference (at the 95 percent confidence level) between the mean percentages of each race or ethnicity variable inside versus outside the 1-mile zone. In particular, the mean percentage of black or African American residents is higher outside the 1-mile zone, whereas the mean percentages of AI/AN and Hispanic/Latino residents are higher inside the 1-mile zone.

Community advocates who reviewed the preliminary findings of our study noted that our analysis of 1-mile zones within counties may mask broader-scale geographic inequities in route selection. To address this concern, we conducted a supplemental county-level comparison analysis by examining the percentage minority population^{††} in the North Carolina counties along the proposed pipeline route relative to the rest of the counties in the state. A two-sample test of proportions yielded a Z-statistic of 348.6521, with an associated one-tailed test *p*-value of 0.000. Therefore, at the 95 percent confidence level, we can conclude that the counties crossed by the proposed ACP route collectively have a significantly higher percentage minority population than the rest of the counties in the state.

Comparison of Vulnerability Indicators

Only Robeson County has a sufficient number of census tracts to permit statistical comparison of the SoVI scores and cancer risk within the 1-mile zone (*n* = 10) versus outside the 1-mile zone (*n* = 21) tracts. We used a two-sample *t*-test with equal variances to compare the mean SoVI values of the census tracts inside and outside the 1-mile zone. We used a two-sample Wilcoxon rank-sum test to compare cancer risk in Robeson County census tracts within the 1-mile zone and outside of the zone. The

^{††} Using 2010 decennial census data, we calculated the proportion minority population by tallying the number of white, non-Hispanic/Latino individuals; dividing by the total population; and then subtracting from 1.

Robeson County SoVI analysis yielded a t -statistic of -1.7768 and a one-tailed test p -value of 0.043, so at the 95 percent confidence level, we can conclude that the mean SoVI score of census tracts inside the zone is significantly higher than the mean SoVI score of census tracts outside the zone. The Robeson County cancer risk test yielded a p -value of 0.2719; we therefore cannot conclude that there is a statistically significant difference (at the 95 or 90 percent confidence level) in cancer risk between zone and nonzone census tracts.

Discussion

The draft EIS claims that because “impacts would occur along the entire pipeline route and in areas with a variety of socioeconomic backgrounds,” there is consequently “no evidence that [the pipeline] would cause a disproportionate share of high and adverse environmental or socioeconomic impacts on any racial, ethnic, or socioeconomic group” (FERC, 2016, p. 4:413). FERC does not explain the factual basis for this conclusion; the criteria for establishing “disproportionate impact” on populations are not stated in the document.

Our test results suggest that in Northampton County disproportionately large numbers of AI/AN residents and black or African American residents live within 1 mile of the pipeline route, whereas in Robeson County, disproportionately large numbers of AI/AN residents and Hispanic/Latino residents live within 1 mile of the pipeline route. Our county-level demographic analysis points to broader-scale spatial inequities. If pipeline risks are indeed uniform along the entire route, as FERC (2016) argues in its environmental justice analysis, then our analysis provides evidence of disproportionate exposure of certain groups to pipeline impacts. In Robeson County, the census tracts within 1 mile of the pipeline route also have a significantly higher mean SoVI score relative to census tracts outside of 1 mile of the pipeline route.

Conclusions

This study adds value to the conversation about the ACP’s environmental justice implications by presenting several analyses not accounted for in the draft EIS. In drafting its environmental justice analysis for the project, FERC focused exclusively on census tract-level data and did not conduct any statistical comparisons. Rather, FERC (2016) compared minority and low-income populations with reference thresholds, namely a 50 percent minority population threshold for a census tract, a census tract threshold of 10 percentage points above the county’s minority population, and the state poverty level. By statistically comparing data and extending the analysis to smaller geographic units, we provide additional evidence of the differences in demographic characteristics of the communities that are located within 1 mile of the pipeline route compared with communities located farther away.

Our study also raises the issue of and investigates the spatial relationships between demographic data and various environmental burdens, whereas FERC (2016) considered only the pipeline’s spatial relationship to minority and low-income populations.

Another contribution of this research is its emphasis on transparency and replicability. All of the data used in this study are publicly available. We packaged and distributed our raw data, GIS files, and statistical test logs for public use before publishing this report. We hope that these materials will assist community advocates who are studying the pipeline’s potential impacts.

There are several directions for future research. First, we recommend extending these methods to other counties crossed by the proposed pipeline route and experimenting with a second study zone (e.g., 10-mile zone, 20-mile zone) to define the comparison group for statistical testing. Ideally, county-by-county analysis should be complemented with an aggregate analysis of all affected census blocks, block groups, and tracts along the entire North Carolina segment of the pipeline route (by contrast, this study’s analysis of the full North Carolina route used county-level data only).

Second, community advocates who reviewed the preliminary findings of this study suggested the need for a larger-scale analysis. The analysis would compare the current proposed route with older proposed and rejected routes to illustrate how environmental justice concerns varied with the changes in the proposed routes.

Third, although our research team incorporated additional social and environmental variables, the analysis could be strengthened by investigating the spatial distributions of other preexisting

stressors, especially health concerns (e.g., heart disease, cancers related to nonrespiratory exposure pathways, diabetes) and environmental conditions (e.g., floodplains, landfills, brownfields, water quality impairments, coal ash facilities, and waste deposits). Such analysis would ideally form part of a quantitative and qualitative evaluation of cumulative impacts and aggregate environmental risks to vulnerable communities, including those that are physically distant from the proposed route but have strong sociocultural connections to the area.

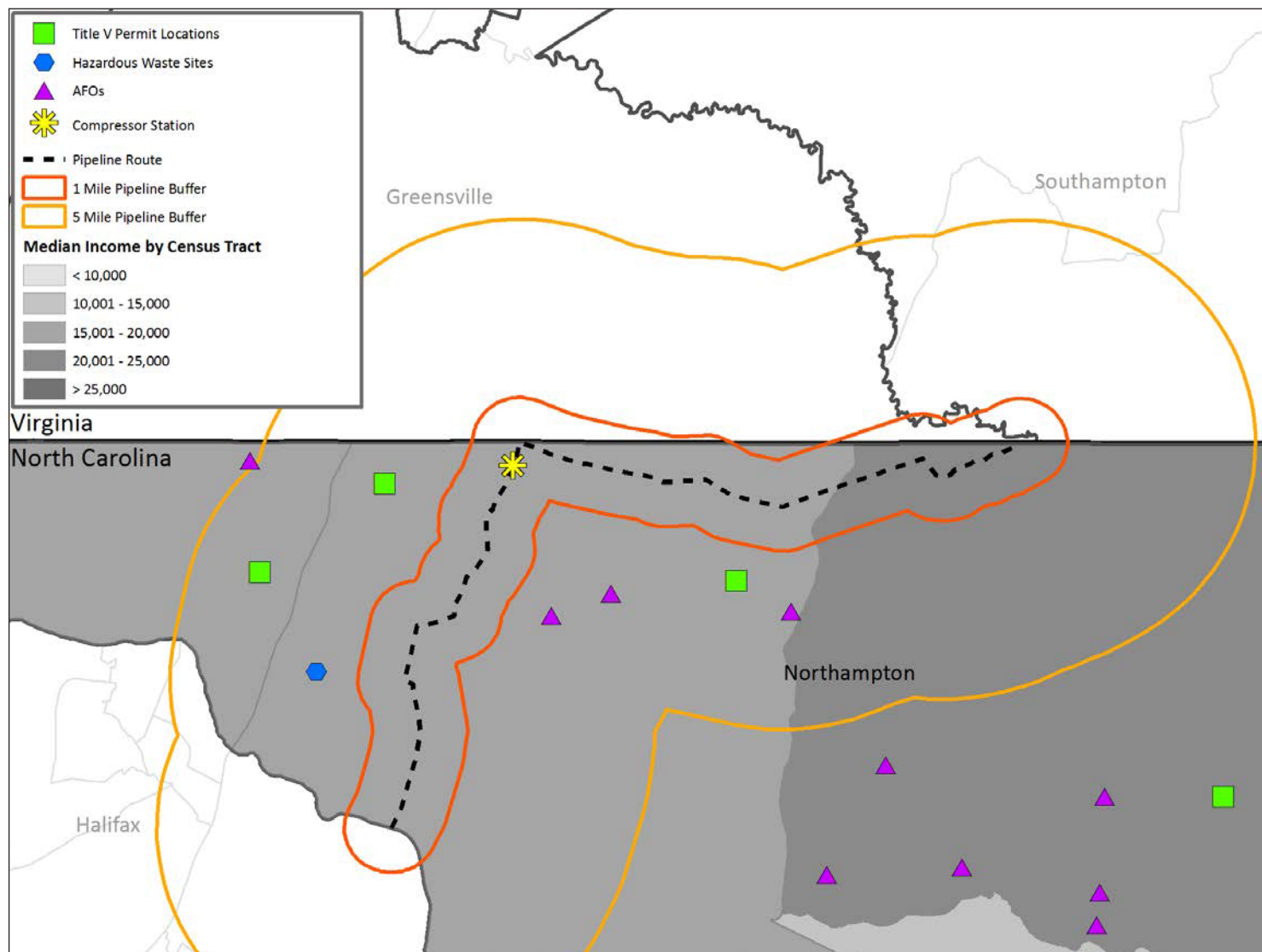
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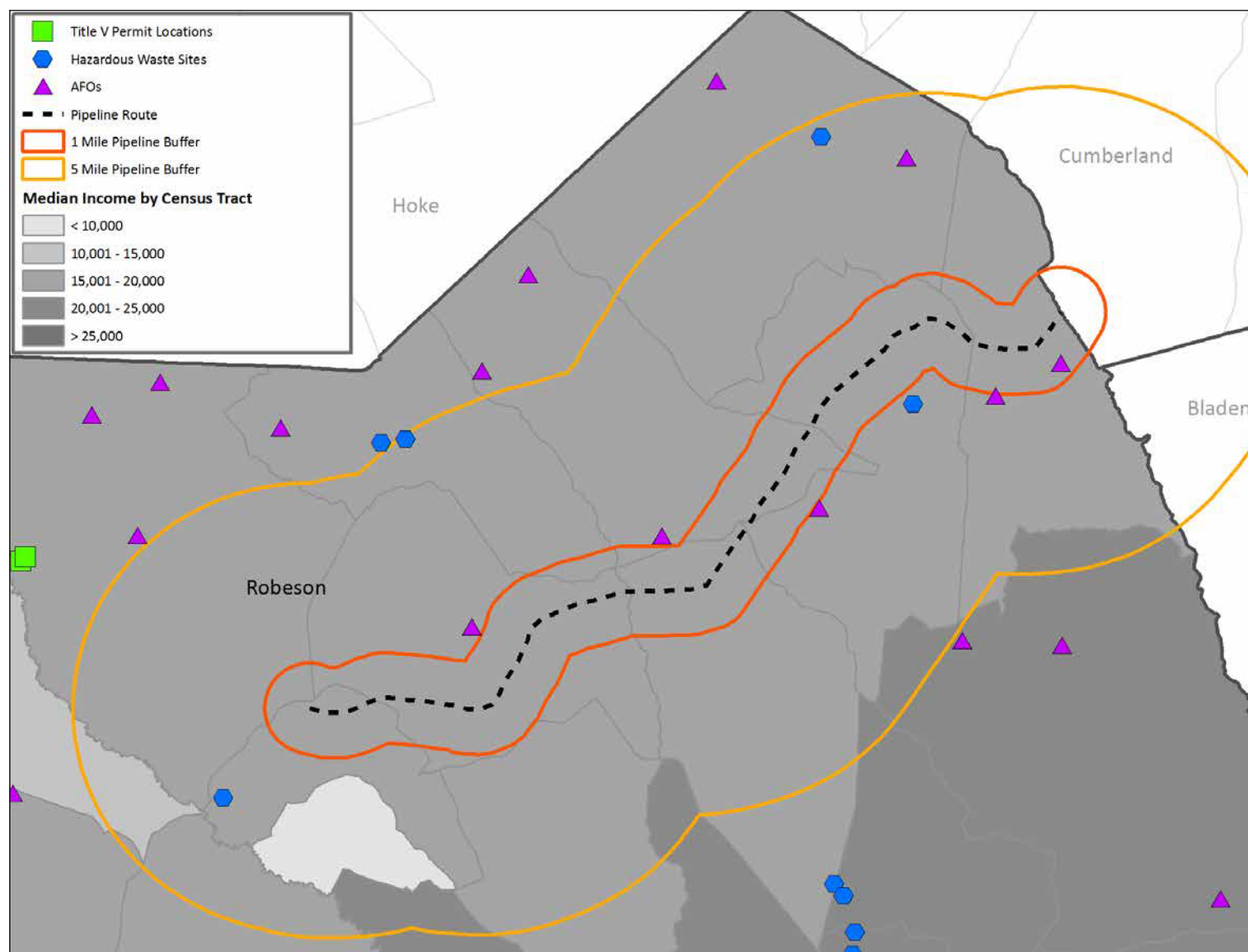
Appendix A

Figure A1. Proposed pipeline route with selected facilities of interest and median income, by census tract, Northampton County



Source: US Census Bureau (2014): Table B06011; North Carolina Department of Environmental Quality (2016a, 2016b); North Carolina Division of Waste Management, Hazardous Waste Section (2016).

Figure A2. Proposed pipeline route with selected facilities of interest and median income, by census tract, Robeson County



Source: US Census Bureau (2014): Table B06011; North Carolina Department of Environmental Quality (2016a, 2016b); North Carolina Division of Waste Management, Hazardous Waste Section (2016).

Appendix B

Table B1. Northampton County aggregate income and household tallies, census tract data

1-mile zone	Number of households		Aggregate household income over past 12 months (2014 dollars)	
Outside	4,100	47.9%	\$165,604,200	44.4%
Inside	4,464	52.1%	\$207,032,600	55.6%
Total	8,564	100.0%	\$372,636,800	100.0%

Table B2. Northampton County aggregate income and household tallies, census block group data

1-mile zone	Number of households		Aggregate household income over past 12 months (2014 dollars)	
Outside	6,582	76.9%	\$293,028,700	78.6%
Inside	1,982	23.1%	\$79,608,000	21.4%
Total	8,564	100.0%	\$372,636,700	100.0%

Table B3. Robeson County aggregate income and household tallies, census tract data

1-mile zone	Number of households		Aggregate household income over past 12 months (2014 dollars)	
Outside	27,823	61.2%	\$1,205,425,400	61.8%
Inside	17,623	38.8%	\$745,044,000	38.2%
Total	45,446	100.0%	\$1,950,469,400	100.0%

Table B4. Robeson County aggregate income and household tallies, census block group data

1-mile zone	Number of households		Aggregate household income over past 12 months (2014 dollars)	
Outside	35,465	78.0%	\$1,541,616,600	79.0%
Inside	9,981	22.0%	\$408,852,500	21.0%
Total	45,446	100.0%	\$1,950,469,100	100.0%

Source: US Census Bureau (2014): Tables B19001 and B19025.

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LETTERS

Edited by Jennifer Sills

Flawed environmental justice analyses

In December 2016, the Federal Energy Regulatory Commission (FERC) issued a draft environmental impact statement (DEIS) for the Atlantic Coast Pipeline, a natural gas pipeline proposed to run approximately 1000 km from West Virginia to end points in Virginia and North Carolina (1). The developer, a partnership of utility corporations, contends that the project is needed to meet the region's growing energy needs.

The proposed route crosses territories of four Native American tribes in North Carolina. Because poor and minority communities have long been excluded from environmental decision-making (2), all federal agencies must now identify and address environmental justice issues during formal assessments and reviews of projects such as the Atlantic Coast Pipeline (3). Such projects can have wide-ranging impacts on human communities associated with land rights and property values, public safety in the event of leaks and explosions, and regional climate change exacerbated by fugitive methane emissions (4) and combustion of natural gas.

In addition to these issues, Native American tribes have unique concerns deriving from their status as indigenous peoples. Tribes have deep connections to ancestral and modern-day territories, and these connections are often important to tribal concepts of identity, history, culture, spirituality, and governance. Sacred sites, archaeological resources, and natural

features integrate to form cultural landscapes that are unique to each tribe.

The Atlantic Coast Pipeline developer's preferred route disproportionately affects indigenous peoples in North Carolina. The nearly 30,000 Native Americans who live within 1.6 km of the proposed pipeline make up 13.2% of the impacted population in North Carolina, where only 1.2% of the population is Native American [Appendix U in (1)]. Yet, the DEIS reported that fewer than half of the areas along the proposed route had minority populations higher than county-level baseline proportions (1). The discrepancy stems from the DEIS's failure to account for large differences in population size in the studied areas; large minority populations in some places were masked by much smaller nonminority populations elsewhere. The analysis also failed to account for large differences in baseline demographics among counties, where minority populations range from less than 1% to nearly 70% [Appendix U in (1)]. These large differences prevented meaningful comparisons among areas in different counties. Together, these flaws rendered FERC's analysis incapable of detecting large Native American populations along the route, leading to false conclusions about the project's impacts. Notably, the analysis conformed to the generic guidelines prescribed by the U.S. Environmental Protection Agency (1).

Environmental justice analyses are meant to help regulators and developers identify and address disparate impacts on vulnerable populations at an early stage in the decision-making process (3, 5, 6). Analyses unable to detect such impacts are essentially faulty instruments that fail to warn decision-makers about potential problems ahead. In the case of the Atlantic Coast Pipeline, a

Members of North Carolina's Lumbee tribe prepare to perform a traditional dance in 2004. Their lands lie in the path of the planned Atlantic Coast Pipeline.

more thorough analysis might have alerted regulators to large Native American populations along the proposed route and the need to consult with tribal governments.

The Dakota Access Pipeline controversy (7) demonstrates that all parties suffer when environmental justice analyses and tribal consultation are treated as meaningless rote exercises. Tribes suffer erosion of sovereignty and damage to cultural landscapes, federal-tribal relations deteriorate, and developers incur setbacks.

Developers and regulators of the Atlantic Coast Pipeline still have a window of opportunity to take these lessons to heart. Regulators can consult with tribes before making a final decision on the project later this year, and they can acknowledge the project's true impacts on vulnerable populations by addressing the flawed environmental justice analysis. Scientists can help by sharing rigorous methods, providing oversight, and partnering with vulnerable communities. It is not too late to work toward environmental justice for all.

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Mexico's basic science funding falls short

During his inauguration address in December 2012, Mexico's President Enrique Peña Nieto vowed to move the country forward by investing in education as well as in science and technology (S&T). In two government documents (1, 2), he pledged to increase the S&T federal expenditure (which had been lingering for years at about 0.4% of the gross domestic product) up to a minimum of 1% by 2018 (2, 3). A few months earlier, the National Autonomous University of Mexico, together with the

Comments to the Federal Energy Regulatory Commission on the Draft Environmental Impact Statement for the Atlantic Coast Pipeline, LLC, Dominion Transmission, Inc. and Atlantic and Piedmont Natural Gas. Co., Inc. (Docket Nos. CP15-554-000, -001; CP15-555-000; and CP15-556-000)

By: Ryan E. Emanuel, Ph.D.

Date: April 6, 2017

1. Introduction

My name is Ryan E. Emanuel, and these are my comments on the draft environmental impacts statement for the Atlantic Coast Pipeline. I hold a Ph.D. in Environmental Sciences, and I am an Associate Professor and University Faculty Scholar in the Department of Forestry and Environmental Resources at North Carolina State University (NC State). NC State is the largest academic institution in the state, and it is one of our two land grant institutions. I lead a research program that focuses on hydrology, ecology, atmospheric science, geoscience and integrated topics, including climate change, socio-ecological systems, and indigenous knowledge. My research program spans North Carolina and extends to other parts of the US and Latin America. I am an enrolled member of the Lumbee Tribe, and I serve the broader American Indian community in various ways, including as an ex officio member of the North Carolina Commission of Indian Affairs' Environmental Justice committee. You can find my curriculum vitae and other information on my website: go.ncsu.edu/water. These comments constitute my professional opinions and do not necessarily reflect the views of NC State, the Lumbee Tribe, or the Commission of Indian Affairs.

