

# SOUTHERN ENVIRONMENTAL LAW CENTER

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January 4, 2019

Via email to: [airdivision1@deq.virginia.gov](mailto:airdivision1@deq.virginia.gov)

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**Re: Proposed Buckingham compressor station (No. 21599)**

Dear Chairman Langford, Members of the Board, and Director Paylor:

The Southern Environmental Law Center offers the following comments on the draft air permit for Atlantic Coast Pipeline, LLC's ("Atlantic") proposed Buckingham Compressor Station, Registration Number 21599 ("Draft Permit"). These comments are submitted on behalf of the Southern Environmental Law Center, Friends of Buckingham, Natural Resources Defense Council, Sierra Club, Shenandoah Riverkeeper, Potomac Riverkeeper, Shenandoah Valley Battlefields Foundation, Virginia Wilderness Committee, Augusta County Alliance, Shenandoah Valley Network, Highlanders for Responsible Development, the Chesapeake Climate Action Network, Wild Virginia, the Allegheny-Blue Ridge Alliance, and Defenders of Wildlife.

We are writing to request that the Board disapprove the proposed air permit for the Buckingham compressor station on the grounds that:

- DEQ and Atlantic have provided the Board with inadequate, preliminary demographic information;
- DEQ has not considered environmental justice as a factor in its site-suitability analysis; and
- DEQ is incorrect that compliance with NAAQS is sufficient to demonstrate that there will not be a disproportionate adverse impact on the Union Hill Community.

## **The Board Should Not Rely on DEQ’s and Atlantic’s Incomplete Preliminary Screening Data to Determine Whether Union Hill Is an Environmental Justice Community.**

DEQ has not provided the information necessary for the Board to determine whether the proposed site, in the environmental justice community of Union Hill, is suitable under Va. Code § 10.1-1307. The Board has an independent statutory obligation to consider “facts and circumstances relevant to the reasonableness of” the Buckingham compressor station, including “[t]he suitability of the activity to the area in which it is located.” Va. Code § 10.1-1307(E). The single most important factor for the Board to consider when determining whether it is “suitable” to site the compressor station in Union Hill is whether doing so would adversely affect an economically disadvantaged or minority community—in other words, an environmental justice community.

To even begin to consider that question, the Board must have a clear picture of the demographic, population, and health characteristics of the Union Hill community. But to the extent that Atlantic and DEQ have considered environmental justice issues—which they have done only recently, and outside the context of site-suitability—that assessment is flawed.<sup>1</sup> As we described in detail in a December 7, 2018 letter to the Board (included as **Attachment A**), the EJSCREEN report and accompanying ESRI demographic and income profiles DEQ provided the Board are incomplete and inadequate. The demographic information in those documents is too generic to provide a meaningful basis for a site-suitability determination.

Specifically, DEQ and Atlantic used 2010 Census-based screening tools that are designed to give regulators and the public only a preliminary, approximate understanding of a population that may be affected by a source of industrial pollution. EPA has described the EJSCREEN tool as a “useful first step” that “do[es] not provide a complete assessment of risk.”<sup>2</sup> In the case of a small community like Union Hill, relying on preliminary, generic demographic estimates is particularly problematic. Federal guidance

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<sup>1</sup> Most of the information DEQ provided the Board is identical to, or taken directly from, a set of demographic documents submitted by Atlantic to DEQ on November 28, 2018. While there are some numerical discrepancies between the EJSCREEN reports produced by DEQ and those submitted by Atlantic, those discrepancies are relatively minor. Thus, these comments apply equally to the EJSCREEN reports produced by DEQ as well as to Atlantic’s November 28 submission, which includes a summary of its EJSCREEN report as well as additional demographic information.

<sup>2</sup> Environmental Protection Agency, EJSCREEN Environmental Justice Mapping and Screening Tool EJSCREEN Technical Documentation, at p. 8 (Aug. 2017) (emphasis supplied), [https://www.epa.gov/sites/production/files/2017-09/documents/2017\\_ejscreen\\_technical\\_document.pdf](https://www.epa.gov/sites/production/files/2017-09/documents/2017_ejscreen_technical_document.pdf).

confirms that detailed, local studies are especially important when a small minority population is at risk.<sup>3</sup>

Not only was the EJSCREEN information provided to the Board inadequate, it was also incomplete. DEQ provided the Board with reports generated by the screening tool, but omitted pages containing results demonstrating that the affected community is one with “high combinations of environmental burdens and vulnerable populations.”<sup>4</sup> Without that information, which EPA designed to be included with an EJSCREEN report, the Board lacks critical information regarding the vulnerability of the population. Dr. Ryan E. Emanuel, Ph.D., ran the EJSCREEN report to produce results identical to those produced by DEQ; included as **Attachment B** is the missing first page to that report. This page demonstrates that Union Hill is in the top 8% to the top 34% most vulnerable of all communities in the Commonwealth for conditions represented by each of the environmental justice indexes. Dr. Emanuel’s comments to the Board are included as **Attachment C**.