My comments principally concern environmental justice, but I also raise issues related to the no-action alternative and attribution of climate change impacts. Of these comments, the environmental justice concerns are most serious; the analysis is fatally flawed and has led to false conclusions regarding disproportionate impacts, particularly concerning American Indians. Section 2 exposes the conceptual and mathematical details of these flaws and discusses the implications. I also provide a basic, but mathematically and conceptually sound analysis of impacts on American Indians, which I offer to regulators as a starting point for new analyses. In it, I reveal that the pipeline stands to impact nearly 30,000 American Indians, representing one quarter of the state's indigenous population and 1% of the US indigenous population. No pending infrastructure project stands to affect as many American Indians as the ACP. In light of these impacts, I explain the importance of tribal consultation. I show that federal and international guidance documents recommend such consultation, even when tribes are not federally recognized.

Section 3 shows that ignoring alternative energy and conservation practices amounts to selective acknowledgement of electricity production as a key purpose of the ACP; electricity production is a widely-touted purpose where it benefits the pipeline, yet it ignored at key junctures in the DEIS. This section also raises systematic issues with absolution of responsibility for climate change impacts during the environmental review process. Ignorance of an effect's magnitude does excuse responsibility, particularly when the direction of the impact (here, a net increase in greenhouse gas emissions) is known. In total, my comments focus on what I believe are at once the weakest but most critical parts of this environmental review. These are the big-picture issues that federal regulators should be best equipped (and most qualified) to handle. Ironically, these seem to be the sections of the DEIS that have received the least attention. There

are no easy fixes to the systemic issues that I raise. Nor should there be; environmental justice and climate change are major challenges of our time. If regulators move forward without acknowledging, remedying, and weighing the implications of (1) fundamental errors in their environmental justice analyses and associated conclusions, (2) selective acknowledgement of electricity production as a valid purpose for some parts of environmental review but not others, or (3) ignoring climate change impacts because the ACP is only one small contributor of greenhouse gases out of many under federal oversight, then they do so with full knowledge that their review is flawed in design and logic, and that present and future generations of poor and minority citizens will suffer because of their oversight. I hope, instead, that regulators choose to revisit these analyses and conclusions, draw additional insight and advice from experts in relevant fields, and produce a clearer, more accurate accounting of the environmental impacts of this project.

2. Environmental Justice Analysis

2.1 Overview

Environmental justice analyses are mandatory in federal Environmental Impact Statements, but there is no standard method for computing disproportionate impacts¹⁻⁴. As such, researchers have raised concerns for many years about potential misapplication of methods or tailoring of methods to support a predetermined outcome^{2,3}. The environmental justice section of the Atlantic Coast Pipeline's draft Environmental Impact Statement (DEIS) appears to be an example of such misapplication. The DEIS concludes there will be no disproportionate impacts on poor or minority communities along the preferred route. However, when the data in Appendix U are analyzed in a statistically appropriate manner, they reveal large disproportionate impacts on American Indians. The failure of the analysis reported in Section 4.9.9 to detect such disproportionate impacts on one particular minority population calls into question its conclusions related to other populations, and it undermines the rigor of environmental justice analysis as a whole.

2.2 Description of Major Flaws

The environmental justice analysis in the DEIS 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 reference populations of the counties in which it they are located. According to the DEIS, this analysis is grounded in guidance from Executive Order 12898 and the EPA; however, this particular approach to analyzing environmental justice impacts has fatal flaws in numerical analysis and overall design that render results un-interpretable and prevent regulators from drawing meaningful (or correct) conclusions about impacts on vulnerable populations.

2.2.1 Mathematically inappropriate comparisons among census tracts

The process of counting census tracts with “meaningfully greater” minority populations fails to account for large differences in population and racial makeup among census tracts and also among counties serving as reference populations. These large differences are described in on p. 4-412 and tabulated in Appendix Uⁱ of the DEIS. Because the census tracts vary widely in population, one cannot simply compare the number of blocks with “meaningfully greater” minority populations to the number of blocks with smaller minority populations and draw

ⁱ The DEIS mistakenly refers to Appendix V when referring to results presented in Appendix U.

conclusions about disproportionate impacts. This approach assumes all census tracts carry the same weight in the analysis, but this is not the case in terms of population, area, and many other statistics associated with these census tracts. Such an approach would conclude that a census tract with a population of 1186 predominantly white residents (e.g., WV CT 9601.01) would exactly counterbalance another census tract of 7167 predominantly minority residents (e.g., NC CT 9603). This comparison is mathematically incorrect, and it drastically increases the odds of arriving at false conclusions for the ACP study area, a region where large minority populations in one area can be completely masked out by small, predominantly white populations elsewhere.

Additionally, the process of counting up the number of census tracts with “meaningfully greater” minority populations and comparing this to the total number of census tracts along the proposed route fails to account mathematically for the effects of changing baseline conditions from one county to the next. County-level data certainly provide valuable comparison statistics for census tracts, but when the baseline data change for each county (as is the case here), one loses the ability to draw meaningful mathematical comparisons across county lines. For example, the DEIS states on p. 4-412 for North Carolina, “In 13 of the 42 census tracts, the minority population is meaningfully greater than that of the county in which it is located.” The implied interpretation here is that since the number of census tracts with large minority populations is smaller than the number of census tracts with few minority residents, there must be no disproportionate impact on minorities. However, this interpretation is only valid if the baseline demographics used to compute “meaningfully greater” populations are the same for each county. In this case, the 42 census tracts within North Carolina use eight different reference populations to determine “meaningfully greater.” If the baseline demographic data change from county to county (and they do, based on Appendix Table U1), any attempt to draw conclusions about the proportion of census tracts with large minority populations is invalid outside of a single county. However, this is exactly what the present environmental justice analysis attempts to do. Moreover, as differences in baseline data increase among counties, the risk of under-predicting (or over-predicting) impacts on minority populations increases. Because county-level demographics vary widely over the proposed pipeline route, the environmental justice conclusions of the DEIS cannot be supported by the current analysis in section 4.9.9.

The existing environmental justice analysis hinges on assumptions that census tracts are uniform in population sizes and that reference areas are uniform in demographic characteristics. These assumptions are not stated in the DEIS; rather, the mathematical method chosen for this analysis demands that these assumptions be met. In fact, these assumptions are simply untrue, and this has led to invalid comparisons of census tracts in the environmental justice section of the DEIS. At face value, it may seem that census tracts are similar units that can be compared side by side. However, the census tract statistics that have been chosen for comparison cannot be tallied up, because they ignore both the weighting effects of actual population sizes and the mathematical constraints of shifting baselines.

The design of the existing analysis, which involves simply comparing the number of census tracts above or below a threshold, fails to provide a means to evaluate statistical significance of the results. A statistically robust analysis would, minimally, involve pooling all of the impacted census tracts for each state, and comparing this test population with a suitable reference population drawn 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 method can be conducted for minority population as a whole and for specific racial or ethnic categories.

2.2.2 Ambiguous definition of “meaningfully greater”

The method for determining “meaningfully greater” poses mathematical problems for comparing census tracts. Footnote 20 (p. 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 either very small or 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 proportion of minority residents of a census tract would have to be six times greater than the reference proportion before the tract registers as “meaningfully greater.” This places an unusually high (6x) detection threshold on the census tract, and it increases the risk of overlooking a disproportionate impact in predominantly white areas of a study region.

At the other end of the spectrum, regions with predominantly minority (or poor) populations include census tracts that are already surrounded by large minority (or poor) populations. If a reference population is already, say, 65% minority, then the present analysis requires a census tract to have a minority population of 75% before it is classified as disproportionately impacted. Here, the analysis forces a strange proposition – census tracts with some of the highest minority populations along the entire route are excluded from the “meaningfully greater” category in the broader analysis simply because they are situated in a majority-minority county. Indeed, Table U1 reveals census tracts in North Carolina with minority populations in excess of 75% that do not count towards the disproportionate impacts of the project as whole because they are situated a county with a disproportionately large minority population (70%) compared to the rest of the study area. This example highlights a key problem with the present environmental justice analysis. Whether the analysis uses a fixed percentage point exceedance or some other metric, correct identification of a reference population is crucial for determining the scale at which the analysis may be interpreted.

In the case of the ACP, use of county-level reference populations in the “meaningfully greater” computation means that counties cannot be compared directly with one another. More specifically, the definition of “meaningfully greater” must be further defined as “meaningfully greater than the county in which the census tract is located.” Given this mathematically constrained definition, the present analysis is incapable of determining disproportionalities for the project as a whole; it simply answers a series of county-by-county questions about disproportionate impacts on minority populations. One purpose of federal oversight on projects of this scale is to ensure that the project as a whole does not place disproportionate impacts on vulnerable populations. This purpose simply cannot be achieved by the present analysis.

2.3 Implications of Flaws

The inability of the environmental justice analysis to evaluate disproportionate impacts for the project as a whole raises serious concerns about its utility. Given that a key purpose of an environmental justice analysis is to reveal the extent to which poor and minority populations may bear a disproportionate share of a project’s environmental cost, an analysis that concludes no impacts for a project traversing large regions with substantial minority populations (e.g., Halifax, Northampton, Robeson Counties, NC) and poor populations (e.g., Brunswick, Buckingham

Counties, VA) while skirting adjacent whiter, wealthier areas (e.g., Albemarle, VA; Wake, NC) should raise serious concerns among regulators. In the case of the ACP, this is not a hypothetical scenario. Not only does the project cross areas of high poverty in rural Appalachia, but it also runs through the so-called “Black Belt”⁵ of Virginia and North Carolina. Both regions have borne disproportionate shares of environmental burdens throughout US history, and their local populations live with an unfortunate legacy of past environmental decision making in which they have had little or no part. These are, quite literally, the textbook study regions for environmental justice. Federal regulators should be first to acknowledge these large-scale, multi-state patterns of inequity and to hold petitioners accountable for their activities in these regions. Instead, the environmental justice conclusions of this DEIS hinge on what is essentially a series of county-level calculations, combined in a mathematically indefensible fashion, and hard-wired to ignore important regional demographic patterns that frame the project as a whole.

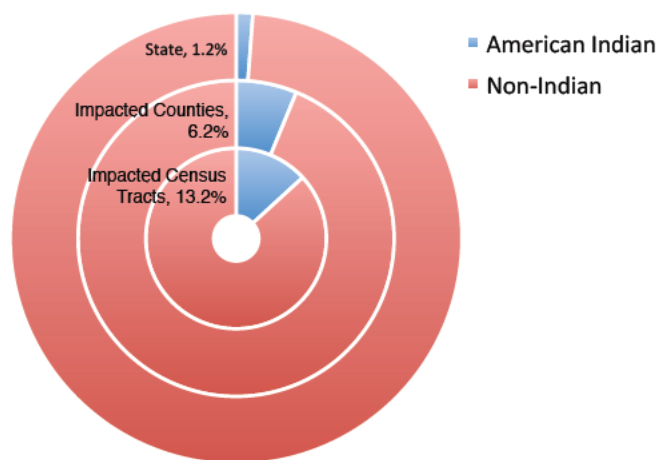
2.4 Realistic Environmental Justice Analysis

In the previous sections, I offered technical suggestions for remediating the flawed design of the current environmental justice analysis. Here I provide an example of a more realistic environmental justice analysis that pools census tract data in a statistically appropriate manner. This example analysis could be expanded and applied to other demographics throughout the study area as a whole. Data from Appendix U show that in North Carolina alone, approximately 30,000 American Indians live in census tracts along the route. To place this number in a larger demographic context, it represents one quarter of the state’s American Indian population and 1% of the entire American Indian population of the US. To put this in qualitative terms, there is no other energy project currently under federal review that stands to impacts as many American Indians as the ACP.

When populations are summed for census tracts along the North Carolina portion of the pipeline route, I find that 13.2% of the total population of these census tracts identifies as American Indian. For the North Carolina counties in which these census tracts are located, American Indians constitute 6.2% of the population. American Indians constitute 1.2% of the entire population of the state of North Carolina. Figure 1 compares aggregate census tract, county, and state-level statistics.

Using either the county-level data or the state-level data as a baseline, we find that the proposed route impacts American Indian populations at disproportionate rates. Within the affected counties, the proposed route is 2.1 times as likely to impact American Indians as expected based on the appropriate reference population. In this case, the appropriate reference is the total population of the selected counties. Within the state of North Carolina, the proposed route is 11 times as likely to impact American Indians as expected based on the appropriate reference

Figure 1: Statewide American Indian population of North Carolina compared to populations of counties and census blocks impacted by the proposed Atlantic Coast Pipeline



population. Here, the appropriate reference is the state-level population.

When data from Table U are properly aggregated, and when appropriate reference populations are selected, we find that the proposed route undoubtedly imposes disproportionate impacts on American Indians. By comparing the state-level, county-level, and tract-level results further, we can begin to understand the underlying reasons. Specifically, comparing state-level data to the impacted counties reveals the large-scale route of the pipeline through North Carolina's "Black Belt," where many of the state's American Indians have maintained continuous settlements for centuries. The Meherrin, Haliwa-Saponi, Coharie, and Lumbee tribes in particular claim ancestral territories in North Carolina's Coastal Plainⁱⁱ, and the proposed pipeline route passes, preferentially, through their ancestral territories relative to other regions of the state. Hence, it is no surprise that a pipeline through this region of the state would impact American Indians disproportionately.

At a finer scale, the data show that the pipeline would still impact American Indians disproportionately, even in a region of the state where their populations are already high relative to the state as a whole. Many of these census tracts surround the historic Lumbee community of Prospect. This community is situated within a larger cultural landscape of historical and spiritual importance to many Lumbee people. This community is also the southern terminus of the proposed pipeline. Why the developers would plan to route the project through this community or locate its terminus here is unknown. Nevertheless, the choice to route the pipeline through this culturally significant landscape and through other areas of significance to other tribes explains, in part, why American Indians, who continue to live in and around these culturally significant landscapes, are impacted disproportionately by this project. In providing this analysis, I hope to demonstrate to regulators how an appropriate choice of reference population, combined with culturally relevant knowledge about the pipeline route can provide a more accurate view of environmental justice concerns related to American Indians.

2.5 Tribal Consultation and Environmental Justice

Given the disproportionate impacts on American Indians revealed in the previous section, I recommend that the regulatory agency engage in formal consultations with governments of the Meherrin, Haliwa-Saponi, Coharie, and Lumbee Tribes in North Carolina and with tribal governments in Virginia as wellⁱⁱⁱ. The four tribes listed above are recognized by the state of North Carolina, and the pipeline crosses each tribe's ancestral territory. Tribes have lived in these areas for many centuries, and they maintain unique cultural and religious attachments to specific lands and waters of their ancestral homelands. Given relatively weak relationships between North Carolina tribes and the state's Historic Preservation Office, and given lack of resources available to tribal governments, little information is publicly available about cultural or religious sites of importance to these tribes. Thus, regulators should be proactive in approaching these tribes to learn, firsthand, about their needs and priorities.

ⁱⁱ The Waccamaw Siouan tribe also inhabits the Coastal Plain, but the proposed route does not appear to pass through their territory. It would be safest to contact them as well as all Virginia tribes.

ⁱⁱⁱ The list of tribes is not exhaustive. North Carolina recognizes four additional tribes, and it is possible that members of these tribes or members of other federal or non-federal tribes may be among those impacted. Several tribes are currently based in Virginia as well.

Regulators are not compelled by law to enter into high-level consultations with state recognized (i.e., non-federal) tribes, but NEPA and NHPA guidance documents^{iv} advise regulators to engage non-federal tribes in formal consultation in light of the unique, place-based relationships that indigenous peoples hold with their traditional landscapes and natural resources. In the case of the ACP, regulators have already set a precedent for offering consultation status to entities other than federally recognized tribes when they granted consultation status to the Nelson County (VA) Board of Supervisors under Section 106 of the NHPA. If a non-indigenous group can receive consultation status under a federal law that protects cultural landscapes, surely indigenous tribes, regardless of their federal status, can receive similar consideration.

In addition to federal law, the United Nations Declaration on the Rights of Indigenous Peoples affirms the right of all indigenous peoples to give “free, prior, and informed consent” to governments before they undertake activities that affect indigenous lands and life ways. The Declaration provides additional guidance on the nature of consultation with indigenous peoples, and the US has endorsed the Declaration since 2010. Earlier this year, a UN Special Rapporteur on the rights of indigenous peoples visited the US to document issues surrounding energy development, tribes, and consultation. Her initial report^v highlights deficiencies in federal policy surrounding tribal consultation and points to larger structural problem in federal-tribal relations. In particular, the rapporteur notes:

“The goal of tribal consultation is not simply to check a box, or to merely give tribes a chance to be heard. Rather, the core objective is to provide federal decision makers with context, information, and perspectives needed to support informed decisions that actually protect tribal interests.”

I urge regulators to take the rapporteur’s advice seriously and engage in meaningful consultation that surpasses form letters or emails. Even a basic environmental justice analysis that handles data appropriately (e.g. Section 2.4 above) reveals disproportionate impacts of the ACP on indigenous peoples. The impacted tribes of North Carolina and Virginia, regardless of their federal recognition status, deserve appropriate high-level consultation with regulators given the fact that their ancestors once owned most of the region under discussion. Through a long history of war, dishonest dealings, disenfranchisement, segregation, and environmental racism, their land holdings were diminished and degraded to the small fractions that remain today. Yet their spirits and voices have not been so diminished. Engage in meaningful discussion to learn about the cultural landscapes, sensitive ecosystems, and historical contexts that underlie tribal interests and concerns related to this project. Recognize the vast asymmetry that exists between federal resources and tribal resources in areas of finance, personnel, and information. Send FERC tribal liaison, Elizabeth Molloy to meet with individual tribal governments and with the North Carolina Commission of Indian Affairs – the state-authorized body dealing with issues of concern to all American Indian tribes within North Carolina.

^{iv} Advisory Council on Historic Preservation, Consultation with Indian Tribes in the Section 106 Review Process: A Handbook, June 2012; National Environmental Justice Advisory Council, Guide on Consultation and Collaboration with Indian tribal governments and the public participation of indigenous groups and tribal members in environmental decision making, November 2000.

^v End of Mission Statement by the United Nations Special Rapporteur on the rights of indigenous peoples, Victoria Tauli-Corpuz of her visit to the United States of America, March 2017.

Engagement and consultation between regulators and tribes should take place in a way that is fundamentally different from outreach efforts that have occurred to date. Here I refer to efforts led primarily by pipeline developers. Their in-person efforts to engage tribal communities through open houses and other presentations might best be classified as marketing activities. Far from high-level discussions with tribal leaders and elders, activities occurring since 2014 in and around tribal communities could be described as marketing efforts by pipeline developers aimed at emphasizing potential advantages of the project while downplaying risks. One key objective of these efforts appears to be the collection and dissemination of endorsements from communities along the pipeline. The ever-growing body of online advertisements leveraging endorsements from individuals, local governments, and other groups suggests that pipeline developers treat community interactions as opportunities to fuel public relations and advertising campaigns. A list of endorsers on Dominion's website^{vi} points to this mindset as well. Interestingly, as of April 6, 2017, the website still lists the Haliwa-Saponi Tribe of North Carolina among "ACP Supporters" even though the tribe formally revoked its support months ago after learning about pipeline impacts not revealed by corporate representatives during outreach activities.