Further, there is no reason for the Board to rely on generic, incomplete information when, as here, those detailed, local studies have been conducted and provided to the Board. As detailed in our December 7 letter, Ph.D. anthropologist Lakshmi Fjord has conducted a meticulous, household-by-household study of the Union Hill community. Dr. Fjord’s study was conducted according to National Institute of Health protocols and provides verifiable, current data on the Union Hill community that is unquestionably superior to preliminary statistical estimates. Of the 199 people who participated in Dr. Fjord’s study, most of whom live within one mile of the proposed compressor station, 83.4% identified as non-white.<sup>5</sup> Further, Dr. Fjord’s study definitively shows that DEQ’s and Atlantic’s demographic data significantly underestimated the population density of the one-mile radius around the compressor station.

DEQ’s reliance on FERC’s brief discussion of environmental justice impacts is also insufficient, as FERC has not conducted a detailed, on-the-ground study of the demographic makeup of the Union Hill community. The Board has an independent duty under Virginia law to consider site-suitability, and it should do so by considering the

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<sup>3</sup> Federal Interagency Working Group on Environmental Justice, Promising Practices for EJ Methodologies in NEPA Reviews (2016), [https://www.epa.gov/sites/production/files/2016-08/documents/nepa\\_promising\\_practices\\_document\\_2016.pdf](https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf).

<sup>4</sup> US EPA, Frequent Questions about EJSCREEN. *US EPA* (2015), <https://www.epa.gov/ejscreen/frequent-questions-about-ejscreen>. (last visited Jan. 4, 2019).

<sup>5</sup> Since SELC submitted its December 7, 2018 letter, Dr. Fjord has updated her analysis. The number of people who participated in the study was 200, and the percentage who identified as non-white was 83%. A revised summary of the study’s findings is included as **Attachment D**.

most relevant, most detailed information available—not by deferring to estimates of the population and demographic composition of Union Hill.

**DEQ’s Site-Suitability Analysis Presented to the Board at the December 19, 2018 Meeting Does Not Consider Environmental Justice Concerns.**

DEQ’s December 19 presentation to the Board demonstrates that the Department did not consider environmental justice as part of its site-suitability analysis. None of the four factors DEQ listed in the site-suitability assessment it presented to the Board address environmental justice concerns.

First, DEQ considered Buckingham County’s approval of a Special Use Permit for the compressor station. But the Board should not accept DEQ’s invitation to rely on that local zoning decision to fulfill its obligations to consider site-suitability under § 1307.E. The Board’s regulations are clear: a facility’s compliance with local zoning requirements “does not relieve the board of its duty under 9 VAC5-170-150 and § 10.1-1307E of the Virginia Air Pollution Control Law *to independently consider* relevant facts and circumstances.” 9 Va. Admin. Code § 5-80-1230 (emphasis added). The Board’s independent evaluation of site suitability is especially important where, as here, the facility will affect a minority community and the local government did not conduct an environmental justice review. In its presentation on December 19, 2018, DEQ did not assert that the County considered the historic, African-American community of Union Hill in its decision-making, and the special use permit makes no reference to this community or environmental justice.<sup>6</sup>

Second, DEQ considered the alternatives analysis and cultural resources assessment included in the final Environmental Impact Statement (final EIS) issued by the Federal Energy Regulatory Commission (“FERC”). Like the County’s special use permit, FERC’s alternatives analysis does not address environmental justice. In the Final EIS, FERC rejected a “no action” alternative based on its conclusion that the pipeline was necessary. DEQ adopted that analysis, reporting to the Board that because FERC found that the project was necessary, Buckingham County is a suitable site for the compressor station. But DEQ’s conclusions miss the mark for two important reasons.

The alleged necessity of the ACP project has no logical bearing on the question of whether the historic, African-American Union Hill community is suitable for a proposed compressor station. And DEQ did not provide an explanation for any purported connection. FERC was not required to—and indeed did not—consider Union Hill in its analysis of the no action alternative.

Further, critical new information calls into question the need for the project and the legality of the proposed route as described in the Final EIS. On December 7, 2018, the Virginia State Corporation Commission issued an order, included as **Attachment E**,

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<sup>6</sup> See Letter to Scott Summers, Atlantic Coast Pipeline, LLC from Rebecca Cobb, Zoning Adm’r, Buckingham Cty. (Jan. 11, 2017).

rejecting Dominion’s Integrated Resource Plan in part because the utility has consistently overstated its predictions of energy demand in Virginia.<sup>7</sup> This SCC decision casts significant doubt on the need for the ACP, the primary purpose of which is to run power plants. In addition, on December 13, 2018, the Fourth Circuit vacated a permit that would have allowed the pipeline to cross two national forests, including parts of the Appalachian Trail. *Cowpasture River Pres. Ass’n v. Forest Serv.*, No. 18-1144, 2018 WL 6538240, at \*1 (4th Cir. Dec. 13, 2018). The court’s decision puts the entire route of the pipeline in flux—it is likely that Atlantic will need to significantly redraw its proposed route and change the location of the compressor station in order to comply with the court’s decision.

Third, DEQ considered the Virginia Department of Historic Resources’ determination that Union Hill may not meet the criteria for designation as a Rural Historic District. But whether the area receives such a designation is beside the point. What matters is whether Union Hill is an economically disadvantaged or minority community that may have to bear a disproportionate burden if the facility is sited there. *See* Va. Code § 67-101.12.

Fourth and finally, DEQ considered an inventory of nearby emissions sources. Again, consideration of nearby emissions sources does not address environmental justice concerns. Nor is the assessment complete, as we discussed at length in comments submitted on the draft permit. As explained in those comments, it is not clear how DEQ decided those sources that should be included in the cumulative modeling assessment of the Buckingham compressor station. There is at least one other source in the vicinity that was not included in the cumulative NAAQS modeling—the 590-megawatt gas-fired Dominion–Bear Garden Generating Station, located roughly eight or nine miles from the compressor site. Atlantic failed to include emissions from this large power plant (owned by an affiliated company of Dominion Energy) in its cumulative emissions analysis. DEQ should have required including all nearby sources that could cause a significant pollutant concentration gradient in the area impacted by the Buckingham compressor station.

Because the factors on which DEQ relied in its site-suitability analysis ignore environmental justice concerns, the Board must undertake its own independent assessment to determine whether Union Hill is a suitable location for the proposed compressor station.

### **Compliance with NAAQS Does Not Resolve Environmental Justice Concerns.**

DEQ wrongly asserts that there cannot—by definition—be disproportionate harm to an environmental justice community so long as the National Ambient Air Quality Standards (“NAAQS”) are satisfied. But this is a non sequitur. Meeting NAAQS is

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<sup>7</sup> State Corporation Commission, *In re: Virginia Electric and Power Company’s Integrated Resource Plan filing pursuant to Va. Code § 56-597 et seq.*, Case No. PUR-2018-00065, Order at 7 (Dec. 7, 2018).

required under the Clean Air Act and applicable Virginia regulations.<sup>8</sup> But just because Virginia DEQ anticipates that those standards will be met does not resolve the question whether any particular community would be disproportionately affected by the new source of air pollution. Virginia law governing the Air Pollution Control Board itself recognizes that localized, disproportionate affects are a distinct concern.

Under the Code of Virginia, the Air Pollution Control Board is obligated to notify any “localities particularly affected” by the permit in question, as it did so here. Va. Code Ann. § 10.1-1307.01. “Particularly affected localities” are defined by statute as “**any locality which bears any identified disproportionate material air quality impact which would not be experienced by other localities.**” *Id.* (emphasis added). In other words, Virginia law contemplates that an area can be “disproportionately” affected even if the increased local pollution caused by the facility could otherwise be permitted under applicable ambient air quality standards.

And it is beyond question that the Union Hill community would suffer those disproportionate, material air quality impacts here. Increases in Nitrogen Oxide, fine particulate matter, and accompanying ozone (or smog) pollution will predictably cause ill health affects for those who are exposed to that pollution, even if an area is in compliance with NAAQS. The draft permit would allow the emission of 29.11 tons of Nitrogen Oxides (an air pollutant in its own right as well as a precursor to smog pollution) and 41.05 tons of fine particulate matter per year. There is no evidence of a safe level of exposure for these pollutants, which are known to have harmful health effects below the current NAAQS.<sup>9</sup> Ozone and fine particulate matter are widely considered to be “non-threshold” pollutants. As found by the D.C. Circuit Court of Appeals:

In EPA's judgment, ozone is, and PM may be, a non-threshold pollutant—that is, a pollutant that causes adverse health effects at any non-zero atmospheric concentration. Nat'l Ambient Air Quality Standards for Ozone, 62 Fed. Reg. 38,856, 38,863 (July 18, 1997) (codified at 40 C.F.R. §§ 50.9, 50.10 (1999)) (“Ozone NAAQS”) (“Nor does it seem possible, in the Administrator's judgment, to identify [an ozone concentration] level at which it can be concluded with confidence that no ‘adverse’ effects are likely to occur.”); Nat'l Ambient Air Quality Standards for Particulate

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<sup>8</sup> 9VAC5-80-1180(a)(3) (“No minor NSR permit will be granted unless it is shown to the satisfaction of the board that the source will comply with the following standards....(3)The source shall be designed, built and equipped to operate without preventing or interfering with the attainment or maintenance of any applicable ambient air quality standard and without causing or exacerbating a violation of any applicable ambient air quality standard.”).

<sup>9</sup> EPA, *NAAQS for Particulate Matter*, 78 Fed. Reg. 3086, 3098 (Jan. 15, 2013) (explaining that there is “no population threshold, below which it can be concluded with confidence that PM<sub>2.5</sub> related effects do not occur”).

Matter: Proposed Rule, 61 Fed. Reg. 65,638, 65,651 (Dec. 13, 1996) (“Particulate Matter NPRM”) (“[T]he single most important factor influencing the uncertainty associated with the risk estimates [for PM] is whether or not a threshold concentration exists below which PM-associated health risks are not likely to occur.”); *see also* *ATA I*, 175 F.3d at 1034 (making the same point). The lack of a threshold concentration below which these pollutants are known to be harmless makes the task of setting primary NAAQS difficult, as EPA must “select ... standard level[s] that ... reduce risks sufficiently to protect public health” even while recognizing that “a zero-risk standard is [not] possible.” Ozone NAAQS, 62 Fed.Reg. at 38,863.