Developers have every right to pursue outreach and public relations activities that portray their projects favorably, but these activities are not consultation as defined by the Advisory Council on Historic Preservation, the National Environmental Justice Advisory Council or the United Nations. Dissemination of information and material in tribal communities that deliberately highlights advantages and downplays risks of a project while simultaneously seeking to leverage public endorsements for future advertising cannot be construed as consultation by any definition. These activities, together with developers' strategic gift giving in communities along the pipeline route, could be described more accurately as asymmetric power plays by corporations that made decisions long ago without input from vulnerable communities. Now these corporations seek to check the proverbial box of consultation in the exact manner that UN Special Rapporteur Tauli-Corpuz warned against. Such one-sided corporate engagement efforts together with untenable analytics have now placed pipeline developers and regulators in a difficult position to defend: On one hand the DEIS claims no disproportionate impacts on minority communities, but on the other hand the project would impact a substantial fraction of the largest indigenous population of the eastern United States.

The stark disconnect between the environmental justice analysis and reality not only reflects major flaws in the present study, but it also bears resemblance to some of the factors underlying indigenous resistance to the Dakota Access Pipeline (DAPL). In that case, Energy Transfer Partners pursued public relations-oriented outreach with the Standing Rock Sioux Tribe, but the proposed route was strongly criticized by tribal leaders in 2014. Federal regulators (here, USACE) missed important opportunities to understand and weigh tribal priorities and concerns pertaining to NHPA Section 106 and other regulations. Had meaningful consultation occurred, ideally during the route-planning portion of the project, changes could have been made to address tribal concerns. Mass demonstrations, protests, and public outcry against DAPL may not have occurred. In this respect, DAPL serves as a cautionary tale to developers and regulators who may view consultation as an obstacle to overcome rather than an opportunity to learn more about the communities being asked to shoulder the cultural and environmental burdens of such projects.

There are important distinctions between DAPL and ACP related to indigenous peoples, including the fact that most indigenous peoples along the ACP route belong to non-federal tribes

^{vi} <https://www.dom.com/about-us/news-center/natural-gas-projects-and-initiatives/atlantic-coast-pipeline>

and are not entitled to consultation by law. However, federal agency guidance and federally endorsed international guidance (Footnotes iv and v) advise consultation with indigenous peoples regardless of recognition status. The social, political, and historical reasons explaining why tribes lack federal recognition are many and complex, but tribes' claims to their ancestral territories are demonstrable and significant. Given that the indigenous population along the ACP is more than double the combined population of the Standing Rock Sioux Tribe and Cheyenne River Sioux Tribe (the two tribes leading legal opposition to the DAPL), a prudent approach for ACP developers and regulators would involve immediate and meaningful consultation with governments of all tribes whose citizens stand to be affected by this project.

3. Alternative Energy and Climate Change

Alternative energy sources are not considered in the no-action alternative (Section 5.1.15) because regulators claim that generation of electricity is beyond the scope of the proposed project. Specifically, the DEIS states that "the purpose of ACP and SHP is to transport natural gas" (p. ES-13, 5-26). However, this statement does not accurately reflect the primary purpose of the project, as defined by the petitioner. According to Section 1.1, the primary purpose for the project is electricity generation (p. 1-2). Indeed, most of the gas (79%) is intended for electricity generation. That the petitioner adds "by using the natural gas to generate electricity" to its purpose statement does not negate the fact that the principal motivation for this project is electricity generation. The DEIS contains numerous discussions that emphasize the project's intended purpose of generating electricity. The DEIS highlights the growing need for electricity in the region (p. ES-2), the economic advantages of gas-derived electricity (p. 3-3, 4-408), the greenhouse gas advantages of gas-derived electricity over coal (4-512), and improvements to regional air quality as electricity production shifts from coal to gas (ES-13). The principle petitioners, Duke Energy and Dominion Power, are mainly in the business of producing electricity. According to Duke Energy's most recent annual investor report^{vii}, the company's electricity entities – Duke Energy Carolinas and Duke Energy Progress – will be the pipeline's principle customers.

A reasonable reading of the DEIS alone or in combination with corporate materials reveals that electricity generation is, unquestionably, the overarching motivation for this project and the principle counterbalance for all of the environmental and socioeconomic impacts identified during the review. With this in mind, to claim that conservation and alternative energy cannot be considered in the environmental review because the purpose of the project "is to transport natural gas" is, at best, disingenuous. If the scope of this environmental review is limited to transporting natural gas, then all of the aforementioned benefits of gas-derived electricity should be struck from the DEIS. If these benefits remain in the review, then regulators implicitly acknowledge that the purpose of the project is to generate electricity, and they are obliged to carefully consider both alternative energy and conservation measures throughout the review. Either acknowledge electricity generation consistently in the DEIS, or ignore it altogether. Selective ignorance is indefensible.

Including alternative energy in the environmental review is important given North Carolina's emerging role as a national leader in solar and wind energy. Utility-scale and smaller initiatives are underway across the state, and a major influx of new natural gas supplies has the potential to serve as a double-edged sword. On one hand, as developers will correctly argue,

^{vii} https://www.duke-energy.com/_/media/pdfs/our-company/investors/de-annual-reports/2016/2016annualreport.pdf

natural gas may serve as a steady-load complement to less predictable inputs of wind and solar projects. On the other hand, new pipeline infrastructure will lock the region into decades of continued dependence on an unsustainable and, ultimately, dangerous source of energy in terms of its climate change potential.

The best available science suggests that greenhouse gas emissions need to be curtailed significantly and immediately. Replacing coal with natural gas may result in a relative decrease in greenhouse gas emissions, but when fugitive methane emissions are considered together with the added combustion capacity described in the DEIS, the ACP still results in a net increase in greenhouse gas emissions over 2017 and moves us toward the worst-case scenario of climate change^{viii}. The DEIS acknowledges that greenhouse gas emissions associated with the ACP will contribute incrementally to climate change, but it fails to assign the project any responsibility for those incremental changes (p. 4-511). Although we may not be able to determine the magnitude of climate change assignable to the ACP, we know the sign of its impacts. In other words, the ACP will unquestionably sustain the release of carbon dioxide and methane into the atmosphere over the project's lifetime. Inability to quantify the degree of change attributable to a particular project does not absolve the project from any responsibility whatsoever, particularly when the direction of change is unquestionable.

Federal regulators are fully aware of the greenhouse gas implications of natural gas development, including the development of shale gas from central Appalachia^{6,7}, and I will not provide a detailed review of those implications here. Instead, I point out that ignoring all climate change implications simply because we cannot assess the degree of contribution is unsustainable and irresponsible policy. If each fossil fuel infrastructure project is reviewed by this standard, then the federal agency responsible for reviewing and authorizing such projects will never have an opportunity to weigh in on the most serious, cumulative impact of the totality of such projects.

4. Conclusions and Recommendations

The DEIS contains a thorough review of many topics of environmental concern to stakeholders along the pipeline route. However, the review process, in its current form, has failed to ensure that its environmental justice obligations have been met. A poor environmental justice analysis failed to detect important demographic patterns that manifest as disproportionate impacts on poor and minority communities (particularly American Indian communities) at multiple spatial scales. In terms of consultation with American Indian tribes, regulators and petitioners have been demonstrably active, but the activities described in the DEIS are strongly geared toward public relations and marketing by petitioners and should not be misconstrued as consultation. Although regulators are not bound by law to consult with most of these tribes because of their non-federal status, federal and international guidance documents recommend doing so.

The broader question of whether the review of this project has satisfied its environmental justice obligations demands that American Indian tribes and other vulnerable communities along the pipeline route have a seat at the decision making table. A seat at the table means that these

^{viii} Globally, we are tracking the RCP8.5 emissions scenario from the latest round of general circulation model projections. The scenario shows that human greenhouse gas emissions will drive warming globally, and this will manifest as climate change (e.g., warmer summers in the Southeast, declining snowpacks in the American West, more extreme weather globally, etc.) RCP8.5 is commonly referred to as the "worst case scenario" and is generally accepted by scientists and most of the world's decision makers as an unsustainable trajectory.

communities' perspectives matter, not only on the back end (i.e., after the route has been determined) but on the front end as well. Whether regulators acknowledge it or not, these communities are the least equipped to deal with either guaranteed or probably impacts of climate change. Along the ACP, these impacts include, most notably, a significant increase in summer peak-load electricity usage due to increasing summer temperatures⁸.

To remedy issues raised with the DEIS, I recommend that regulators first create a new environmental justice analysis, ideally in partnership with federal staff or academic researchers who are familiar with common challenges of such analyses. The National Environmental Justice Advisory Council would be a logical place to begin the search for a partner. Once the new analysis has been performed, I encourage regulators to grapple with tough questions that will likely arise due to disproportionate impacts on poor and minority populations along the route, particularly in North Carolina. While it is true that the petitioners have already worked for years to secure easements along the proposed route, their ignorance of environmental justice obligations or reliance on flawed methodologies does not excuse the requirement to perform the analysis correctly and take the results seriously.

Furthermore, I recommend that the FERC immediately set up in-person meetings between its tribal liaison and governing bodies of impacted tribes along the proposed route. This issue is too important to relegate to emails or form letters (ask the USACE or the Standing Rock Sioux Tribe). During meetings, the liaison should inquire about prior interaction between tribes and petitioners, including open houses, informational meetings, and gift giving activities in and around indigenous communities. This information will provide valuable context and help regulators understand the status of relationships and interactions between tribes and petitioners. In addition to meeting with tribes, I recommend the liaison attend an upcoming quarterly meeting the North Carolina Commission of Indian Affairs. This body informs and advises the state government on all issues of concern to tribes, including issues related to environment, economic development, and public health.

I also advise regulators to correct the logical inconsistency in the DEIS dealing with the selective failure to consider electricity production as the main purpose of the ACP. The petitioners themselves promote this purpose, and DEIS states that this is the purpose in many instances where it promotes a benefit or offsets an impact. Please also reconsider the failure to weigh climate change impacts simply because the magnitude of impact cannot be determined. This is shortsighted policy and logically inconsistent. If this practice continues in environmental reviews, global society will pay a heavy toll due to our unwillingness to count the cost of our continued reliance on fossil fuels.

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Comments of Ryan E. Emanuel, Ph.D. on the Atlantic Coast Pipeline*

The Atlantic Coast Pipeline is a 36"-42" diameter natural gas pipeline proposed to extend approximately 600 miles from West Virginia's Marcellus Shale to endpoints in Virginia and North Carolina (1). The developer, a partnership of utility corporations, contends that the project is needed to meet the region's growing energy needs and estimates that nearly 80% of the pipeline's capacity would be used to generate electricity for the utilities (1), which have reduced their dependence on coal in recent years. The remaining 20% of the pipeline's capacity would be split between commercial, residential and other purposes (1).

The North Carolina Department of Environmental Quality has been tasked with evaluating the discrete and cumulative water quality impacts of the project under Section 401 of the Clean Water Act. The state has the authority to grant, grant with conditions, deny, or waive its certification of a project based on its review of the application and other relevant materials. My written comments focus on two areas of the developer's Pre-construction Notification to the USACE, and it also summarizes broader concerns that I have spoken and written about before.

Cumulative Impacts

The unusual size and scope of this project requires an appropriately heightened level of scrutiny and oversight by state regulators. This is especially true for linear energy projects, which have relatively small direct footprints but, by their very nature, are designed to have outsized cumulative impacts. In the case of the Atlantic Coast Pipeline, these impacts are best summarized by the primary project purpose, as stated in the final environmental impact statement (1):

*to serve the growing energy needs of multiple public utilities and local distribution companies in Virginia and North Carolina by **using the natural gas to generate electricity for industrial, commercial, and residential uses.** (emphasis added)*

Thus, even though the Atlantic Coast Pipeline directly impacts a narrow corridor through eastern North Carolina, the purpose for which the developer seeks approval (i.e., meeting regional energy needs) implies significant indirect impacts to the region. Moreover, the developer has conducted a multi-year advertising and public relations campaign promoting future economic growth and development along the proposed pipeline corridor fueled by the Atlantic Coast Pipeline (2). Both federal filings (e.g., environmental impact statements) and the developer's advertising and public relations campaign suggest that the cumulative impacts of the Atlantic Coast Pipeline include new development and infrastructure that extend well beyond the linear project corridor.

The developer's claims of industrial and commercial growth are not unrealistic. With no major natural gas pipeline presently crossing eastern North Carolina, it is likely that the Atlantic Coast

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Pipeline would spur new development. Even though direct natural gas consumption by non-utility consumers is expected to use only 9% of the pipeline's capacity, this still leaves a potential for 135 million cubic feet per day of gas available for industries in Virginia and North Carolina.

The developer has provided no specific information about industry sectors that would be attracted by utility-scale natural gas, but the recent (20-30 year) trend toward industrialized meat production in eastern North Carolina suggests this is a logical sector to leverage natural gas. Indeed, Sanderson Farms recent decision to locate their St. Pauls poultry facility - a heat and energy intensive operation - directly along the Atlantic Coast Pipeline corridor is evidence that the project will continue to attract meat processing facilities and accompanying wastewater land application systems and networks of industrial-scale animal sheds. Land application systems and animal sheds bring distinct water quality issues (3). Other industries, including advanced manufacturing bring concerns related to stormwater, emerging contaminants, and more.

The developer's revised Pre-Construction Notification to the USACE states that there is a potential for future impacts associated with the project that have water quality implications. Specifically, the developer responds "Yes" to question F3A: "Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?" Nevertheless, the developer's supplemental materials fail to elaborate on any impacts related to regional economic stimulus alluded to in their federal filings or in their advertising and public relations campaigns. Moreover, the developer inappropriately absolves itself of any cause-and-effect relationship between the pipeline and future development by claiming that future users of gas are:

...separate business entities that will require separate review and approval of the projects proposed or that may be proposed in the future for their customers and business needs. The ACP will transport natural gas to the delivery point, or connection with Atlantic customer. Once the natural gas has been delivered to Atlantic's customer it is no longer under the purview of Atlantic or the FERC review of the ACP.

Denying any link between new energy infrastructure and water quality impacts related to future development stands in contrast to the developer's ongoing advertising and public relations campaign, which focuses intensively on economic development in rural and underserved regions of North Carolina (2). If the pipeline is expected to spur economic development, particularly with respect to industrialized agriculture, it is reasonable and expected that such cumulative impacts will be discussed in the Clean Water Act filings and evaluated by regulators. The nine percent of capacity expected to be made available for industry represents 135 million cubic feet per day, or nearly 50,000 million cubic feet per year (approximately 50% of current industrial gas consumption for North Carolina). Thus, even one third of this estimated industrial gas supply (if split evenly between the three states) would have drastic impacts on industrialization and concomitant water quality impacts in eastern North Carolina. The scale of development that could realistically stem from this project is too great to ignore at this stage.

In the end, the developer can't have it both ways. If the developer-sponsored advertising and public relations campaign wants to make an economic development case for the project, then the

likely impacts of that development should be within the purview of state and federal regulators. If the developer doesn't want to take responsibility for future development spurred by the project, then arguments about economic development in eastern North Carolina should be excluded from further discussion.

Given the expected impact of the Atlantic Coast Pipeline on economic development in eastern North Carolina, the Department of Environmental Quality should not make a decision on Section 401 Certification until these cumulative impacts have been evaluated in greater detail.

Cultural Resources

Section F7a of the Pre-Construction Notification asks "Will the project occur in or near an area that the state, federal, or tribal governments have designated as having historic or cultural preservation status?" The developer responded "Yes" to this question; however, supplemental information provides vague statements about coordination with SHPOs and federally-recognized tribes to comply with Section 106 of the National Historic Preservation Act. There is only one mention of state-recognized tribes in the supplemental information (p. 97), and the supplement only states that they were "contacted for the ACP."

As stated during a state government-sponsored meeting of tribal leaders on August 9, 2017 in Hollister, NC (report from NC Commission of Indian Affairs forthcoming), tribes do not have strong relationships with NC SHPO, and tribes lack resources to seek National Register of Historic Preservation listing for their own cultural and sacred sites. This does not mean such sites do not exist. As stated during the meeting of tribal leaders, the developer's utter failure to engage tribes in the early stages of the planning process has now placed tribes in an "emergency response" situation where tribal leaders are forced to react immediately to comply with state and federal permitting timelines.

For under-resourced tribal communities dealing with chronic poverty, poor health, and the lingering effects of Hurricane Matthew, these timelines represent completely unreasonable expectations for documenting cultural and historic sites. The refusal of federal regulators to acknowledge demonstrated disproportionate impacts on tribes (4) only exacerbates this situation, because it allows federal and state regulators to assume that few if any tribal communities are impacted by the project. In reality, no demographic group will be affected as greatly as Native Americans; they represent 1.2% of North Carolina's population, but make up over 13% of those living within one mile of the proposed route through the state. With 30,000 Native Americans, 25% of North Carolina's indigenous population, affected by the pipeline, there is no other infrastructure project in review in the US today that would have as great an impact on Native Americans as the Atlantic Coast Pipeline.

The Department of Environmental Quality should not make a decision on Section 401 Certification until (1) the disproportionate impacts are formally acknowledged by federal and state regulators, and (2) meaningful consultation occurs between government agencies, tribal governments, and other parties regarding the impacts of this project on Native American populations and on cultural and sacred resources of North Carolina's tribes.

Avoidance

The developer states in Supplement Section D1 that federal environmental review includes treatment of project alternatives. However, the final environmental impact statement published by FERC does not include a meaningful discussion of major alternatives, including the no action alternative. The federal review summarily dismissed the no action alternative and alternative energy solutions because it claims to be incompatible with the purpose of transporting natural gas (*1*). However, as shown in the quoted text above, the executive summary of the environmental impact statement declares that the primary purpose of the Atlantic Coast Pipeline, and the reason why it seems a certificate of public convenience and necessity, is to generate electricity.

While the pipeline is, indeed, designed to transport natural gas, it is an over-simplification to claim that this is the primary purpose of the project, when the stated motivation for the project is to generate electricity. Existing contracts showing 80% electricity production confirm that the main purpose of the project is to generate electricity. For this reason, the federal environmental review's dismissal of alternative energy solutions seems highly suspect.

The developer's certificate of public convenience and necessity may hinge on the fact that most of the gas will be used for electricity generation. The federal environmental review's curt dismissal of alternatives that do not "transport natural gas" are disingenuous and need to be revisited. The Department of Environmental Quality should not make a decision on Section 401 Certification until a thorough, independent evaluation of alternative energy solutions has been conducted. For example, what would a \$4.5B investment (i.e., the cost of the Atlantic Coast Pipeline) in renewable energy look like for North Carolina, Virginia, and West Virginia?

In lieu of a detailed evaluation of alternative ways to meet electricity needs, the federal environmental impact statement should be revised to reflect the developer's actual project objectives, including transporting natural gas from shale formations to power plants and other facilities owned primarily by the developing partners.

Other Considerations

Finally, I wish to raise additional considerations that involve the Department of Environmental Quality but are broader in scope too, and include the Department of Commerce, the NC Commission of Indian Affairs, and the NC Attorney General's office.

As I mentioned during the public listening session in Lumberton on August 17, 2017, The Atlantic Coast Pipeline's expected economic benefits will be dwarfed by the climate impacts of "business as usual" fossil fuel development (*5*). This development includes construction of projects such as the Atlantic Coast Pipeline. Health, economic, and other damages associated with climate change under the "business as usual" scenario are expected to cost North Carolina approximately \$18B per year by the end of this century (*6*). The developer's economic analyses and these climate-related analyses cover different time periods, but it is unlikely that the economic benefits of this project or other fossil fuel infrastructure projects will offset multi-billion dollar annual losses to the state expected from unchecked climate change. North

Carolina agencies should weigh the cost of climate change in their evaluation of the environmental and economic impacts of this proposed pipeline.

While reviewing the developer's proposal, state officials should also weigh reports of unethical easement acquisition practices by agencies representing the pipeline developer. On April 20, 2017, I attended a meeting with the NC Attorney General's staff in Raleigh to hear from landowners along the pipeline route. I would encourage DEQ officials to consult with the Attorney General's staff who attended this meeting as the state of North Carolina seeks to answer the broader question of the extent to which this project serves the public trust.

I am also available for consultation on matters related to water, climate, and environmental justice. I am one of North Carolina's leading scientific experts when it comes to the intersection of these three areas. I am also submitting, for the written record, other documentation that I have provided to FERC and published recently related to the Atlantic Coast Pipeline. They follow the references and notes of this document.

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By: Ryan E. Emanuel, Ph.D.

Date: April 6, 2017

1. Introduction

My name is Ryan E. Emanuel, and these are my comments on the draft environmental impacts statement for the Atlantic Coast Pipeline. I hold a Ph.D. in Environmental Sciences, and I am an Associate Professor and University Faculty Scholar in the Department of Forestry and Environmental Resources at North Carolina State University (NC State). NC State is the largest academic institution in the state, and it is one of our two land grant institutions. I lead a research program that focuses on hydrology, ecology, atmospheric science, geoscience and integrated topics, including climate change, socio-ecological systems, and indigenous knowledge. My research program spans North Carolina and extends to other parts of the US and Latin America. I am an enrolled member of the Lumbee Tribe, and I serve the broader American Indian community in various ways, including as an ex officio member of the North Carolina Commission of Indian Affairs' Environmental Justice committee. You can find my curriculum vitae and other information on my website: go.ncsu.edu/water. These comments constitute my professional opinions and do not necessarily reflect the views of NC State, the Lumbee Tribe, or the Commission of Indian Affairs.

My comments principally concern environmental justice, but I also raise issues related to the no-action alternative and attribution of climate change impacts. Of these comments, the environmental justice concerns are most serious; the analysis is fatally flawed and has led to false conclusions regarding disproportionate impacts, particularly concerning American Indians. Section 2 exposes the conceptual and mathematical details of these flaws and discusses the implications. I also provide a basic, but mathematically and conceptually sound analysis of impacts on American Indians, which I offer to regulators as a starting point for new analyses. In it, I reveal that the pipeline stands to impact nearly 30,000 American Indians, representing one quarter of the state's indigenous population and 1% of the US indigenous population. No pending infrastructure project stands to affect as many American Indians as the ACP. In light of these impacts, I explain the importance of tribal consultation. I show that federal and international guidance documents recommend such consultation, even when tribes are not federally recognized.

Section 3 shows that ignoring alternative energy and conservation practices amounts to selective acknowledgement of electricity production as a key purpose of the ACP; electricity production is a widely-touted purpose where it benefits the pipeline, yet it ignored at key junctures in the DEIS. This section also raises systematic issues with absolution of responsibility for climate change impacts during the environmental review process. Ignorance of an effect's magnitude does excuse responsibility, particularly when the direction of the impact (here, a net increase in greenhouse gas emissions) is known. In total, my comments focus on what I believe are at once the weakest but most critical parts of this environmental review. These are the big-picture issues that federal regulators should be best equipped (and most qualified) to handle. Ironically, these seem to be the sections of the DEIS that have received the least attention. There

are no easy fixes to the systemic issues that I raise. Nor should there be; environmental justice and climate change are major challenges of our time. If regulators move forward without acknowledging, remedying, and weighing the implications of (1) fundamental errors in their environmental justice analyses and associated conclusions, (2) selective acknowledgement of electricity production as a valid purpose for some parts of environmental review but not others, or (3) ignoring climate change impacts because the ACP is only one small contributor of greenhouse gases out of many under federal oversight, then they do so with full knowledge that their review is flawed in design and logic, and that present and future generations of poor and minority citizens will suffer because of their oversight. I hope, instead, that regulators choose to revisit these analyses and conclusions, draw additional insight and advice from experts in relevant fields, and produce a clearer, more accurate accounting of the environmental impacts of this project.

2. Environmental Justice Analysis

2.1 Overview

Environmental justice analyses are mandatory in federal Environmental Impact Statements, but there is no standard method for computing disproportionate impacts¹⁻⁴. As such, researchers have raised concerns for many years about potential misapplication of methods or tailoring of methods to support a predetermined outcome^{2,3}. The environmental justice section of the Atlantic Coast Pipeline's draft Environmental Impact Statement (DEIS) appears to be an example of such misapplication. The DEIS concludes there will be no disproportionate impacts on poor or minority communities along the preferred route. However, when the data in Appendix U are analyzed in a statistically appropriate manner, they reveal large disproportionate impacts on American Indians. The failure of the analysis reported in Section 4.9.9 to detect such disproportionate impacts on one particular minority population calls into question its conclusions related to other populations, and it undermines the rigor of environmental justice analysis as a whole.

2.2 Description of Major Flaws

The environmental justice analysis in the DEIS 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 reference populations of the counties in which it they are located. According to the DEIS, this analysis is grounded in guidance from Executive Order 12898 and the EPA; however, this particular approach to analyzing environmental justice impacts has fatal flaws in numerical analysis and overall design that render results un-interpretable and prevent regulators from drawing meaningful (or correct) conclusions about impacts on vulnerable populations.

2.2.1 Mathematically inappropriate comparisons among census tracts

The process of counting census tracts with “meaningfully greater” minority populations fails to account for large differences in population and racial makeup among census tracts and also among counties serving as reference populations. These large differences are described in on p. 4-412 and tabulated in Appendix Uⁱ of the DEIS. Because the census tracts vary widely in population, one cannot simply compare the number of blocks with “meaningfully greater” minority populations to the number of blocks with smaller minority populations and draw

ⁱ The DEIS mistakenly refers to Appendix V when referring to results presented in Appendix U.

conclusions about disproportionate impacts. This approach assumes all census tracts carry the same weight in the analysis, but this is not the case in terms of population, area, and many other statistics associated with these census tracts. Such an approach would conclude that a census tract with a population of 1186 predominantly white residents (e.g., WV CT 9601.01) would exactly counterbalance another census tract of 7167 predominantly minority residents (e.g., NC CT 9603). This comparison is mathematically incorrect, and it drastically increases the odds of arriving at false conclusions for the ACP study area, a region where large minority populations in one area can be completely masked out by small, predominantly white populations elsewhere.

Additionally, the process of counting up the number of census tracts with “meaningfully greater” minority populations and comparing this to the total number of census tracts along the proposed route fails to account mathematically for the effects of changing baseline conditions from one county to the next. County-level data certainly provide valuable comparison statistics for census tracts, but when the baseline data change for each county (as is the case here), one loses the ability to draw meaningful mathematical comparisons across county lines. For example, the DEIS states on p. 4-412 for North Carolina, “In 13 of the 42 census tracts, the minority population is meaningfully greater than that of the county in which it is located.” The implied interpretation here is that since the number of census tracts with large minority populations is smaller than the number of census tracts with few minority residents, there must be no disproportionate impact on minorities. However, this interpretation is only valid if the baseline demographics used to compute “meaningfully greater” populations are the same for each county. In this case, the 42 census tracts within North Carolina use eight different reference populations to determine “meaningfully greater.” If the baseline demographic data change from county to county (and they do, based on Appendix Table U1), any attempt to draw conclusions about the proportion of census tracts with large minority populations is invalid outside of a single county. However, this is exactly what the present environmental justice analysis attempts to do. Moreover, as differences in baseline data increase among counties, the risk of under-predicting (or over-predicting) impacts on minority populations increases. Because county-level demographics vary widely over the proposed pipeline route, the environmental justice conclusions of the DEIS cannot be supported by the current analysis in section 4.9.9.

The existing environmental justice analysis hinges on assumptions that census tracts are uniform in population sizes and that reference areas are uniform in demographic characteristics. These assumptions are not stated in the DEIS; rather, the mathematical method chosen for this analysis demands that these assumptions be met. In fact, these assumptions are simply untrue, and this has led to invalid comparisons of census tracts in the environmental justice section of the DEIS. At face value, it may seem that census tracts are similar units that can be compared side by side. However, the census tract statistics that have been chosen for comparison cannot be tallied up, because they ignore both the weighting effects of actual population sizes and the mathematical constraints of shifting baselines.

The design of the existing analysis, which involves simply comparing the number of census tracts above or below a threshold, fails to provide a means to evaluate statistical significance of the results. A statistically robust analysis would, minimally, involve pooling all of the impacted census tracts for each state, and comparing this test population with a suitable reference population drawn 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 method can be conducted for minority population as a whole and for specific racial or ethnic categories.

2.2.2 Ambiguous definition of “meaningfully greater”

The method for determining “meaningfully greater” poses mathematical problems for comparing census tracts. Footnote 20 (p. 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 either very small or 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 proportion of minority residents of a census tract would have to be six times greater than the reference proportion before the tract registers as “meaningfully greater.” This places an unusually high (6x) detection threshold on the census tract, and it increases the risk of overlooking a disproportionate impact in predominantly white areas of a study region.

At the other end of the spectrum, regions with predominantly minority (or poor) populations include census tracts that are already surrounded by large minority (or poor) populations. If a reference population is already, say, 65% minority, then the present analysis requires a census tract to have a minority population of 75% before it is classified as disproportionately impacted. Here, the analysis forces a strange proposition – census tracts with some of the highest minority populations along the entire route are excluded from the “meaningfully greater” category in the broader analysis simply because they are situated in a majority-minority county. Indeed, Table U1 reveals census tracts in North Carolina with minority populations in excess of 75% that do not count towards the disproportionate impacts of the project as whole because they are situated a county with a disproportionately large minority population (70%) compared to the rest of the study area. This example highlights a key problem with the present environmental justice analysis. Whether the analysis uses a fixed percentage point exceedance or some other metric, correct identification of a reference population is crucial for determining the scale at which the analysis may be interpreted.

In the case of the ACP, use of county-level reference populations in the “meaningfully greater” computation means that counties cannot be compared directly with one another. More specifically, the definition of “meaningfully greater” must be further defined as “meaningfully greater than the county in which the census tract is located.” Given this mathematically constrained definition, the present analysis is incapable of determining disproportionalities for the project as a whole; it simply answers a series of county-by-county questions about disproportionate impacts on minority populations. One purpose of federal oversight on projects of this scale is to ensure that the project as a whole does not place disproportionate impacts on vulnerable populations. This purpose simply cannot be achieved by the present analysis.

2.3 Implications of Flaws

The inability of the environmental justice analysis to evaluate disproportionate impacts for the project as a whole raises serious concerns about its utility. Given that a key purpose of an environmental justice analysis is to reveal the extent to which poor and minority populations may bear a disproportionate share of a project’s environmental cost, an analysis that concludes no impacts for a project traversing large regions with substantial minority populations (e.g., Halifax, Northampton, Robeson Counties, NC) and poor populations (e.g., Brunswick, Buckingham

Counties, VA) while skirting adjacent whiter, wealthier areas (e.g., Albemarle, VA; Wake, NC) should raise serious concerns among regulators. In the case of the ACP, this is not a hypothetical scenario. Not only does the project cross areas of high poverty in rural Appalachia, but it also runs through the so-called “Black Belt”⁵ of Virginia and North Carolina. Both regions have borne disproportionate shares of environmental burdens throughout US history, and their local populations live with an unfortunate legacy of past environmental decision making in which they have had little or no part. These are, quite literally, the textbook study regions for environmental justice. Federal regulators should be first to acknowledge these large-scale, multi-state patterns of inequity and to hold petitioners accountable for their activities in these regions. Instead, the environmental justice conclusions of this DEIS hinge on what is essentially a series of county-level calculations, combined in a mathematically indefensible fashion, and hard-wired to ignore important regional demographic patterns that frame the project as a whole.

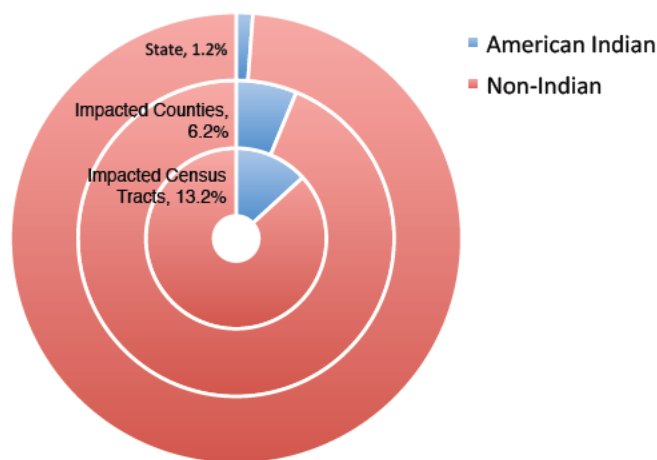
2.4 Realistic Environmental Justice Analysis

In the previous sections, I offered technical suggestions for remediating the flawed design of the current environmental justice analysis. Here I provide an example of a more realistic environmental justice analysis that pools census tract data in a statistically appropriate manner. This example analysis could be expanded and applied to other demographics throughout the study area as a whole. Data from Appendix U show that in North Carolina alone, approximately 30,000 American Indians live in census tracts along the route. To place this number in a larger demographic context, it represents one quarter of the state’s American Indian population and 1% of the entire American Indian population of the US. To put this in qualitative terms, there is no other energy project currently under federal review that stands to impacts as many American Indians as the ACP.

When populations are summed for census tracts along the North Carolina portion of the pipeline route, I find that 13.2% of the total population of these census tracts identifies as American Indian. For the North Carolina counties in which these census tracts are located, American Indians constitute 6.2% of the population. American Indians constitute 1.2% of the entire population of the state of North Carolina. Figure 1 compares aggregate census tract, county, and state-level statistics.

Using either the county-level data or the state-level data as a baseline, we find that the proposed route impacts American Indian populations at disproportionate rates. Within the affected counties, the proposed route is 2.1 times as likely to impact American Indians as expected based on the appropriate reference population. In this case, the appropriate reference is the total population of the selected counties. Within the state of North Carolina, the proposed route is 11 times as likely to impact American Indians as expected based on the appropriate reference

Figure 1: Statewide American Indian population of North Carolina compared to populations of counties and census blocks impacted by the proposed Atlantic Coast Pipeline



population. Here, the appropriate reference is the state-level population.

When data from Table U are properly aggregated, and when appropriate reference populations are selected, we find that the proposed route undoubtedly imposes disproportionate impacts on American Indians. By comparing the state-level, county-level, and tract-level results further, we can begin to understand the underlying reasons. Specifically, comparing state-level data to the impacted counties reveals the large-scale route of the pipeline through North Carolina's "Black Belt," where many of the state's American Indians have maintained continuous settlements for centuries. The Meherrin, Haliwa-Saponi, Coharie, and Lumbee tribes in particular claim ancestral territories in North Carolina's Coastal Plainⁱⁱ, and the proposed pipeline route passes, preferentially, through their ancestral territories relative to other regions of the state. Hence, it is no surprise that a pipeline through this region of the state would impact American Indians disproportionately.

At a finer scale, the data show that the pipeline would still impact American Indians disproportionately, even in a region of the state where their populations are already high relative to the state as a whole. Many of these census tracts surround the historic Lumbee community of Prospect. This community is situated within a larger cultural landscape of historical and spiritual importance to many Lumbee people. This community is also the southern terminus of the proposed pipeline. Why the developers would plan to route the project through this community or locate its terminus here is unknown. Nevertheless, the choice to route the pipeline through this culturally significant landscape and through other areas of significance to other tribes explains, in part, why American Indians, who continue to live in and around these culturally significant landscapes, are impacted disproportionately by this project. In providing this analysis, I hope to demonstrate to regulators how an appropriate choice of reference population, combined with culturally relevant knowledge about the pipeline route can provide a more accurate view of environmental justice concerns related to American Indians.

2.5 Tribal Consultation and Environmental Justice

Given the disproportionate impacts on American Indians revealed in the previous section, I recommend that the regulatory agency engage in formal consultations with governments of the Meherrin, Haliwa-Saponi, Coharie, and Lumbee Tribes in North Carolina and with tribal governments in Virginia as wellⁱⁱⁱ. The four tribes listed above are recognized by the state of North Carolina, and the pipeline crosses each tribe's ancestral territory. Tribes have lived in these areas for many centuries, and they maintain unique cultural and religious attachments to specific lands and waters of their ancestral homelands. Given relatively weak relationships between North Carolina tribes and the state's Historic Preservation Office, and given lack of resources available to tribal governments, little information is publicly available about cultural or religious sites of importance to these tribes. Thus, regulators should be proactive in approaching these tribes to learn, firsthand, about their needs and priorities.

ⁱⁱ The Waccamaw Siouan tribe also inhabits the Coastal Plain, but the proposed route does not appear to pass through their territory. It would be safest to contact them as well as all Virginia tribes.

ⁱⁱⁱ The list of tribes is not exhaustive. North Carolina recognizes four additional tribes, and it is possible that members of these tribes or members of other federal or non-federal tribes may be among those impacted. Several tribes are currently based in Virginia as well.

Regulators are not compelled by law to enter into high-level consultations with state recognized (i.e., non-federal) tribes, but NEPA and NHPA guidance documents^{iv} advise regulators to engage non-federal tribes in formal consultation in light of the unique, place-based relationships that indigenous peoples hold with their traditional landscapes and natural resources. In the case of the ACP, regulators have already set a precedent for offering consultation status to entities other than federally recognized tribes when they granted consultation status to the Nelson County (VA) Board of Supervisors under Section 106 of the NHPA. If a non-indigenous group can receive consultation status under a federal law that protects cultural landscapes, surely indigenous tribes, regardless of their federal status, can receive similar consideration.

In addition to federal law, the United Nations Declaration on the Rights of Indigenous Peoples affirms the right of all indigenous peoples to give “free, prior, and informed consent” to governments before they undertake activities that affect indigenous lands and life ways. The Declaration provides additional guidance on the nature of consultation with indigenous peoples, and the US has endorsed the Declaration since 2010. Earlier this year, a UN Special Rapporteur on the rights of indigenous peoples visited the US to document issues surrounding energy development, tribes, and consultation. Her initial report^v highlights deficiencies in federal policy surrounding tribal consultation and points to larger structural problem in federal-tribal relations. In particular, the rapporteur notes:

“The goal of tribal consultation is not simply to check a box, or to merely give tribes a chance to be heard. Rather, the core objective is to provide federal decision makers with context, information, and perspectives needed to support informed decisions that actually protect tribal interests.”

I urge regulators to take the rapporteur’s advice seriously and engage in meaningful consultation that surpasses form letters or emails. Even a basic environmental justice analysis that handles data appropriately (e.g. Section 2.4 above) reveals disproportionate impacts of the ACP on indigenous peoples. The impacted tribes of North Carolina and Virginia, regardless of their federal recognition status, deserve appropriate high-level consultation with regulators given the fact that their ancestors once owned most of the region under discussion. Through a long history of war, dishonest dealings, disenfranchisement, segregation, and environmental racism, their land holdings were diminished and degraded to the small fractions that remain today. Yet their spirits and voices have not been so diminished. Engage in meaningful discussion to learn about the cultural landscapes, sensitive ecosystems, and historical contexts that underlie tribal interests and concerns related to this project. Recognize the vast asymmetry that exists between federal resources and tribal resources in areas of finance, personnel, and information. Send FERC tribal liaison, Elizabeth Molloy to meet with individual tribal governments and with the North Carolina Commission of Indian Affairs – the state-authorized body dealing with issues of concern to all American Indian tribes within North Carolina.