*Am. Trucking Associations, Inc. v. E.P.A.*, 283 F.3d 355, 359–60 (D.C. Cir. 2002). In response to evidence of health problems caused by these pollutants at lower and lower levels, EPA has repeatedly strengthened both the fine-particle and ozone NAAQS in recent years.<sup>10</sup>

As previously noted by members of the Union Hill community, Virginia DEQ has made no effort to determine whether members of the community suffer from preexisting health conditions that would be exacerbated by this new source of air pollution. This Board is left with no basis for concluding that the proposed increased in air pollution will not adversely affect the health of those who live nearby. Ozone and fine particulate matter contribute to over 200,000 premature deaths in the United States each year.<sup>11</sup> Their effects are felt most severely by children, the elderly, people with pre-existing conditions including asthma, and otherwise healthy adults engaged in strenuous or frequent outdoor activity or work.<sup>12</sup> This increased pollution will be felt severely by surrounding residents.

Ozone exposure “can result in health effects that are observed in broad segments of the population, including respiratory symptoms, reduced lung function, and airway

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<sup>10</sup> *See* National Ambient Air Quality Standards for Particulate Matter, 78 Fed. Reg. 3086, 3088 (Jan. 15, 2013); National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65,291, 65,292 (Oct. 26, 2015) <https://www.gpo.gov/fdsys/pkg/FR-2015-10-26/pdf/2015-26594.pdf>; Environmental Protection Agency, *NAAQS Table*, <https://www.epa.gov/criteria-air-pollutants/naaqs-table#3>.

<sup>11</sup> *See* Steven R.H. Barrett et al., *Air Pollution and Early Deaths in the United States Part I: Quantifying the Impact of Major Sectors in 2005*, Atmospheric Environment Vol. 79, p. 198 (Nov. 2013) (modeling particulate matter and ozone emissions from combustion sectors and concluding that these pollutants result in approximately 200,000 premature deaths in the United States annually).

<sup>12</sup> *See* EPA, *Health Effects of Ozone Pollution*, <https://www.epa.gov/ozone-pollution/health-effects-ozone-pollution>.

inflammation, as well as more serious effects such as increased hospital admissions and increased daily mortality. Respiratory symptoms can include coughing; throat irritation; pain, burning, or discomfort in the chest when taking a deep breath; chest tightness, wheezing, or shortness of breath.”<sup>13</sup> Ozone forms when nitrogen oxides react with volatile organic compounds, which will also be emitted by the Buckingham compressor station.<sup>14</sup> Because the reaction is catalyzed by heat and sunlight, high ozone days occur most frequently during hot stagnant summers.<sup>15</sup>

Fine particles also cause health problems such as heart attacks, aggravated asthma, decreased lung function, and irregular heartbeats.<sup>16</sup> Exposure to fine particle concentrations as low as ten micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ )—which is lower than the current federal standard—is associated with a two percent increase in premature deaths for exposures as brief as two days, and a seven to nine percent increase in the long term.<sup>17</sup> Decreases in fine particle concentrations add months, if not years, onto people’s lives.<sup>18</sup>

## **Conclusion**

In light of the serious flaws with DEQ’s analysis of site-suitability, this Board must independently assess whether siting the Buckingham compressor station in the environmental justice community of Union Hill is suitable under Va. Code § 10.1-1307. We urge the Board to disapprove this permit on the grounds that Union Hill is not a suitable site for the proposed compressor station.

Finally, we are discouraged by procedural obstacles that have frustrated meaningful public participation. First, we object to the decision to initiate a 14-day comment on the Friday before the Christmas holidays with no advance notice. Virginia’s air pollution control regulations contemplate 30-day comment periods, with adequate

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<sup>13</sup> EPA, *Ozone and Your Patients’ Health: Course Outline/Key Points*, <https://www.epa.gov/ozone-pollution-and-your-patients-health>.

<sup>14</sup> NASA, *Chemistry of Ozone Formation*, [http://earthobservatory.nasa.gov/Features/ChemistrySunlight/chemistry\\_sunlight3.php](http://earthobservatory.nasa.gov/Features/ChemistrySunlight/chemistry_sunlight3.php) (describing tropospheric ozone production).

<sup>15</sup> *See id.*; *see also* Jeannie Allen, *The Ozone We Breathe*, NASA (Apr. 19, 2002), <http://earthobservatory.nasa.gov/Features/OzoneWeBreathe/>.

<sup>16</sup> *See generally* EPA, *Particulate Matter (PM) Health*, <https://www3.epa.gov/pm/health.html>.

<sup>17</sup> Liuhua Shi et al., *Low-Concentration PM<sub>2.5</sub> and Mortality: Estimating Acute and Chronic Effects in a Population-Based Study*, *Envtl. Health Persp.* (Jan. 2016), <http://ehp.niehs.nih.gov/1409111/>.