^{iv} Advisory Council on Historic Preservation, Consultation with Indian Tribes in the Section 106 Review Process: A Handbook, June 2012; National Environmental Justice Advisory Council, Guide on Consultation and Collaboration with Indian tribal governments and the public participation of indigenous groups and tribal members in environmental decision making, November 2000.

^v End of Mission Statement by the United Nations Special Rapporteur on the rights of indigenous peoples, Victoria Tauli-Corpuz of her visit to the United States of America, March 2017.

Engagement and consultation between regulators and tribes should take place in a way that is fundamentally different from outreach efforts that have occurred to date. Here I refer to efforts led primarily by pipeline developers. Their in-person efforts to engage tribal communities through open houses and other presentations might best be classified as marketing activities. Far from high-level discussions with tribal leaders and elders, activities occurring since 2014 in and around tribal communities could be described as marketing efforts by pipeline developers aimed at emphasizing potential advantages of the project while downplaying risks. One key objective of these efforts appears to be the collection and dissemination of endorsements from communities along the pipeline. The ever-growing body of online advertisements leveraging endorsements from individuals, local governments, and other groups suggests that pipeline developers treat community interactions as opportunities to fuel public relations and advertising campaigns. A list of endorsers on Dominion's website^{vi} points to this mindset as well. Interestingly, as of April 6, 2017, the website still lists the Haliwa-Saponi Tribe of North Carolina among "ACP Supporters" even though the tribe formally revoked its support months ago after learning about pipeline impacts not revealed by corporate representatives during outreach activities.

Developers have every right to pursue outreach and public relations activities that portray their projects favorably, but these activities are not consultation as defined by the Advisory Council on Historic Preservation, the National Environmental Justice Advisory Council or the United Nations. Dissemination of information and material in tribal communities that deliberately highlights advantages and downplays risks of a project while simultaneously seeking to leverage public endorsements for future advertising cannot be construed as consultation by any definition. These activities, together with developers' strategic gift giving in communities along the pipeline route, could be described more accurately as asymmetric power plays by corporations that made decisions long ago without input from vulnerable communities. Now these corporations seek to check the proverbial box of consultation in the exact manner that UN Special Rapporteur Tauli-Corpuz warned against. Such one-sided corporate engagement efforts together with untenable analytics have now placed pipeline developers and regulators in a difficult position to defend: On one hand the DEIS claims no disproportionate impacts on minority communities, but on the other hand the project would impact a substantial fraction of the largest indigenous population of the eastern United States.

The stark disconnect between the environmental justice analysis and reality not only reflects major flaws in the present study, but it also bears resemblance to some of the factors underlying indigenous resistance to the Dakota Access Pipeline (DAPL). In that case, Energy Transfer Partners pursued public relations-oriented outreach with the Standing Rock Sioux Tribe, but the proposed route was strongly criticized by tribal leaders in 2014. Federal regulators (here, USACE) missed important opportunities to understand and weigh tribal priorities and concerns pertaining to NHPA Section 106 and other regulations. Had meaningful consultation occurred, ideally during the route-planning portion of the project, changes could have been made to address tribal concerns. Mass demonstrations, protests, and public outcry against DAPL may not have occurred. In this respect, DAPL serves as a cautionary tale to developers and regulators who may view consultation as an obstacle to overcome rather than an opportunity to learn more about the communities being asked to shoulder the cultural and environmental burdens of such projects.

There are important distinctions between DAPL and ACP related to indigenous peoples, including the fact that most indigenous peoples along the ACP route belong to non-federal tribes

^{vi} <https://www.dom.com/about-us/news-center/natural-gas-projects-and-initiatives/atlantic-coast-pipeline>

and are not entitled to consultation by law. However, federal agency guidance and federally endorsed international guidance (Footnotes iv and v) advise consultation with indigenous peoples regardless of recognition status. The social, political, and historical reasons explaining why tribes lack federal recognition are many and complex, but tribes' claims to their ancestral territories are demonstrable and significant. Given that the indigenous population along the ACP is more than double the combined population of the Standing Rock Sioux Tribe and Cheyenne River Sioux Tribe (the two tribes leading legal opposition to the DAPL), a prudent approach for ACP developers and regulators would involve immediate and meaningful consultation with governments of all tribes whose citizens stand to be affected by this project.

3. Alternative Energy and Climate Change

Alternative energy sources are not considered in the no-action alternative (Section 5.1.15) because regulators claim that generation of electricity is beyond the scope of the proposed project. Specifically, the DEIS states that "the purpose of ACP and SHP is to transport natural gas" (p. ES-13, 5-26). However, this statement does not accurately reflect the primary purpose of the project, as defined by the petitioner. According to Section 1.1, the primary purpose for the project is electricity generation (p. 1-2). Indeed, most of the gas (79%) is intended for electricity generation. That the petitioner adds "by using the natural gas to generate electricity" to its purpose statement does not negate the fact that the principal motivation for this project is electricity generation. The DEIS contains numerous discussions that emphasize the project's intended purpose of generating electricity. The DEIS highlights the growing need for electricity in the region (p. ES-2), the economic advantages of gas-derived electricity (p. 3-3, 4-408), the greenhouse gas advantages of gas-derived electricity over coal (4-512), and improvements to regional air quality as electricity production shifts from coal to gas (ES-13). The principle petitioners, Duke Energy and Dominion Power, are mainly in the business of producing electricity. According to Duke Energy's most recent annual investor report^{vii}, the company's electricity entities – Duke Energy Carolinas and Duke Energy Progress – will be the pipeline's principle customers.

A reasonable reading of the DEIS alone or in combination with corporate materials reveals that electricity generation is, unquestionably, the overarching motivation for this project and the principle counterbalance for all of the environmental and socioeconomic impacts identified during the review. With this in mind, to claim that conservation and alternative energy cannot be considered in the environmental review because the purpose of the project "is to transport natural gas" is, at best, disingenuous. If the scope of this environmental review is limited to transporting natural gas, then all of the aforementioned benefits of gas-derived electricity should be struck from the DEIS. If these benefits remain in the review, then regulators implicitly acknowledge that the purpose of the project is to generate electricity, and they are obliged to carefully consider both alternative energy and conservation measures throughout the review. Either acknowledge electricity generation consistently in the DEIS, or ignore it altogether. Selective ignorance is indefensible.

Including alternative energy in the environmental review is important given North Carolina's emerging role as a national leader in solar and wind energy. Utility-scale and smaller initiatives are underway across the state, and a major influx of new natural gas supplies has the potential to serve as a double-edged sword. On one hand, as developers will correctly argue,

^{vii} https://www.duke-energy.com/_/media/pdfs/our-company/investors/de-annual-reports/2016/2016annualreport.pdf

natural gas may serve as a steady-load complement to less predictable inputs of wind and solar projects. On the other hand, new pipeline infrastructure will lock the region into decades of continued dependence on an unsustainable and, ultimately, dangerous source of energy in terms of its climate change potential.

The best available science suggests that greenhouse gas emissions need to be curtailed significantly and immediately. Replacing coal with natural gas may result in a relative decrease in greenhouse gas emissions, but when fugitive methane emissions are considered together with the added combustion capacity described in the DEIS, the ACP still results in a net increase in greenhouse gas emissions over 2017 and moves us toward the worst-case scenario of climate change^{viii}. The DEIS acknowledges that greenhouse gas emissions associated with the ACP will contribute incrementally to climate change, but it fails to assign the project any responsibility for those incremental changes (p. 4-511). Although we may not be able to determine the magnitude of climate change assignable to the ACP, we know the sign of its impacts. In other words, the ACP will unquestionably sustain the release of carbon dioxide and methane into the atmosphere over the project's lifetime. Inability to quantify the degree of change attributable to a particular project does not absolve the project from any responsibility whatsoever, particularly when the direction of change is unquestionable.

Federal regulators are fully aware of the greenhouse gas implications of natural gas development, including the development of shale gas from central Appalachia^{6,7}, and I will not provide a detailed review of those implications here. Instead, I point out that ignoring all climate change implications simply because we cannot assess the degree of contribution is unsustainable and irresponsible policy. If each fossil fuel infrastructure project is reviewed by this standard, then the federal agency responsible for reviewing and authorizing such projects will never have an opportunity to weigh in on the most serious, cumulative impact of the totality of such projects.

4. Conclusions and Recommendations

The DEIS contains a thorough review of many topics of environmental concern to stakeholders along the pipeline route. However, the review process, in its current form, has failed to ensure that its environmental justice obligations have been met. A poor environmental justice analysis failed to detect important demographic patterns that manifest as disproportionate impacts on poor and minority communities (particularly American Indian communities) at multiple spatial scales. In terms of consultation with American Indian tribes, regulators and petitioners have been demonstrably active, but the activities described in the DEIS are strongly geared toward public relations and marketing by petitioners and should not be misconstrued as consultation. Although regulators are not bound by law to consult with most of these tribes because of their non-federal status, federal and international guidance documents recommend doing so.

The broader question of whether the review of this project has satisfied its environmental justice obligations demands that American Indian tribes and other vulnerable communities along the pipeline route have a seat at the decision making table. A seat at the table means that these

^{viii} Globally, we are tracking the RCP8.5 emissions scenario from the latest round of general circulation model projections. The scenario shows that human greenhouse gas emissions will drive warming globally, and this will manifest as climate change (e.g., warmer summers in the Southeast, declining snowpacks in the American West, more extreme weather globally, etc.) RCP8.5 is commonly referred to as the "worst case scenario" and is generally accepted by scientists and most of the world's decision makers as an unsustainable trajectory.

communities' perspectives matter, not only on the back end (i.e., after the route has been determined) but on the front end as well. Whether regulators acknowledge it or not, these communities are the least equipped to deal with either guaranteed or probably impacts of climate change. Along the ACP, these impacts include, most notably, a significant increase in summer peak-load electricity usage due to increasing summer temperatures⁸.

To remedy issues raised with the DEIS, I recommend that regulators first create a new environmental justice analysis, ideally in partnership with federal staff or academic researchers who are familiar with common challenges of such analyses. The National Environmental Justice Advisory Council would be a logical place to begin the search for a partner. Once the new analysis has been performed, I encourage regulators to grapple with tough questions that will likely arise due to disproportionate impacts on poor and minority populations along the route, particularly in North Carolina. While it is true that the petitioners have already worked for years to secure easements along the proposed route, their ignorance of environmental justice obligations or reliance on flawed methodologies does not excuse the requirement to perform the analysis correctly and take the results seriously.

Furthermore, I recommend that the FERC immediately set up in-person meetings between its tribal liaison and governing bodies of impacted tribes along the proposed route. This issue is too important to relegate to emails or form letters (ask the USACE or the Standing Rock Sioux Tribe). During meetings, the liaison should inquire about prior interaction between tribes and petitioners, including open houses, informational meetings, and gift giving activities in and around indigenous communities. This information will provide valuable context and help regulators understand the status of relationships and interactions between tribes and petitioners. In addition to meeting with tribes, I recommend the liaison attend an upcoming quarterly meeting the North Carolina Commission of Indian Affairs. This body informs and advises the state government on all issues of concern to tribes, including issues related to environment, economic development, and public health.

I also advise regulators to correct the logical inconsistency in the DEIS dealing with the selective failure to consider electricity production as the main purpose of the ACP. The petitioners themselves promote this purpose, and DEIS states that this is the purpose in many instances where it promotes a benefit or offsets an impact. Please also reconsider the failure to weigh climate change impacts simply because the magnitude of impact cannot be determined. This is shortsighted policy and logically inconsistent. If this practice continues in environmental reviews, global society will pay a heavy toll due to our unwillingness to count the cost of our continued reliance on fossil fuels.

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LETTERS

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Flawed environmental justice analyses

In December 2016, the Federal Energy Regulatory Commission (FERC) issued a draft environmental impact statement (DEIS) for the Atlantic Coast Pipeline, a natural gas pipeline proposed to run approximately 1000 km from West Virginia to end points in Virginia and North Carolina (1). The developer, a partnership of utility corporations, contends that the project is needed to meet the region's growing energy needs.

The proposed route crosses territories of four Native American tribes in North Carolina. Because poor and minority communities have long been excluded from environmental decision-making (2), all federal agencies must now identify and address environmental justice issues during formal assessments and reviews of projects such as the Atlantic Coast Pipeline (3). Such projects can have wide-ranging impacts on human communities associated with land rights and property values, public safety in the event of leaks and explosions, and regional climate change exacerbated by fugitive methane emissions (4) and combustion of natural gas.

In addition to these issues, Native American tribes have unique concerns deriving from their status as indigenous peoples. Tribes have deep connections to ancestral and modern-day territories, and these connections are often important to tribal concepts of identity, history, culture, spirituality, and governance. Sacred sites, archaeological resources, and natural

features integrate to form cultural landscapes that are unique to each tribe.

The Atlantic Coast Pipeline developer's preferred route disproportionately affects indigenous peoples in North Carolina. The nearly 30,000 Native Americans who live within 1.6 km of the proposed pipeline make up 13.2% of the impacted population in North Carolina, where only 1.2% of the population is Native American [Appendix U in (1)]. Yet, the DEIS reported that fewer than half of the areas along the proposed route had minority populations higher than county-level baseline proportions (1). The discrepancy stems from the DEIS's failure to account for large differences in population size in the studied areas; large minority populations in some places were masked by much smaller nonminority populations elsewhere. The analysis also failed to account for large differences in baseline demographics among counties, where minority populations range from less than 1% to nearly 70% [Appendix U in (1)]. These large differences prevented meaningful comparisons among areas in different counties. Together, these flaws rendered FERC's analysis incapable of detecting large Native American populations along the route, leading to false conclusions about the project's impacts. Notably, the analysis conformed to the generic guidelines prescribed by the U.S. Environmental Protection Agency (1).

Environmental justice analyses are meant to help regulators and developers identify and address disparate impacts on vulnerable populations at an early stage in the decision-making process (3, 5, 6). Analyses unable to detect such impacts are essentially faulty instruments that fail to warn decision-makers about potential problems ahead. In the case of the Atlantic Coast Pipeline, a

Members of North Carolina's Lumbee tribe prepare to perform a traditional dance in 2004. Their lands lie in the path of the planned Atlantic Coast Pipeline.

more thorough analysis might have alerted regulators to large Native American populations along the proposed route and the need to consult with tribal governments.

The Dakota Access Pipeline controversy (7) demonstrates that all parties suffer when environmental justice analyses and tribal consultation are treated as meaningless rote exercises. Tribes suffer erosion of sovereignty and damage to cultural landscapes, federal-tribal relations deteriorate, and developers incur setbacks.

Developers and regulators of the Atlantic Coast Pipeline still have a window of opportunity to take these lessons to heart. Regulators can consult with tribes before making a final decision on the project later this year, and they can acknowledge the project's true impacts on vulnerable populations by addressing the flawed environmental justice analysis. Scientists can help by sharing rigorous methods, providing oversight, and partnering with vulnerable communities. It is not too late to work toward environmental justice for all.

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10.1126/science.aao2684

Mexico's basic science funding falls short

During his inauguration address in December 2012, Mexico's President Enrique Peña Nieto vowed to move the country forward by investing in education as well as in science and technology (S&T). In two government documents (1, 2), he pledged to increase the S&T federal expenditure (which had been lingering for years at about 0.4% of the gross domestic product) up to a minimum of 1% by 2018 (2, 3). A few months earlier, the National Autonomous University of Mexico, together with the

APPENDIX B

ECRCO Response to Initial Title VI Complaint
Letter Dated August 24, 2018

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



EXTERNAL CIVIL RIGHTS COMPLIANCE OFFICE
OFFICE OF GENERAL COUNSEL

August 24, 2018

Return Receipt Requested

Certified Mail #:7015 3010 0001 1267 0558

In Reply Refer to:

EPA File No: 02R-18-R4

John D. Runkle
2121 Damascus Church Road
Chapel Hill, NC 27516

Re: Rejection without Prejudice of Administrative Complaint

Dear Mr. Runkle:

The U.S. Environmental Protection Agency (EPA), External Civil Rights Compliance Office (ECRCO), is in receipt of your complaint against the North Carolina Department of Environmental Quality (NCDEQ), dated May 15, 2018, alleging discrimination based on race and color in violation of Title VI of the Civil Rights Act of 1964. The Complaint alleges that NCDEQ discriminated on the bases of race and color in issuing permits and certifications for the proposed Atlantic Coast Pipeline (ACP) as part of the permitting process. For the reason identified below, ECRCO is rejecting this complaint without prejudice and closing this case as of the date of this letter.

Pursuant to EPA's nondiscrimination regulation, ECRCO conducts a preliminary review of administrative complaints to determine acceptance, rejection, or referral to the appropriate Federal agency. *See* 40 C.F.R. § 7.120(d)(1). To be accepted for investigation, a complaint must meet the jurisdictional requirements described in the EPA's nondiscrimination regulation. First, the complaint must be in writing. *See* 40 C.F.R. § 7.120(b)(1). Second, it must describe an alleged discriminatory act that, if true, may violate the EPA's nondiscrimination regulation (i.e., an alleged discriminatory act based on race, color, national origin, sex, age, or disability). *Id.* Third, it must be filed within 180 days of the alleged discriminatory act. *See* 40 C.F.R. § 7.120(b)(2). Finally, the complaint must be filed against an applicant for, or recipient of, EPA financial assistance that allegedly committed the discriminatory act. *See* 40 C.F.R. § 7.15.

In general, ECRCO will accept, reject or refer a complaint after considering the four jurisdictional factors described above. However, if ECRCO obtains information leading ECRCO to conclude that an investigation is unjustified for prudential reasons, ECRCO may reject a complaint allegation. ECRCO has learned that work on the ACP has been halted by the Federal Energy Regulatory Commission (FERC). In an August 10, 2018 letter from Terry Turpin, Director of the Office of Energy Projects for FERC, to Matthew Bley of Dominion Energy

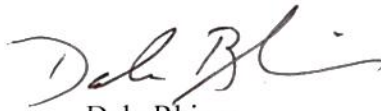
Transmission, FERC noted that ACP had not obtained the requisite permits and therefore ordered “that construction activity along all portions of the ACP and Supply Header Project and in all work areas must cease immediately.”¹

Per ECRCO’s Case Resolution Manual (CRM), at Section 2.6, after careful consideration, ECRCO cannot accept this complaint for investigation because the discrimination alleged is not “ripe” for investigation. Specifically, two permits issued by different federal agencies must be modified before there will be a FERC final order authorizing construction of the pipeline. Given the August 10, 2018 Order by FERC, ECRCO will not, at this time, proceed on a complaint that does not appear to be ripe for review.

As stated in the CRM, you may refile this complaint within 60 days of a subsequent act or event that raises an allegation of discrimination. If you choose to re-file the complaint, ECRCO will then proceed with its preliminary review to determine acceptance, rejection, or referral.

If you have questions about this letter, please contact Case Manager Debra McGhee, at (202) 564-4646, via email at McGhee.Debra@epa.gov, or by mail at U.S. EPA, Office of General Counsel, Mail Code 2310A, Room 2524, 1200 Pennsylvania Avenue, NW, Washington, DC, 20460-1000.

Sincerely,



Dale Rhines
Deputy Director
External Civil Rights Compliance Office
Office of General Counsel

cc: Elise Packard
Associate General Counsel
Civil Rights & Finance Law Office

Kenneth Lapierre
Assistant Regional Administrator
Deputy Civil Rights Official
U.S. EPA, Region 4

¹ August 10, 2018 letter from Terry Turpin, FERC, to Matthew Bley, Dominion Energy Transmission, Inc. Re: Notification of Stop Work Order.

APPENDIX C

Petition to North Carolina Department of Environmental Quality
from Friends of the Earth and NC Climate Solutions Coalition

August 13, 2019

Michael S. Regan

Secretary of the N.C. Department of Environmental Quality

Linda Culpepper

Director of Division of Water Resources

217 West Jones Street

Raleigh, NC 27603

Re: Atlantic Coast Pipeline - Petition for Revocation of 401 Water Quality Certification

Dear Mr. Regan and Ms. Culpepper,

Thank you for your service to the people of North Carolina protecting our natural resources. A great threat to those resources and the people who value them lies in expanding use of fossil fuels through new pipelines like the proposed Atlantic Coast Pipeline. All pipelines create environmental damage during construction, but they also threaten safety and environmental health from leaks and emissions. These risks fall heaviest in North Carolina on the Lumbee community in Robeson County, with analysis showing the Atlantic Coast Pipeline and its related projects creating an environmental injustice. Facts we have discovered since January of 2018 show significant adverse impact to the largest community of American Indians east of the Mississippi River from the construction and operation of the Atlantic Coast Pipeline and projects dependent on it. Correct information not considered by DEQ shows that the impacts analyzed in the 401 and the FERC EIS were a mere fraction of the impacts directly related to the project. We ask you to revoke the 401 Certification since it was based on incorrect information and conditions have changed since the certification was issued.

I. SUMMARY OF BASIS FOR REVOCATION: NEWLY DISCOVERED INFORMATION SHOWS MAJOR PROJECT IMPACTS

The North Carolina Department of Environmental Quality (DEQ), through its Division of Water Resources (DWR), issued a § 401 certification under the Clean Water Act of 1972 (CWA) to Atlantic Coast Pipeline (ACP) on January 26, 2018, based on the application of Atlantic Coast Pipeline, LLC for a 401 certification and the Environmental Impact Statement (EIS) produced by staff of the Federal Energy Regulatory Commission (FERC). The 401 certification process represented a comprehensive opportunity for DEQ to protect the North Carolinians and their water resources from impacts related to the construction and operation of the ACP and the projects dependent upon it.

As mentioned in the cover letter from ACP to DEQ dated May 8, 2017, Atlantic Coast Pipeline, LLC (ACP LLC) is a company formed by Dominion Energy, Duke Energy, Piedmont Natural

Gas, and AGL Resources. ACP LLC members Duke Energy and Dominion Energy have disclosed plans showing that the FERC EIS was segmented, preventing the “hard look” required pursuant to the National Environmental Policy Act (NEPA) by FERC and DEQ on the actual scope of the project. Flooding which occurred following Hurricanes Florence and Michael in Robeson County in the fall of 2018 along rights of way cleared for construction show additional permanent impacts not considered by FERC EIS or DEQ. (Note that severe weather in the future will become more frequent due to climate change.)

Based on new information presented in the latest rounds of Integrated Resource Plan development proceedings before the North Carolina Utilities Commission, shows that all projected demands for gas in North Carolina is no longer needed. In addition, renewable alternatives to gas electric generating units are now the least cost option for electric power generation in North Carolina. All the environmental impacts of building this pipeline should be avoided since it is not needed by the public.

FERC staff made basic math errors in its assessment of impacts on Indian tribes, grossly understating the impact to these communities with erroneous modelling. No measurable benefit has accrued or will accrue to the Lumbee communities from the ACP project. It is crucial that impacts to the Lumbee communities along the pipeline route be analyzed in the EIS. Yet, this analysis is not included in the report. Specifically, Natural Gas facilities in Robeson County were excluded from analysis, even though they are directly related to the ACP. The math and scoping errors in the FERC EIS were discovered and documented after the 401 was issued and serve as basis to revoke the 401 Certification since the FERC EIS was a primary source of factual information relied upon by DEQ in issuing the certification.

Lumberton is listed as the second most diverse city and Robeson is listed as the fourth most diverse county in North Carolina. Since the issuance of the 401 certification, facts show the ACP will disproportionately impact low-income communities Indigenous Peoples and people of color, including the largest Native American community east of the Mississippi River, the Lumbee nation. Additionally, the citizens from the communities most impacted by this pipeline and all of its related projects have not been given a fair opportunity to voice their concerns and share what is occurring on the ground. DEQ has the power and authority under the Clean Water Act to rectify this injustice. As further detailed below the facts show that the 401 Certification for the ACP should be revoked.

II. STATUTORY AND REGULATORY FRAMEWORK

A. Clean Water Act Empowers and NC Law Directs 401 Certification Decisions to Meet Water Quality Standards set Forth in N.C. Gen. Stat. § 143-211 and Implementing Rules

The CWA empowers each State to evaluate the impacts of any significant federal action on water quality in that State. Such significant “federal actions” include projects that require a CWA § 404 permit to discharge dredging or filling materials into the waters of the United States. States have the power, under CWA § 401, to deny certification for such projects. Section 401 certification acts as a check on the Federal Energy Regulatory Commission (FERC) licensing of pipeline projects. The Clean Water Act expressly requires States to apply their water quality standards to a federal license applicant in order to ensure that the licensed project will not impede the State in upholding these water quality standards. See 33 U.S.C. 1341; see also J.B. RUHL ET AL., THE PRACTICE AND POLICY OF ENVIRONMENTAL LAW 306 (2008). State water quality standards must be approved by the United States Environmental Protection Agency under § 303 of the Clean Water Act, 33 U.S.C. § 1313. State water quality standards established under § 303 provide an important “supplementary basis . . . so that numerous point sources, despite individual compliance with effluent limitations, may be further regulated to prevent water quality from falling below acceptable levels.” EPA v. California ex rel. State Water Res. Control Bd., 426 U.S. 200, 205 n.12 (1976). States therefore may impose more stringent water quality controls. See 22 U.S.C. § 1311(b)(1)(c). A state may not grant § 401 certification, unless it finds that **the project and the applicant** “will comply with” these intrastate water quality standards. See 33 U.S.C. § 1341(a). Section 1341(d) further provides that “effluent limitations or other limitations” may be imposed as “necessary to assure that any applicant” will comply with the Clean Water Act and state regulations.

Under the Clean Water Act, water quality standard consists of three elements: (1) one or more existing or designated "uses" of a water body, (2) water quality “criteria” indicating the amount of a pollutant that may be present in the water body while still protecting the uses, and (3) a provision restricting degradation of certain types of waters. Designated uses include fish and aquatic life, fishing, boating, aesthetic quality, irrigation and water supply. When met, these standards must be able to protect the designated uses. ***The Clean Water Act’s requirements are the floor for environmental standards enacted by North Carolina, not its ceiling.*** The General Assembly has set seven minimum criteria when the Environmental Management Commission enacts North Carolina’s water quality standards. North Carolina’s standards must be designed to:

- 1) protect human health,
- 2) prevent injury to plant and animal life,
- 3) prevent damage to public and private property,
- 4) insure the continued enjoyment of the natural attractions of the State,
- 5) encourage the expansion of employment opportunities,
- 6) provide a permanent foundation for healthy industrial development,
- 7) secure for the people of North Carolina, now and in the future, the beneficial uses of these great natural resources.

N.C. Gen. Stat. § 143-211(c).

Numerous state water quality issues are implicated within the Project area and the State has adopted a broad array of requirements affecting water quality to protect the public welfare and serve the purposes of the Clean Water Act that are directly relevant to § 401's designated scope of review.

B. United States Supreme Court Precedent Establishes that North Carolina's Jurisdiction Under Section 401 of the Clean Water Act Broadly Covers Both the Applicant and the Project With North Carolina's Anti-degradation Rules

The US Supreme Court, when reading the two subsections of § 401 together, has explicitly determined that the “activity as a whole” may be scrutinized by state water quality standards if it can be categorized as an activity that has a discharge. See PUD No. 1 of Jefferson County v. Wash. Dep't of Ecology, 511 U.S. 700, 711–12, 727–28 (1994) (recognizing the broad scope of § 401). In other words, the Court's view of the statute is that while the activity must have a discharge to fall into the § 401 subject matter box, applicable water quality standards may extend beyond the discharge itself if it is related to the activity producing the discharge. See id. EPA's regulations implementing § 401 support the application of water quality standards to activity-related conditions as opposed to discharge-related ones. See 40 CFR § 121.2(a)(3)(2009). Therefore, States may “condition certification upon any limitations necessary to ensure compliance with state water quality standards.” PUD No. 1, 511 U.S. at 713–14. This broad scope permits North Carolina to impose limitations needed to prevent adverse secondary impacts from the ACP. N.C.'s constitutionally-mandated policy of preservation and the general water quality standards set by statute in N.C. Gen. Stat. § 143-211 empower DEQ to protect natural resources and North Carolinians from adverse impacts of the project, not just the discharges of fill material in jurisdictional water bodies. US Supreme Court precedent also supports reading Section 401(d) as also providing broad authority for DEQ to ensure that the applicant meets all water quality standards. Section 401(d) “expands the State's authority to impose conditions on the certification of a project.” PUD No. 1, 511 U.S. at 727. Namely, the certification must ensure that the **applicant** will comply with the Clean Water Act and State law requirements. As the US Supreme Court pointed out, this language “refers to the compliance of the applicant, not the discharge.” Id. Under the mandate of § 401(d), the Department must “impose ‘other limitations’ on the project in general to assure compliance with various provisions of the Clean Water Act and with ‘any other appropriate requirement of State law.’” Id. at 727–28 (quoting § 401(d)). The focus of § 401(d) is on ensuring that the applicant and the activity complies with State and federal water quality regulations. According to the US Supreme Court, “§ 401(d) is most reasonably read as authorizing additional conditions and limitations on the activity as a whole once the threshold condition, the existence of a discharge, is satisfied.” Id. at 728.

As such, § 401(d) provides broad authority for DEQ to examine the applicant's compliance in related activities – specifically, the operation of applicant's pipeline project and all related projects under the applicant's sphere of influence. Section 401 certification is **mandatory** and the State does not have discretion to limit the scope of its review. The statutory language of § 401(d) makes this perfectly clear: “Any certification provided under this section **shall** set forth . . . limitations . . . and monitoring requirements necessary to assure that any applicant for a Federal license or permit **will comply** with any applicable . . . limitations . . .” 33 U.S.C. § 1341(d) (emphasis added). In addition, § 401(b) guarantees State authority over other applicable water quality requirements: “Nothing in this section shall be construed to limit the authority of any department or agency . . . to require compliance with any applicable water quality requirements.” Id. § 1341(b).

The broader goals of the Clean Water Act are: “to recognize, preserve, and protect the **primary responsibilities and rights of States** to prevent, reduce, and eliminate pollution.” Id. § 1251(b). It is not enough to merely meet standards on paper or in the future under the old expression, “the solution to pollution is dilution.” The federal antidegradation policy establishes three tiers of protection, depending on the quality of the water at the time a state sets the Standard. First, no matter the quality of the water, the standard must maintain and protect existing uses. Second, for waters with water quality exceeding that necessary to protect uses, a state must set the standard to maintain that level of quality. Finally, states must maintain and protect the existing level of quality for waters designated as “outstanding National resources” due to their “exceptional recreational or ecological significance.” Thus, the Clean Water Act aims not only to protect uses, but also to maintain high quality water. North Carolina's antidegradation policy goes beyond the federal minimum. North Carolina's antidegradation policy requires “the Environmental Management Commission to maintain, protect, and **enhance** water quality within the State of North Carolina.” 15A NCAC § 02B .0201 (Antidegradation Policy) (emphasis added). The Administrative Code also explicitly requires “protection of downstream water quality standards” in the water quality certification process. 15A NCAC § 02H .0506(b)(5).

C. NC Law Requires 401 Certification Decisions to Protect Natural Resources as a Public Trust

The Constitution of the State of North Carolina declares what the policy of the State shall be with respect to environmental protection and resource conservation. Article IV, § 5 reads:

It shall be the policy of this State to conserve and protect its lands and waters for the benefit of all its citizenry, and to this end it shall be a proper function of the State of North Carolina and its political subdivisions to acquire and preserve park, recreational, and scenic areas, to control and limit the pollution of our air and water, to control excessive noise, and in every other appropriate way to preserve as a part of

the common heritage of this State its forests, wetlands, estuaries, beaches, historical sites, openlands, and places of beauty.

This section constitutes North Carolinian's Environmental Bill of Rights. This general public trust obligation is the lens through which the State's statutes, rules, regulations, and procedures must be read in order to ensure cohesiveness with its foundational goals. This provision is the guiding source of the NC General Assembly's power to enact legislation and DEQ's authority to interpret its power to prevent pollution. All pollution prevention enactments and their implementing rules must be judged with the Environmental Protection Clause in mind. In all its decisions, DEQ has a duty to carry out its powers to implement the protections afforded to the lands and waters for the benefit of all its citizenry.

The General Assembly has advanced this constitutional directive by enacting the General Statutes which enshrine these values, including Chapters: 113, 113A, 113B, 130A, 130B, 132, 139, 143, 143B, 146, 150B, 156, 159, 159A, 159B, 159C, 159G and 162A. Among this comprehensive system of laws is found Article 21 of Chapter 143, captioned, "Water and Air Resources," wherein the General Assembly declares its intent for those laws: "to achieve and to maintain for the citizens of the State a total environment of superior quality. **Recognizing that the water and air resources of the State belong to the people, the General Assembly affirms the State's ultimate responsibility for the preservation and development of these resources** in the best interest of all its citizens and declares the prudent utilization of these resources to be essential to the general welfare." N.C. Gen. Stat. § 143-211(a) (emphasis added). North Carolina's Environmental Policy Act also recognizes that the State's "role as trustee for future generations" requires it to carefully consider all state agency actions. See N.C. Gen. Stat. § 113A-3. The General Assembly's enactments clearly show their intent to clarify the legal points (a) that natural resources belong to the people and (b) that the State bears responsibility to preserve and develop these resources as a public trust. This trust may not be devolved to private interests. See N.C. Const. art. I, §§ 32 and 34. As applied to decisions under Section 401 of the Clean Water Act, the duty to protect the public trust is the responsibility of the General Assembly to the Commission and to its staff at DEQ.

D. DEQ Has the Authority to Revoke the 401 Certifications Under 15A NCAC 02H .0507 Based on a Finding of Changed Conditions Since the Certification was Made or Incorrect Information was Presented

DEQ has the authority to revoke or modify any 401 certification they have issued under 15A NCAC 02H .0507(d)(2). The rule provides that, "Any certification issued pursuant to this Rule shall be subject to revocation or modification upon a determination that information contained in the application or presented in support thereof is incorrect or if conditions under which the certification was made have changed." New information presented by the undersigned show that the conditions

under which the certification was issued have changed. New information presented below also indicates that information submitted in support of the certification was incorrect. **Both triggers for revocation have been met.**

Pursuant to 15A NCAC 02H .0112(b)(4), DEQ also has power to suspend the 401 certification pursuant to Rule .0114(a). In turn, 15A NCAC 02H .0114(a) authorizes DEQ to revoke or modify permits for “(1) violation of any terms or conditions of the permit; (2) obtaining a permit by misrepresentation or failure to disclose fully all relevant facts; (3) a change in any condition that requires either a temporary or a permanent reduction or limitation of the permitted discharge.” The relevant facts of the ACP project’s need, scope, purpose and impacts on environmental justice communities were not disclosed by the applicant during the process. Changed conditions demonstrate that the ACP serves no need justifies for this project. DEQ has power to remedy the injustice against these communities by suspending and revoking the 401.

E. Law Mandates Comprehensive Review of FERC Pipeline Projects Under 401 Certification, Including Cumulative and Secondary Impacts

Regulatory agencies have long recognized that applicants with projects subject to review under the National Environmental Policy Act are incentivized to “segment” their projects in applying for environmental permits—to describe and analyze only one construction segment, rather than all projects directly related to it, which lead permitting agencies to reduce the scrutiny of adverse environmental impacts of the project. To address this concern, the Code of Federal Regulations requires agencies to consider connected, similar, and cumulative actions in the same EIS, and not to segment such actions out. 40 C.F.R. § 1508.25(a)(1)-(3). “Connected” actions are those that:

- (1) “[a]utomatically trigger other actions which may require environmental impact statements”;
- (2) “[c]annot or will not proceed unless other actions are taken previously or simultaneously”; **or**
- (3) “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” § 1508.25(a)(1).

The Fourth Circuit has explained that “in determining whether actions are connected so as to require consideration in the same EIS, courts employ an ‘independent utility’ test, which asks whether each project would have taken place in the other's absence. If so, they have independent utility and are not considered connected actions.” Webster v. U.S. Dep't of Agric., 685 F.3d 411, 426 (4th Cir. 2012) (citations omitted).

“Cumulative” actions are those that, “when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.” 40 C.F.R. § 1508.25(a)(2).

Finally, “similar” actions are those that, “when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. An agency may request to (and for the purpose under NEPA, demand to) analyze these actions in the same impact statement. It should do so when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.” 40 C.F.R. § 1508.25(a)(3). 40 C.F.R. § 1508.25 clarifies that agencies determining the scope of an EIS shall consider the direct, indirect, *and* cumulative impacts of connected, cumulative, and similar actions. The prohibition of segmentation obviously applies to agency permitting decisions. However, to the extent that such agency decisions result from intentional and systematic misrepresentation by applicants, both environmental and deterrent interests warrant the re-examination of permitting decisions, and call for fresh analysis that incorporates the best and most recent information available about both a permitted project and other connected projects in the region. Part III details information that has come to light **since** the approval of the permit. **Part IV.A will apply these new facts to the law on segmentation of agency review.**

North Carolina’s state law incorporates these principles of federal law. “The North Carolina Court of Appeals has stated . . . that ‘to the extent that the federal environmental law is relied upon to meet the requirements of NCEPA, the federal requirements are by reference enforceable against North Carolina agencies as state law.’ . . . For this reason, in determining whether State Defendants were substantially justified in preparing the FEIS the court will consider NEPA’s implementing regulations. Furthermore, for simplicity of language, the court will refer primarily to NEPA rather than to both NEPA and NCEPA when discussing the adequacy of the FEIS. N. Carolina All. for Transp. Reform, Inc. v. U.S. Dep’t of Transp., 151 F. Supp. 2d 661, 678 (M.D.N.C. 2001) (citing *Orange County v. North Carolina Dep’t of Transp.*, 46 N.C.App. 350, 368 (1980)).

III. NEW INFORMATION AND CHANGED CONDITIONS DISCOVERED SINCE PERMIT CERTIFICATION

A. Alternatives to Natural Gas-Fueled Electric Generating Units are Less Costly for Consumers and Avoid the ACP’s Adverse Impacts

Most capacity for the ACP was subscribed by its electric utility partners who cited increased demand for electricity to be supplied by new gas-fired electric generating units proposed by the partners. Evidence submitted in 2018 in the North Carolina Utilities Commission’s Integrated Resource Planning (“IRP”) processes have shown that these demand projections are wrong. Indeed,

the evidence submitted shows that the least cost and most flexible method of meeting electricity demand in North Carolina relies on renewables, and not the ACP or its associated gas-fired plants.

During the 2018 IRP, North Carolina Attorney General's Office (AGO) produced evidence to show that conditions regarding the economic circumstances related to energy production and its impacts associated with natural gas production have changed. In a letter before the North Carolina Utilities Commission dated March 7, 2019 (Docket No. E-100, Sub 157, hereinafter referred to as "AGO Letter"), the AGO identified three areas where further analysis about the project was warranted given new information regarding the economic conditions of the energy industry, specifically that: "(i) Duke's modeling should test a wider range of storage technologies paired with renewable energy generation; (ii) planning should take into account the costs to ratepayers from climate change caused by natural gas power generation; and (iii) Duke's modeling should consider demand-side management, using energy efficiency resources, on a level playing field along supply-side alternatives."