<sup>18</sup> *See* C. Arden Pope III et al., *Fine-Particulate Air Pollution and Life Expectancy in the United States*, 360(4) *New Eng. J. Med.* 2009 376, 382–84 (Jan. 22, 2009), <http://www.nejm.org/doi/pdf/10.1056/NEJMsa0805646>.

notice to the public, and we have not identified authority that would justify a shorter time period. In light of the serious process problems with the Board’s decision—especially the removal of two Board members mid-consideration—the length and timing of this comment period undermines meaningful public participation. Second, to allow Dominion to unilaterally amend a proposed permit after the close of the comment period thwarts public participation. The Board’s regulations specify the procedures for making changes to a permit. *See* 9 VAC 5-80-1260. The procedures for making significant amendments to a permit “must not be used to bypass the public participation requirements in 9 VAC 5-80-1170,” and the Board has the authority to subject such amendments to a public comment period and a public hearing. 9 VAC 5-80-1290(A)(3), (C). Dominion’s requested addition of a new condition designed to satisfy Va. Code Ann. § 10.1-1307(E) is a significant amendment because it “require[s] . . . a case-by-case determination of . . . [a permit] requirement.” 9 VAC 5-80-1290(A)(2)(b). This proposed condition should be presented for public comment.

Thank you for your consideration of this important matter.

Sincerely,

A handwritten signature in black ink, appearing to read "David Neal".

David Neal

A handwritten signature in black ink, appearing to read "Charmayne Staloff".

Charmayne Staloff

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# **ATTACHMENT A**

# SOUTHERN ENVIRONMENTAL LAW CENTER

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December 7, 2018

*Via email to:*

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**Re: Demographic and population study for the proposed Buckingham compressor station (No. 21599)**

Dear Chairman Langford, Members of the Board, and Director Paylor:

On behalf of our clients in Friends of Buckingham, we write to respond to DEQ's "Demographic and Income Profiles" for Union Hill. The printouts DEQ provided to the Board this week, without any accompanying explanation, are only *estimates* of the population and demographics of the area surrounding the compressor station. They do not represent an actual, on-the-ground count of the Union Hill community, despite the fact that obtaining this kind of data would not be difficult. In fact, Friends of Buckingham has already provided this data to DEQ and the Board during the comment period.

In order to determine whether the proposed Buckingham compressor station meets the site-suitability requirements of Va. Code Ann. § 10.1-1307, the Board must have a clear picture of the demographic composition of the Union Hill community. Neither Atlantic nor DEQ has made a meaningful effort to assess site suitability or understand who will be burdened by this new, polluting facility. The information from DEQ is too generic to be helpful and is too late in the process to allow for public engagement.

DEQ used screening tools that are designed to give regulators and the public a preliminary, approximate understanding of who might be affected by a new source of industrial pollution. But for a small community like Union Hill, those tools are not capable of providing an accurate picture of who actually lives within a one- or two-mile

radius of the facility. Instead, they can only generate *estimates* based on Census data for larger areas.

Despite appearances, DEQ’s printouts do not provide a count of the number of people actually living in the Union Hill community. DEQ used software to estimate the population of the “buffer area” around the compressor station based on the more general 2010 Census characteristics of units called “census blocks.” The result is an estimate that draws from much larger areas surrounding the proposed facility and is far from precise. As we explained in comments on the draft permit, Union Hill is much more densely populated than surrounding areas or the county as a whole.

Further, DEQ’s estimates of demographic statistics are even less precise than its population estimates. DEQ based its demographic estimates on even larger areas called “census block groups,” which introduced additional error. Had DEQ used the same scale as it used for its population estimate, the screening tools would have estimated that the population within the one-mile radius is 46.3% African American—not 25.3% as reported by DEQ. But even this more accurate estimate undercounts the actual percentage of African Americans and other minorities in this community.

These errors reflect the same cursory look at population data that has been a problem since outset of this permitting process. For example, DEQ and Dominion have persisted in using the county average population density of 29.6 people per square mile even after the Friends of Buckingham study demonstrated that the density is nearly double that for the Union Hill community: at least 52 people per square mile.

Moreover, EPA has explained that its EJ Screen tool—a tool very similar to the tool DEQ used here—is designed to give regulators and the public only a preliminary estimate of who might be most burdened by a new source of pollution. The EJ Screen “*is a pre-decisional screening tool*” and is not “designed to be the basis for agency decisionmaking or determinations regarding the existence or absence of EJ concerns.”<sup>1</sup> It does not make sense to employ that tool now, after DEQ has already made all of its decisions and has closed the record for further public comment. According to EPA:

EJSCREEN should be used for a “screening-level” look. Screening is a useful first step in understanding or highlighting locations that may be candidates for further review. However, it is essential to remember that screening-

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<sup>1</sup> Environmental Protection Agency, EJSCREEN Environmental Justice Mapping and Screening Tool EJSCREEN Technical Documentation, at p. 9 (Aug. 2017) (emphasis supplied), [https://www.epa.gov/sites/production/files/2017-09/documents/2017\\_ejscreen\\_technical\\_document.pdf](https://www.epa.gov/sites/production/files/2017-09/documents/2017_ejscreen_technical_document.pdf).

level results do not provide a complete assessment of risk, and have significant limitations.<sup>2</sup>

In other words, it is inappropriate to deploy this tool at the end of the permitting process.

But the Board does not have to rely on the imperfect, Census-based estimates from DEQ. Instead, it already has access to the kind of detailed data that should be considered during the permitting process. A PhD anthropologist conducted a meticulous, household-by-household study of the Union Hill community, following National Institute of Health protocols, and submitted that information to DEQ and the Board during the comment period. The summary results of the study are included here as **Attachment A**. The study consisted of door-to-door interviews that identified each household in the Union Hill community most immediately affected by the compressor station.