The first new condition the AGO noted was a decrease in economic cost of renewable energy technology. AGO Letter at Page 5. The AGO Letter cited two studies noting downward trends in the cost of utility-scale renewable energy and battery storage technologies also known as "solar-plus-storage" technology. The decrease in cost of renewable technologies has led other utility projects to take more expansive consideration of solar-plus storage and other renewable energy technologies. For instance, NV Energy announced a plant on May 31, 2018 that will add battery capacity equal to 25% of their solar capacity. However, "Duke's initial modeling screen included nine natural gas-burning technologies, two coal technologies, two nuclear technologies, and two stand-alone storage technologies, [sic]" but included only one solar-plus-storage technology configuration in their initial model. No analysis about the ACP has been provided regarding the new conditions relating to the cost of renewable energy production and storage.

Expert modelling analysis submitted in the IRP by Intervenors Southern Alliance for Clean Energy, Sierra Club and Natural Resources Defense Council showed that the least cost and most flexible option for generating electric power under a power dispatch model included no new gas plants beyond those already under construction. In a filing before the North Carolina Utilities Commission dated March 7, 2019 (Docket No. E-100, Sub 157, hereinafter referred to as "SACE Filing"), the SACE Filing shows that Duke Energy's IRP's reliance on new gas plants to meet demand upon retiring coal plants cost consumers more than replacing coal with renewables coupled with storage. Energy efficiency was also cited as reducing need for new gas plants as projected. The SACE Filing's proposal would directly save consumers billions of dollars: "The total system cost under the IRP case comes in at \$5.6 billion more than under the economically optimized case. Translated to the cost to the average residential customer, the IRP case results in bills that are 3% higher than in the economically optimized case by 2030, and about 5% higher than in the optimized

case by 2035. “ SACE Filing at Page 5.

The AGO Letter also noted the additional costs associated with natural gas production including those caused by climate change. AGO Letter at Page 7. The AGO noted that “climate change has real costs that are ultimately borne by ratepayers” due to hurricanes, extreme temperatures, flooding, and drought exacerbated by climate change. See 4th National Climate Assessment, Hsiang et al. 2017, Emanuel 2018

The need, scope and impact analysis from the FERC EIS was based on demand forecasts for gas plants which are no longer economically feasible to build. Analysis conducted of the overall gas demand across the ACP in Virginia and North Carolina shows that projected gas plant growth has declined sharply and with it demand for the ACP’s gas. In a report authored by the Institute for Energy Economics and Financial Analysis, analysts compared projected demand versus actual demand and finding no demonstrated need for the gas supplied by the ACP. (See “The Vanishing Need for the Atlantic Coast Pipeline: Growing Risk That the Pipeline Will Not Be Able to Recover Costs From Ratepayers” by Cathy Kunkel, IEEFA Energy Analyst, January 2019) The stated need for the ACP in the FERC EIS and the 401 Certification is factually wrong and was based on outdated information. Thus, the ACP 401 must be revoked.

Additionally, reporting of ACP’s economic benefits was based on misrepresentations about the economic impact of the project, which touted positive growth but did not evaluate economic costs to communities. Dominion Energy submitted a Revised “Cumulative Impacts Assessment for Johnston, Cumberland, and Robeson Counties, North Carolina” (dated December 20, 2017), which asserted that the proposed pipeline will encourage significant economic development and that its cumulative adverse impacts would be minor. However, the basis of this assertion was a regurgitation of demographic information in Robeson County without context or analysis of costs. (See Report “The Failure of the Atlantic Coast Pipeline to Demonstrate Economic Development Benefit to the NC Department of Environmental Quality and the Public of North Carolina” Compiled by Nancy LaPlaca, Energy Consultant, and published the Alliance to Protect our People and Places We Live “APPPL” in January, 2018) The ACP Cumulative Impacts supplement does not account for the economic costs that will be generated by increased waste and noise pollution, as well as visible obstruction that will be caused by the project. Notably, the document did not specify specific industries that needed additional gas capacity as requested by DEQ. Nor did it evaluate the adverse impacts of these proposed industrial developments.

B. New Changes to the Legal and Regulatory Landscape

Since the certification of the permit, legal and regulatory conditions relevant to the 401 Certification have changed. ACP construction has been halted multiple times due to permit deficiencies found during judicial review and resultant appeals. Additionally, delays in construction of gas plants proposed to be served by the ACP due to flat demand and regulatory scrutiny by Virginia and North

Carolina’s utility officials make the prospect of the ACP’s economics more like a bailout than a windfall. Lastly, natural gas infrastructure’s impacts to climate change must be considered in permitting decisions and related environmental assessments. On October 29, 2018, Gov. Cooper issued Executive Order No. 80 regarding North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy. (See “Executive Order No. 80, “North Carolina’s Commitment to Address Climate Change and Transition to a Clean Energy Economy” (Oct. 29, 2018). The order established new requirements on State agencies regarding climate change. Among other requirements, the Order sets a goal of reducing statewide greenhouse gas emissions to 40% below 2005 levels by 2025; requires that cabinet agencies evaluate the impacts of climate change on their programs and operations, and; orders DEQ to develop a statewide Clean Energy Plan.

Recent case law supports requiring that federal agencies determining a Finding of New Significant Impact must include thorough research on the impacts a proposed project has on climate change. See WildEarth Guardians v. Zinke, 368 F. Supp. 3d 41, 86 ERC 4692 (D.D.C. 2019), Court Opinion (D.D.C. Mar. 19, 2019). In the WildEarth case, the Court found an EA/FONSI defective because the agency reviewing a proposed oil and gas drilling project “failed to take a hard look at the climate change impacts of oil and gas drilling because the EAs (1) failed to quantify and forecast drilling-related greenhouse gas (GHG) emissions; (2) failed to adequately consider GHG emissions from the downstream use of oil and gas produced on the leased parcels; and (3) failed to compare those GHG emissions to state, regional, and national GHG emissions forecasts, and other foreseeable regional and national BLM projects. The WildEarth case supports the argument that oil and gas infrastructure project reviews cannot be segmented out of reviewing impacts caused by the greenhouse gas emissions associated directly with the project and its intended customers.

C. Cumulative Environmental Impacts of the ACP Include Past, Present, and Reasonably Foreseeable Activities Associated With the Project, Including the Transport South beyond North Carolina and Possible Export Overseas

DWR has published guidance on assessing cumulative impacts in its 401 programs. (See Guidance available at: https://nc.gov/ncdeq/files/Water%20Quality/Surface%20Water%20Protection/401/Policies_Guides_Manuals/FnewtiveImpactPolicy.pdf). Since 2004, DEQ has said that it shall determine whether any “project does not result in cumulative impacts, based upon past or reasonably anticipated future impacts, that cause or will cause a violation of downstream water quality standards.” DEQ defined cumulative impacts as those “environmental impacts resulting from incremental effects of an activity when added to other past, present, and reasonably foreseeable future activities regardless of what entities undertaken such other actions.”

From June 27, 2017 to December 14, 2017, DEQ sent four letters to ACP LLC directing the company to submit additional information with a focus on the cumulative impacts that might be caused by the construction of the ACP project. In particular, DEQ made it clear to ACP in more

than one request that (i) the “analysis of cumulative impact is required regardless of whether these projects are separate from ACP, not within ACP's purview or undertaken by entities other than ACP,” (ii) “the analysis should include potential secondary and cumulative impacts (e.g., from anticipated development resulting from the construction of the pipeline),” and (iii) the “analysis is for past or reasonably anticipated future impacts, including expansion of the pipeline beyond the current terminus in Robeson County.”

The ACP's Final Assessment Report submitted on December 20, 2017, contains a list as Attachment 1, entitled “Past, Present, and Reasonably Foreseeable Future Projects in Johnston, Cumberland, and Robeson Counties, North Carolina” (on pages from 1-1 to 1-4) (Attachment). The Attachment summarizes the components of the ACP project with potential cumulative impacts identified in each county. According to the Final Assessment Report, ACP's project will have “minimal adverse impacts on the waterbodies within the watershed basin and sub-basin crossed” and “minimal cumulative effects are anticipated when the impacts of the ACP are considered along with the projects identified in Attachment 1.” (Attachment 1)

Attachment 1 was expanded on multiple occasions until ACP was granted 401 certification in January 2018. ACP's Final Assessment Report disclosed that among all the projects in the Attachment, only 4 proposed projects associated with Piedmont Natural Gas were connected to the ACP:

- Piedmont Natural Gas Facility Modifications at the Smithfield M&R Station in Johnston County;
- Piedmont Natural Gas Facility Modifications at the Fayetteville M&R Station in Cumberland County;
- Piedmont Natural Gas Facility Modifications at the Pembroke M&R Station in Robeson County; and
- Piedmont Natural Gas 26 miles of 20-in Diameter Pipeline in Robeson County.

This short list of projects related to the Atlantic Coast Pipeline failed to acknowledge, assess, and clarify its cumulative impact in relation to the full scope and scale of existing and planned PNG pipeline infrastructure. This included two existing projects and up to seven planned projects, counting those under design and construction at the time of the permit application. The full construction of the M&R stations and their impact, not mere “modifications”, were neither acknowledged as linked directly to the pipeline's development and the transport of its gas, nor assessed in terms of their environmental and community impact. Finally, there is one project cited in the ACP application with only a site assessment with no reference to a potential future activity and project. In total, there are nine natural gas projects that are presently in existence, under construction, or formally planned which are directly connected to the Atlantic Coast Pipeline in Robeson County. All

nine of these natural gas projects are within an 8-mile radius of the ACP terminus in Pembroke/Prospect in the heart of the Lumbee community, the largest Native American community east of the Mississippi River.

When all nine natural gas projects in relation to the ACP in Robeson County are acknowledged and analyzed, the cumulative impact of the Atlantic Coast Pipeline is significant, not minimal as claimed in the ACP application. All nine of these natural gas projects and one potential biogas project should have been fully acknowledged and detailed within the ACP permit application and considered by DEQ when assessing the cumulative impacts of the Atlantic Coast Pipeline. Together, they form a complex of interrelated natural gas infrastructure, the cumulative impacts of which are greater than the sum of their parts. These nine projects are:

(1) The existing PNG/Duke Pipeline, which transects the ACP terminus en route extending from the Transco pipeline to Wilmington, NC.

(2) The existing Compressor Station that compresses natural gas along an existing PNG pipeline that crosses the ACP terminus.

(3) The terminus of the Atlantic Coast Pipeline: The terminus is located in the same complex as the existing PNG/Duke Energy Pipeline (1) and Compressor Station (2). Property was purchased across the road from the existing pipeline and compressor station for the ACP, the Metering and Regulating Station, and the intersection of up to four natural gas pipelines at this location. The scale of existing and planned natural gas infrastructure at this site was not fully described, detailed, or assessed in terms of its cumulative impact and risk to water quality, public health, and public safety in the ACP 401 permit application.

(4) A new PNG/Duke Metering and Regulating Station. The ACP was granted a Conditional Use Permit to construct the M&R Station from the Robeson County Board of Commissioners on August 7, 2017. The stated purpose of the construction of the M&R station is to carry ACP Gas along the new PNG Pipeline to Duke Energy's Smith Energy Center in Hamlet and provide gas for a new LNG facility in the Wakulla/Maxton area. By describing the M&R Project as one of "Facility Modifications" does not fully disclose the scope and scale of the construction project, which more than doubled the footprint of PNG/Duke Energy's aboveground industrial complex in Prospect.

(5) PNG Line #434 Pipeline: This pipeline is described as 26 miles of 20-inch Diameter Pipe. It was built to carry ACP gas to the Smith Energy Center in Hamlet along with gas to the LNG facility nearby. Although constructed to transport ACP gas, this pipeline was segmented out of the ACP FERC EIS and received separate approval through other state and federal regulatory review pro-

cesses. This separate approval does not exempt the ACP from assessing its potential impact on water quality when its impact is aggregated as a part of the total, collective impact of all the existing and planned natural gas infrastructure in the 8-mile radius of the ACP terminus. The construction of this pipeline contributed to additional flooding following Hurricane Florence in September 2018. Line #434 crosses beneath the Lumber River, a National Wild and Scenic River.

(6) PNG/Duke Energy Liquidified Natural Gas Facility (LNG): On July 13, 2018 Piedmont Natural Gas, a Duke Energy subsidiary, announced plans to build and operate a 1 billion-cubic-foot LNG near Wakulla in Robeson County. Proposed construction of the facility was planned to begin in 2019 with an estimated completion date in 2021. Piedmont Natural Gas claims that the project is independent from the ACP; however, a Piedmont spokesperson stated they will have a choice of using gas from Transco or the ACP. Frank Yoho, president of the natural gas business for Duke Energy told the Charlotte Business Journal that “the new storage facility can use gas from either the existing Transco Pipeline, currently the state’s only interstate pipeline, which runs through Western North Carolina, or the ACP.” The LNG facility was not discussed in the cumulative impact statement despite claims that the facility could process ACP gas.

(7) A connector pipeline required to transport gas to the LNG facility. Currently there is no pipeline running to the site of the LNG facility. Piedmont Natural Gas held an Open House regarding the LNG facility on May 30, 2019 at Oxendine Elementary School, located one mile from the LNG site. At the meeting, PNG officials discussed the need to construct a 4 -mile pipeline to connect the LNG to the #434 Pipeline. Although officials have stated that the ACP could serve the facility, the connector pipeline was not referenced, assessed, or included in the cumulative impact statement of the ACP in its permit application.

(8) Pipeline Extension to South Carolina: The ACP disclosed its plan to transport gas to South Carolina from Pembroke in their response to DEQ dated June 27, 2017. This plan indicates that new pipelines will intersect and connect in Pembroke. However, in ACP’s later responses to DEQ, ACP neither recognized nor assessed the cumulative impact of the construction of this significant addition to natural gas infrastructure on water resources and quality. Instead, it stated that it had no plan to extend ACP beyond Pembroke, which prevented DEQ’s ability to cumulatively assess the impacts of the plan.

In order to transport gas to South Carolina from the ACP terminus, a fourth pipeline would be needed to connect to the three other pipelines at the ACP terminus. The four pipelines connecting would be the existing PNG pipeline, the recently-completed PNG Line #434 Pipeline recently completed, the ACP, and the South Carolina extension. This fourth pipeline would also traverse numerous swamps, wetlands, and the Lumber River on its way to South Carolina. This additional pipeline, referenced once in the ACP application but segmented out of review was never assessed in terms of its cumulative impact on Robeson County. Whether this constituted a material omission or misrep-

resentation warrants further investigation by DEQ. Denials by ACP officials regarding the expansion of the ACP beyond the Pembroke terminus are highly contradictory to other written and oral statements indicating planned extension.

On June 27, 2017, DEQ asked ACP “[w]hat percentage or volume of new transportation capacity will be used for conversion of coal-fired plants to natural-gas versus the amount for new facilities.” ACP responded in writing on July 12, 2017 that “[w]ith the existing facilities and the proposed gas generation growth in North Carolina, the transportation service from ACP is critical to the growing gas generation needs of DEP and DEC.” Specifically, (i) with respect to the existing facilities, ACP referred to the provision of fuel source to the existing Duke Energy Progress (DEP) and Duke Energy Carolinas (DEC) facilities through interconnects with Piedmont Natural Gas; (ii) with respect to the proposed gas generation growth, ACP mentioned that DEP and DEC each prepared a planning document called an Integrated Resource Plan (IRP) which detail the generation needed for each utility to meet the forecasted electricity requirements for its customers over the next 15 years. In particular, ACP mentioned a new natural gas combined cycle that will be placed into service in Anderson County, South Carolina.

On December 20, 2017, ACP submitted a report on “Cumulative Impacts Assessment for Johnson, Cumberland and Robeson Counties, North Carolina,” (Final Assessment Report). In the Final Assessment Report, ACP LLC indicated that (i) the terminus of the pipelines was located at “Junction A” in Robeson County, North Carolina, which is also a proposed point of delivery of natural gas to Piedmont’s existing pipeline; and (ii) “Atlantic has no commitment to potential customers or reasonably foreseeable plans to extend ACP beyond the current terminus. Because there is no planned expansion that can be scoped or analyzed, the potential for extension of the pipeline is not addressed in this report.” ACP LLC’s statements from June lack credibility.

During the ACP permit application process, plans to take the ACP gas into South Carolina from the terminus in Pembroke had been denied. Yet, Dan Weekly, Dominion Energy’s vice president and general manager of Southern pipeline operations, confirms in a statement to the Associated Press on September 29, 2017, that there are existing plans to extend the ACP beyond the Pembroke terminus. When asked about ACP expansion, he states that there will be a need to add “horsepower, upstream” to move the gas to South Carolina. His statements indicate that there will need to be an additional compressor station constructed at the ACP terminus in order to further transport the gas.

Weekly stated: “...Even though it dead ends in Lumberton, of course, it’s 12 miles to the border. Everybody knows it’s not going to end in Lumberton.... We could bring in almost a billion cubic feet a day into South Carolina by just adding horsepower, upstream. So those are one of the things, and I get to question the alternative (to volume) all the time. So, I get this question everyday: which direction are you turning? And I answer it very simply. You tell me where the load is and I’ll tell you which way we are turning. Because do we hug 95 and come down what I’ll call the huge

growth areas along the ocean there? Not without power generation you're not. You cannot cobble together enough hospital, or I mean, excuse me, hotel load and everything else. It's not going to be there. If we need to turn to meet power generation in what I'll call the mid-state midlands area, we will turn to the southwest. So, but I don't know which that's going to be. You all tell me. We'll turn one way or the other.” <https://www.apnews.com/d9e1216747d642abb025dedb0043462f/APNews-Break:-Disputed-East-Coast-pipeline-likely-to-expand>; Dan Weekley’s remarks were made at the 2017 South Carolina Clean Energy Summit, according to video obtained by AP, September 2017. Archived link: <https://web.archive.org/web/20171028203356/https://thinkprogress.org/atlantic-coast-pipeline-expansion-5d5bfa25f26e/>

In 2015, Dominion Energy bought the CGT interstate pipeline from SCANA (South Carolina’s largest gas and electric company). The CGT has “the widest geographic coverage [of pipelines] in South Carolina,” according to the South Carolina Energy Office. In 2018, Dominion acquired SCANA outright. In subsequent months, Dominion Energy steadily built in the direction of South Carolina, even as Duke and Dominion have continued to dance around the truth with the South Carolina Public Services Commission about its intent to build the ACP out across the border from North Carolina. [See the following: Bo Peterson, “Dominion’s 600-Mile Gas Pipeline Heading in Direction of South Carolina,” *The Post and Courier*, Sep. 9, 2018. <https://web.archive.org/web/20180724092745/https://news.duke-energy.com/releases/piedmont-natural-gas-to-build-new-liquefied-natural-gas-facility-in-north-carolina> (Dominion building ACP toward South Carolina); Frank Yoho (President of natural gas operations, Duke Energy), testimony before S.C. Public Services Commission, pp. 22-23, November 29, 2017, <https://dms.psc.sc.gov/Attachments/Matter/5a208a6c-5f43-45be-9aa9-ab60a3108b7f> (answering the Commission’s question about what it would take to build into South Carolina, “Once we get [the ACP] built, it becomes — for the next tranche of capacity, I believe it’ll be the most competitive place to go get capacity to either expand or extend. And as we know, it’s not a long extension to get to other markets, whether it be others in North Carolina or South Carolina. But the number one thing in order to get it expanded is to get it built. . . . [T]here are no — current plans are for the current markets, but the expectation is that, given the benefits of natural gas — and this will be the low-cost, I believe, way to get gas into the Carolinas region — as soon as we can get it built and the markets can justify it, I think there are great opportunities there.”). See also Thomas Farrell (CEO, Dominion Energy), Transcript of Proceeding before the Public Service Commission of South Carolina, Docket Nos. 2017-207-E, 2017-305-E, and 2017-370-E, November 16, 2018, <https://web.archive.org/web/20190319213726/https://dms.psc.sc.gov/Attachments/Matter/6cc0dd99-bb4d-4c8b-af02-34c1f3fc8fa7> (in response to Commission's asking whether ACP would be expanded into South Carolina, “We would hope that demand will arise, and that the pipeline would be extended into South Carolina, but we have no plans to do so today, but I would hope that that happens.”).]