The study's results do not depend on algorithms or estimates from older, aggregated Census data. Rather, it presents on-the-ground information about the households and people who currently live in Union Hill. It identified 99 specific households in this community, the majority of which are within 1 mile of the proposed compressor station. Of those 99 identified households, 75 households—a total of 199 permanent residents—participated in the study and answered specific questions about race, health, and age. Of those 199 people, 83.4% identified as non-white, the vast majority of whom are African American or bi-racial. These figures are far more meaningful, and more accurate, than the census-based estimates provided by DEQ. Further, a map of these households (**Attachment B**) definitively shows that DEQ's population estimates are inaccurate. Within the same one-mile radius for which DEQ estimated 43 households, there are in fact at least 65 households, a 50% increase over DEQ's reported number.

The Board must not rely on DEQ's population and demographic estimates when it already has access to the results of an on-the-ground study of the local community. That study reveals that the compressor station will have a disproportionate adverse effect on a minority community. Federal guidance confirms that detailed, local studies are particularly important when a small minority population is at risk: "To sufficiently identify small concentrations (i.e., pockets) of minority populations, agencies may wish to supplement Census data with local demographic data. Local demographic data and information . . . can improve an agency's decision-making process."<sup>3</sup> Union Hill is

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<sup>2</sup> *Id.*, at p. 8.

<sup>3</sup> Federal Interagency Working Group on Environmental Justice, Promising Practices for EJ Methodologies in NEPA Reviews (2016),

precisely that: a small pocket of a minority population living right next to the proposed compressor station. Census data obscures that reality, and Union Hill deserves—and the Board must demand—more.

We respectfully request that the Board deny the permit for the Buckingham compressor station on December 10 because it does not meet site-suitability requirements. We appreciate your attention to this critically important matter and will be available to answer questions about this information at the Board meeting.

Sincerely,



Gregory Buppert  
Southern Environmental Law Center

*On behalf of Friends of Buckingham*

CC: Matthew Gooch, Assistant Attorney General

# **ATTACHMENT A**

Union Hill Community Household Study Results  
 Friends of Buckingham, Lakshmi Fjord, Ph.D.  
 Sept. 4, 2018 (updated)

Using U.S. Postal Service rural Blue Address markers, **99 households were identified in 1.1 mile radius of proposed Atlantic Coast Pipeline Virginia compressor station in Union Hill, Buckingham, VA.** Teams reached **75 households** or **76.53% response rate** .

Weekday residents of 75 households: **199**

Weekend, bi-monthly, and annual family reunion numbers add hundreds more frequent visitors.

Race by self-identification: Taken together minorities make up 83% of residents:

	African American	Native American and African American	White	Native American and White	Native American	Hispanic
Count	123	27	33	9	3	3
%	61.80904523	13.5678392	16.58291457	4.522613065	1.507537688	1.507537688

Weekday residents household ages: Taken together 32% are Children; 25% Elderly, which is disproportionately people over 75 years old (age range masks actual ages):

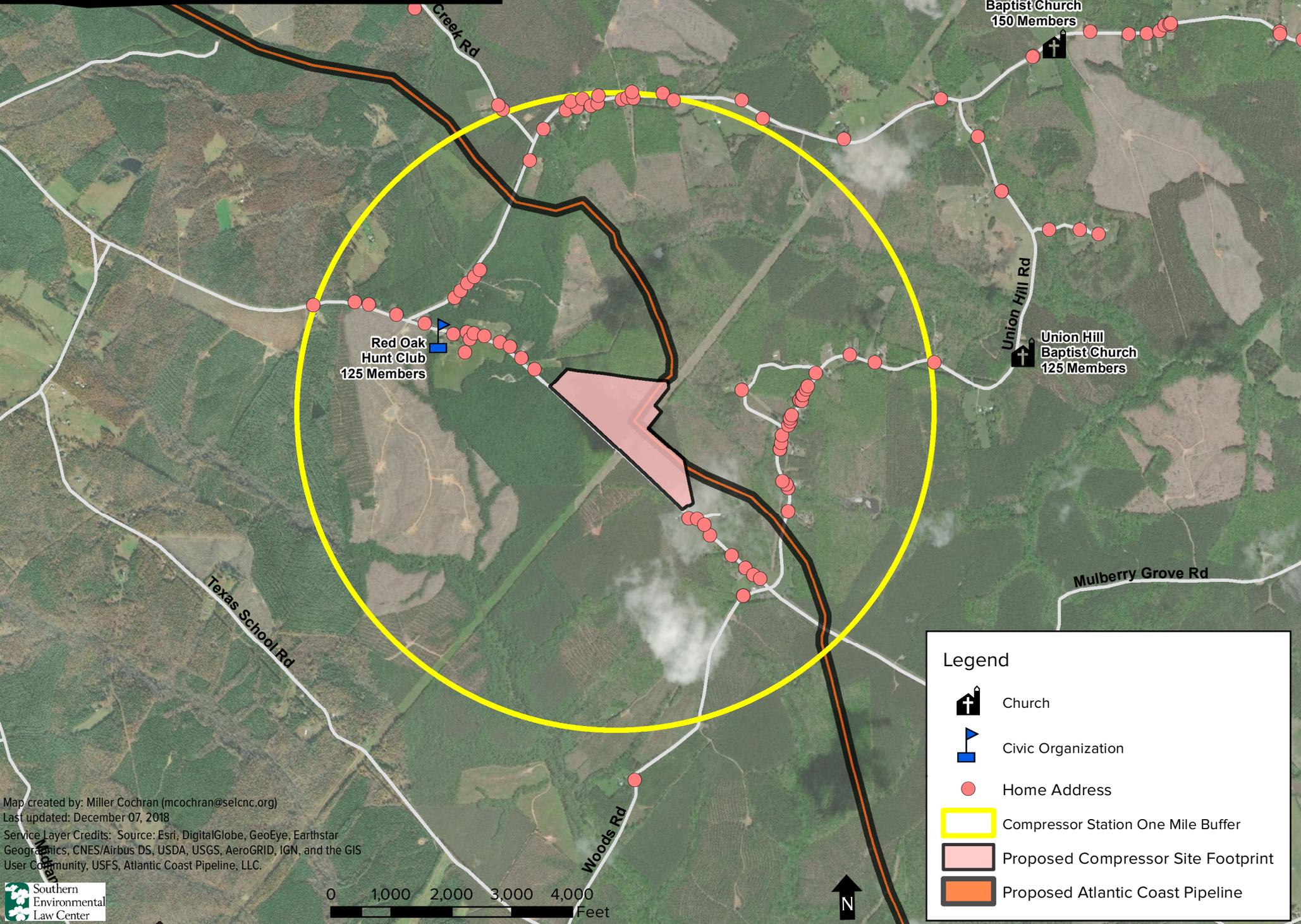
Age Range	0-5	6-18	18-21	22-40	41-65	65+	Unknown	Total
Count	28	36	5	36	43	50	1	199
%	14.070351	18.090452	2.5125628	18.090452	21.608040	25.12562	0.50251256	100