The evidence of the ACP’s failure to inform DEQ of this plan and analyze its environmental consequences and cumulative impact of this additional pipeline in its application is substantial. The withholding of this information and its segmentation from the ACP permit application are grounds for revocation of the permit. Its segmentation from its FERC application also raises serious regulatory and permitting questions.

(9) Hwy 72 Rail Site: In its December 20, 2017 submission to the NC Department of Environmental Quality in response to DEQ's request for additional information on December 14, the ACP describes the "Hwy. 72 Rail Site" in Robeson County on pp. 24-25. The site is acknowledged as a site of "project-induced growth" in relation to the ACP. Information provided states that "...new development would most likely occur" at this site (p. 24). Information focuses on the site plan and states: "The conceptual site plan for the Hwy. 72 Rail Site demonstrates that the Certified Site criterion mitigates impacts on water quality."

A one-page map of the Highway 72 Rail Site Conceptual Plan is included in the maps in Item 7, Attachment 3, entitled "General Extent of Potential Growth Areas Identified in Johnston, Cumberland, and Robeson Counties, North Carolina, and Highway 72 Rail Site Conceptual Plan". What is missing from the information provided is any information of what is planned for this site and the cumulative impact of any planned project. The site is within the 8-mile radius and to the southeast of the ACP terminus. It is described as having rail and gas access.

In 2015, Asbury Graphite Inc. of North Carolina received a One NC economic development award to construct a graphite and carbon product processing Carolina plant at 191 Magna Road in this site area near Lumberton. (see EDGE January 11, 2018 Follow-Up. https://www.ncleg.gov/DocumentSites/Committees/JLEDGEOC/2017-2018/Meetings/2018-01-11%20Prosp%20Zones,%20Econ%20Well-Being,%20Utility%20Acct,%20SB%20660,%20ED%20Awards/January%2011,%202018%20Follow-Up/004%20FRD_EDGE_Follow-Up_2018-01-11.pdf.) Asbury Graphite Inc. of North Carolina is a subsidiary company of Asbury Carbons, which conducts business in the oil, gas, and pipeline industries amongst other fields. (Asbury Carbons: Oil, Gas, and Pipeline. <https://asbury.com/applications/oil-gas-and-pipeline/>)

In 2015, Robeson County received a North Carolina Rural Infrastructure Authority Community Development Block Grant to construct a 2,100 linear feet rail spur to allow Asbury Carbons to locate in Lumberton. (NCRIA approves more than \$1.1 million in grants to help with rail access." <https://www.rtands.com/track-maintenance/on-track-maintenance/ncria-approves-more-than-11-million-in-grants-to-help-with-rail-access/>) In 2015, Asbury Carbons Rail Spur received an Industrial Development Fund Utility Account Grant to construct a rail siding connecting Asbury Graphite Inc. of NC to the CSX mainline running from Wilmington to Charlotte. ("Asbury Graphite Win Highlights Rail Allies." <http://www.ncse.org/news-and-media/the-southeast-compass/the-southeast-compass-summer-2015/asbury-graphite-win-highlights-rail-allies>.)

The ACP permit application provided no information on the scope and scale of the project to be developed at this site. It is assumed that the site is possibly being prepared for a carbon fiber plant and there have been local references to support this projection. Information about this project and on the cumulative impact of the Atlantic Coast Pipeline were not analyzed by FERC or DEQ. All of these seven new, natural gas projects, combined with the two pre-existing projects, will have major impact on the environment and health and safety of Robeson County's vulnerable eco-systems and populations. More information is needed in order to determine if the project at this site will have cumulative or secondary impact on the environmental quality on this concentrated area of natural gas infrastructure and expansion.

All nine projects listed above are concentrated in an 8-mile radius in Robeson County, a unique region that is home to a large number of jurisdictional streams and wetlands, nearly all of which drain to the Lumber River, North Carolina's only blackwater stream with National Wild and Scenic River designation. It is one of the most racially diverse, rural counties in the U.S., and one of our nation's poorest with rising poverty, significant health disparities, and a major lack of affordable housing. It has suffered from two major hurricanes in a period of two years, exacerbating its economic and social conditions.

The 401 permit application of the Atlantic Coast Pipeline minimized the major adverse environmental impacts that such massive development of new fossil fuel infrastructure and industry will have on the fragile eco-system, economy, and diverse communities of Robeson County. DEQ should revoke the 401 Certification due to this new information showing the truly massive scope and scale of the ACP and its impacts in Robeson County, where the "Terminus" is really a "Launchpad."

ACP should have disclosed information about these facilities to DEQ and included them on Attachment 1. The correct information on the impacts of directly related facilities provided in this Petition demonstrate that the cumulative impacts analysis of the ACP project was completely understated. The Final Assessment Report does not assess these impacts which would include environmental justice, water quality, wetlands, and water resource impacts from these interconnected project proposals. Whether these projects are new proposals created by changed factual conditions or incorrect omissions from the initial application, they still provide a basis to revoke the 401 Certification.

While it is clear that this is new information for the public as well as DEQ staff, it is unclear when this information became new for the ACP LLC. New pipeline connection pipelines will be needed to transport natural gas from ACP to these new projects. It is our view that the impact of any project being planned by those four energy companies (which include, but not limited to, those identified above) that are relevant to the pipeline should also be assessed cumulatively.

Areas Needing Further Investigation

The relationship between pipeline construction and flooding caused by major hurricanes needs to be explored. Due to experience with the aftermath of the new Piedmont pipeline construction in Robeson County that included Hurricane Florence, new questions have surfaced about the impact of the compacted surface area above pipelines upon wetlands that they cross--and the populations surrounding those wetlands. Swamps in Robeson County, such as the one through which the Piedmont pipeline was built, represent an important natural defense against flooding; they store floodwaters and reduce both ingoing and outgoing floodwater impacts. With a hard-packed trail of impermeable surface along its path, floodwaters can easily flow past the natural barrier of

the swamp, increasing in concentration and strength. Environmental scientists call the resulting sluice a “preferential floodwater path” -- a path of least resistance for water. Prior to pipeline construction, communities in rural areas with serious flooding had previously relied upon the protection of the wetlands to reduce floodwater impacts.

Additional regional projects in neighboring projects may have cumulative or secondary impact on the water quality and quality of life in neighboring counties. What known or future project plans are connected to the placement of the two additional Metering and Regulating Stations in Johnston and Cumberland Counties? What known or future project plans will be the beneficiaries of the taps along the pipeline route. What is the cumulative or secondary impact of project plans for the former Weatherspoon Energy Plant in Lumberton, the Optima KV Biogas facility near Kenansville, and the Enviva Wood Pellet facility near Warsaw? What relationship, if any, do they have with ACP infrastructure and development? The Department of Environmental Quality needs to suspend and revoke the 401 permit and acquire answers to the many questions that were left unanswered in the ACP LLC application.

D. Drastic Increase in Permitted Export of Natural Gas Outside of the U.S.

In the Final Assessment Report, ACP stated that it “has no commitment to potential customers.” It also stated that: “[T]he action forecast for the implementation of the project is informed by demand for natural gas observed in North Carolina. The ACP would serve the growing energy needs of multiple public utilities and local distribution companies (LDCs) in North Carolina. Based on current customer commitments, approximately 79.2 percent of the natural gas transported by the ACP will be used to generate electricity for industrial, commercial, and residential uses. The remainder of the natural gas will be used directly for other residential (9.1 percent), industrial (8.9 percent), and commercial and uses such as vehicle fuel (2.8 percent). By providing access to low-cost natural gas supplies, the ACP will increase the reliability and security of natural gas supplies in North Carolina.”

FERC staff relied on these representations by ACP LLC as it completed its Final EIS issued on July 21, 2017 that “[t]he purpose of ACP is to deliver up to 1.5 billion cubic feet per day of natural gas to customers in Virginia and North Carolina.” Since the FERC EIS was completed and the ACP 401 was issued, public reports show that ***the United States is poised to become one of the largest exporters of liquefied natural gas (LNG)*** in the next 20 years. Reports indicate exporting as much as 19 Bcf/d by some estimates, thanks to robust production. There is about 24 Bcf/d of U.S. liquefaction capacity either in operation, under construction or approved by both FERC and the Department of Energy (DOE). In total, DOE has approved export licenses for 52.9 Bcf/d. could put upward pressure on domestic prices and expose the previously isolated North American market to global market dynamics in the years to come, according to the U.S. Commodity Futures Trading Commission.⁷ One large facility opened in Elba, Georgia this year and gas from the ACP could

well now be bound for it. The US President has announced an “energy dominance” strategy to make the United States a large exporter of fossil fuels to the world. This strategy includes, among other matters, the exportation of fracked gas to all possible international markets, such as Europe and China. The DOE and FERC approvals facilitate this explosive growth in exports, which benefit fossil fuel extraction companies, utility companies promoting pipeline projects, and their investors.

E. Erroneous Analysis About Impacts to Environmental Justice Communities

ACP LLC failed to disclose, and FERC Staff failed to analyze all relevant information about impacted Environmental Justice Communities. ACP LLC’s discussion of environmental justice consideration is limited to references to the conclusion of FERC EIS that there would be no disproportionately high and adverse impacts. See “ACP Cumulative Impacts Assessment for Metering and Regulation Stations in North Carolina” included in their response to information Request Dated September 14, 2017. p. 42. However, this filing does not address the full scope of impacts that ACP will inflict upon Environmental Justice Communities in Robeson County. Instead, it lumps Robeson County in with other locations along the pipeline’s path in order to perform a single unfocused analysis that almost by design is inappropriate for detecting environmental justice issues.

The obvious flaws in the FERC EIS on analyzing Environmental Justice impacts are part of ongoing appeals before the 4th Circuit in challenges to Virginia’s actions on the ACP. See *Friends of Buckingham et al. v. State Air Pollution Control Board et al.* No. CV 19-1152 (4th Circuit, 2019) Failures by FERC’s EIS to properly analyze disproportionate impacts appear to have occurred in both Virginia and North Carolina. ACP threatens to inflict a wide variety of harms to these vulnerable populations, including interference with their enjoyment of land, disruption and destruction of unmarked ancestral burials and sacred places, contamination of groundwater and aquifers, and general marring of the natural environment. The Lumbee community attaches great cultural and religious importance to the integrity of the natural environment. See Lumbee Tribe of North Carolina, Tribal Consultation and the Atlantic Coast Pipeline, CLLR-2018-0222-01, Feb. 22, 2018. <https://web.archive.org/web/20190322155906/https://www.ncwarn.org/wp-content/uploads/2.23.18-Lumbee-resolution.pdf>

Professor Ryan E. Emanuel, Environmental Science Professor at North Carolina State University, has analyzed the EIS and found that conceptual and methodological errors in FERC’s analysis greatly minimized the extent to which the impact of the ACP disproportionately falls upon poor communities of color along the planned route. See “Comments of Dr. Ryan E. Emanuel, Ph.D. on the Atlantic Coast Pipeline” (2017) For example, DEQ coded negative impacts in census tracts with 75% minority populations as not raising disproportionate EJ concerns—simply because the tracts were located within counties that likewise had a high share of non-white residents. Professor Emanuel observed that:

“Not only does the project cross areas of high poverty in rural Appalachia, but it also runs through the so-called “Black Belt” of Virginia and North Carolina. Both regions have borne disproportionate shares of environmental burdens throughout US history, and their local populations live with an unfortunate legacy of past environmental decision making in which they have had little or no part. These are, quite literally, the textbook study regions for environmental justice. Federal regulators should be first to acknowledge these large-scale, multi-state patterns of inequity and to hold petitioners accountable for their activities in these regions. Instead, the environmental justice conclusions of this DEIS hinge on what is essentially a series of county- level calculations, combined in a mathematically indefensible fashion, and hard-wired to ignore important regional demographic patterns that frame the project as a whole.”
See “Comments of Dr. Ryan E. Emanuel, Ph.D. on the Atlantic Coast Pipeline” (2017)

Dr. Emanuel published papers on his analysis in detail in the prestigious journal, Science. See Ryan E. Emanuel, Flawed Environmental Justice Analyses, Science 21 Jul 2017: Vol. 357, Issue 6348, pp. 260. <http://science.sciencemag.org/content/357/6348/260.1> This analysis shows that the ACP will indeed disproportionately impact low-income communities and people of color. For instance, about 30,000, or 13%, of the people who live within one mile of the proposed route of the pipeline in North Carolina are Native Americans, even though they represent only 1.2% of the State’s total population. (<https://web.archive.org/web/20190116011455/https://thinkprogress.org/native-americans-protest-natural-gas-pipeline-in-north-carolina-c4726edff47a/>) Additionally, a RTI intentional study found “that disproportionately African American residents live within 1 mile of the pipeline route” in Northampton County. (<https://www.rti.org/sites/default/files/resources/rti-publication-file-db772936-3fc3-4448-9a91-9c2b6ebcd88a.pdf>) The FERC EIS’ analysis was just plain wrong in applying the math to the maps.

The inadequacies that Dr. Emanuel identified in FERC’s analysis of environmental justice impacts, alone, raises deep concerns both about the usefulness of the analysis and about DEQ’s commitment to engaging in the most rigorous analysis necessary to smoke out, evaluate, and address threats to the state’s most vulnerable communities. DEQ’s reliance on FERC’s analysis fails against the Department’s own standards, as framed by DEQ (then the Department of Environmental and Natural Resources), which resolve that to meet environmental justice goals, DEQ will “[a]ddress environmental equity issues in permitting decisions for projects potentially having a disparate impact on communities protected by Title VI of the Civil Rights Act of 1964.” Additionally, the policy states DEQ’s commitment to “Resolve environmental equity complaints, consistent with the protection afforded by Title VI of the Civil Rights Act of 1964.” Although FERC and ACP made comments about this project’s impacts on Environmental Justice Communities, none of the information about Robeson County’s outlier position on EPA’s environmental justice indices was

disclosed in the permitting process. Nor was the FERC EIS adequate in its assessment of these impacts. Neither the FERC EIS nor the ACP 401 assessed these impacts. The inadequacies of environmental justice review are new information which supports revocation of the 401 Certification.

F. New Information Regarding the Impacts of Climate Change on Impacted EJ Communities

In October 2018, the Intergovernmental Panel on Climate Change (IPCC) issued a special report calling for efforts to limit global warming to 1.5°C above pre-industrial levels. (Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments. <https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/>) Success in that goal would clearly benefit the world's population as well as natural ecosystems, and would ensure a more sustainable and equitable society (given that climate change is expected to do the most harm to the world's poorest). See Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments. <https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/> The report emphasized that limiting global warming to 1.5°C would require rapid, far-reaching and unprecedented transitions in energy generation and consumption, including replacing fossil fuels like natural gas. (Also see Chapter 2: Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development. Pp. 96. <https://web.archive.org/web/20190321205610/https://www.ipcc.ch/sr15/>)

Moreover, ACP's path cuts through a water-dependent landscape surrounding the Lumber River in Robeson County (through which the pipeline intends to run), which is highly sensitive to the effects of climate change. A new analysis of climate change in the Lumber River watershed by the *Journal of Contemporary Water Research and Education* published in April 2018 highlighted the fact that rising temperatures through the mid-21st century will have the potential to expose the surrounding wetlands to heat and drought-related damage. Drought damage would have cascading harms on wetland and aquatic environments, including erosion and sediment transport, increased flood susceptibility, and increased burdens of animal wastewater treatment and disposal.

Those environmental harms are intimately connected with damage that will occur to the Lumbee nation's cultural and spiritual connections to the waters that flow through the lands on which they live. Centuries-old traditions of resource stewardship and religious practices tied to physical areas and natural features would be washed away by changing terrains and receding waters. See *Climate Change in the Lumbee River Watershed and Potential Impacts on the Lumbee Tribe in North Carolina*. P. 88-90. <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1936-704X.2018.03271.x> Notwithstanding the inherently prospective nature of climate change analyses,

the Lumbee's relationship with bodies of water of great historical and cultural value must be reflected and accorded due weight in considering the contributory impact of the Atlantic Coast Pipeline on climate change in Robeson County and the surrounding area, both today and in the future.

IV. CONCLUSION

Information disclosed to DEQ which formed the basis for its decision is incorrect as shown above. In addition, changed conditions in energy markets, permits being overturned in court proceedings, delays and gas markets call for revocation of the 401 Certificate. The new information we have supplied above fully supports a decision to revoke the ACP 401. The NC Department of Environmental Quality gave ACP LLC every opportunity to disclose all pertinent information on the scope, scale, and impact of its proposed pipeline. It failed to do so. Its claim that the cumulative and secondary impact of the Atlantic Coast Pipeline will have minimal impact on the water quality and quality of life in Robeson County is shown to be false, based on math errors, modelling errors and inadequate scope of analysis. The Atlantic Coast Pipeline is not only environmentally harmful, it is also economically irresponsible and unnecessary. It will burden the public with unfair and needless rate hikes. It will counter and eliminate the impact of all public and private efforts to reduce carbon emissions in our State. Furthermore, the ACP places a substantial, unfair burden on the indigenous people of Robeson County, concentrating up to nine natural gas projects in an 8-mile radius in the heart of the Lumbee and Tuscarora communities. The ACP is a short-term project with negative long-term impacts. In addition, this project locks the state and its citizens into a destructive use of energy resources.

On behalf of every ratepayer in North Carolina and every person who enjoys the natural resources belonging to all the people in North Carolina, we petition DEQ to revoke the 401 Certification for the Atlantic Coast Pipeline.

Very Truly Yours,

Donna Chavis, Senior Fossil Fuels Campaigner,
Friends of the Earth

Rev. Mac Legerton, Interim Executive Director
NC Climate Solutions Network

CC: Honorable Roy Cooper, Governor
Honorable Josh Stein, Attorney General

APPENDIX D

EPA Funding North Carolina Department of Environmental Quality (“DEQ”)_

Retrieved from <https://www.usaspending.gov/#/explorer/agency>

 Start Over

 FY 2019 

Q1 Q2 Q3 Q4

 ALL AGENCIES
\$6.9 Trillion

 AGENCY
Environmental Protection Agency
\$10.6 Billion

 RECIPIENT
NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY
\$67.6 Million

You've chosen
NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY
A Recipient within Environmental Protection Agency

FY 2019 OBLIGATED AMOUNT
\$67.6 Million
Data as of September 30, 2019

See the breakdown by:  Award



Name 	Obligated Amount 	Percent of Total 
98433819	\$33,792,000	49.99%
37000119	\$28,676,000	42.42%
00D45019	\$2,300,000	3.40%
00D83118	\$770,000	1.14%
00D95519	\$625,000	0.92%
00D95219	\$493,331	0.73%
00D80918	\$277,000	0.41%
00D95319	\$220,000	0.33%
00D96819	\$135,526	0.20%
00D96919	\$128,052	0.19%
00D84418	\$69,168	0.10%
00D96719	\$66,000	0.10%
00D97019	\$44,000	0.07%

All dollar amounts shown here represent agency reported obligated amounts

Unreported Data*: Unreported amounts are calculated using the difference in the total obligated amount from the **Report on Budget Execution and Budgetary Resources** and the total obligated amount reported by agencies to USAspending.gov.