Of the 67 households from which we were able to have extensive questionnaire time, **35 responded with their existing medical conditions.** Therefore there is **health data for 59.32% of the reached households.** Existing health diagnoses include:

Highest levels of existing diagnosed health conditions are for autoimmune conditions (asthma, allergies, multiple sclerosis, lupus) and lung/respiratory conditions, heart disease and heart conditions, and diabetes. Other conditions include arthritis, bipolar disorder, cancers including brain cancer, epilepsy, kidney conditions, migraines, light sensitivity, noise sensitivity, skin disease, and strokes.

# **ATTACHMENT B**

# Atlantic Coast Pipeline Buckingham County Compressor Station



Union Grove Baptist Church  
150 Members

Red Oak Hunt Club  
125 Members

Union Hill Baptist Church  
125 Members

### Legend

-  Church
-  Civic Organization
-  Home Address
-  Compressor Station One Mile Buffer
-  Proposed Compressor Site Footprint
-  Proposed Atlantic Coast Pipeline

Map created by: Miller Cochran (mcochran@selcnc.org)  
Last updated: December 07, 2018

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, USFS, Atlantic Coast Pipeline, LLC.



0 1,000 2,000 3,000 4,000 Feet



# **ATTACHMENT B**

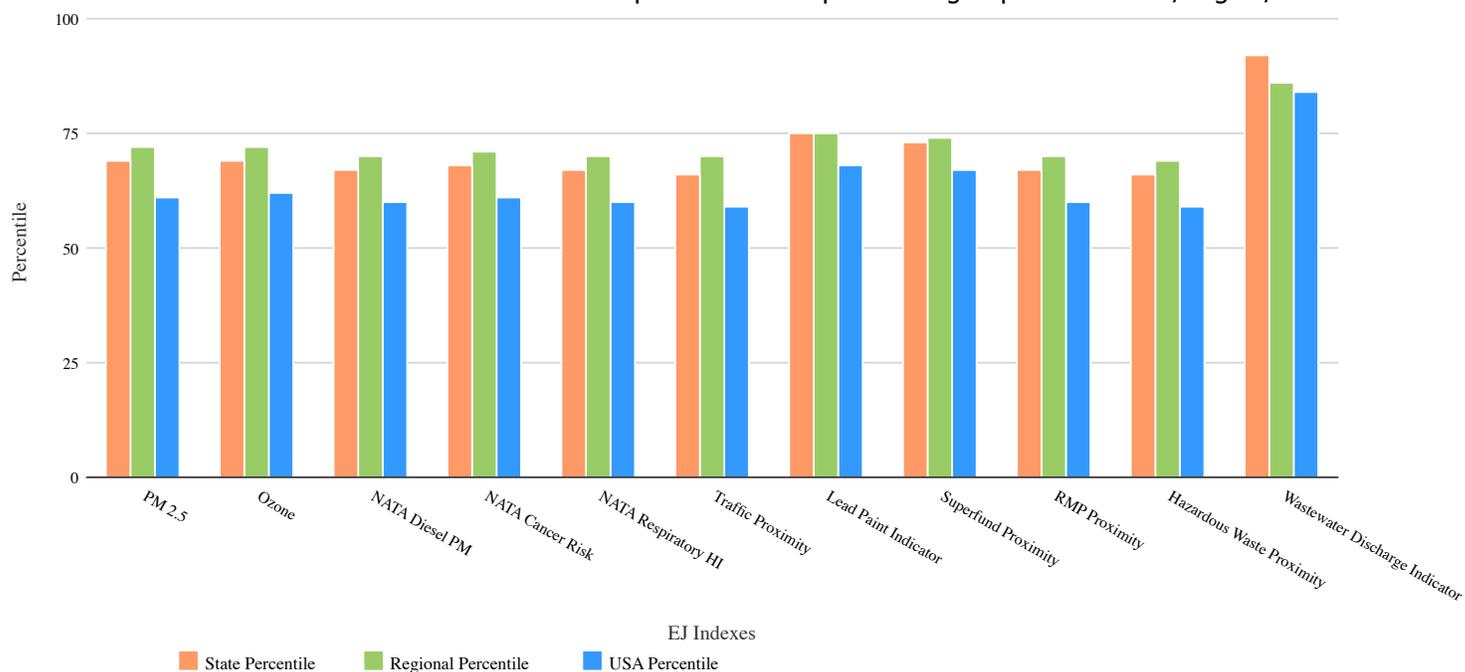


**EJSCREEN Report (Version 2018)**  
**1 mile Ring Centered at 37.589875,-78.659469**  
**VIRGINIA, EPA Region 3**  
**Approximate Population: 86**  
**Input Area (sq. miles): 3.14**  
 ACP\_1mi

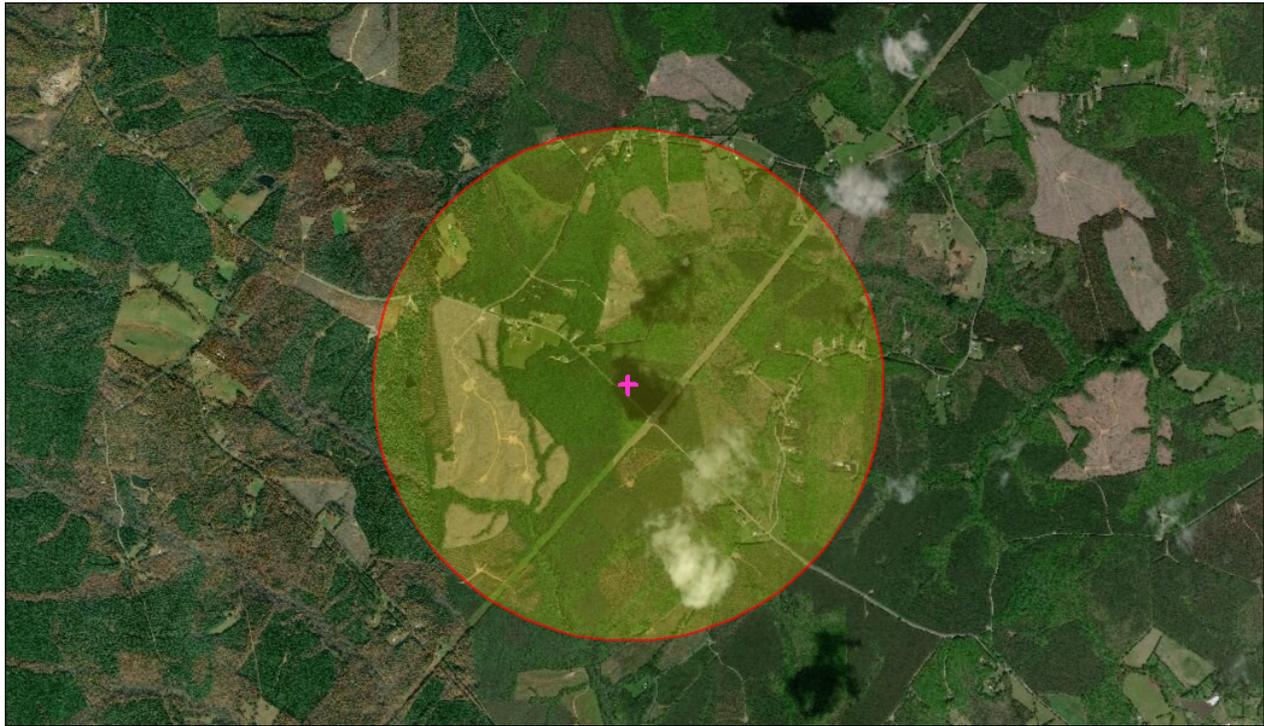


Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
<b>EJ Indexes</b>			
EJ Index for Particulate Matter (PM 2.5)	69	72	61
EJ Index for Ozone	69	72	62
EJ Index for NATA* Diesel PM	67	70	60
EJ Index for NATA* Air Toxics Cancer Risk	68	71	61
EJ Index for NATA* Respiratory Hazard Index	67	70	60
EJ Index for Traffic Proximity and Volume	66	70	59
EJ Index for Lead Paint Indicator	75	75	68
EJ Index for Superfund Proximity	73	74	67
EJ Index for RMP Proximity	67	70	60
EJ Index for Hazardous Waste Proximity	66	69	59
EJ Index for Wastewater Discharge Indicator	92	86	84

**EJ Index for the Selected Area Compared to All People's Blockgroups in the State/Region/US**

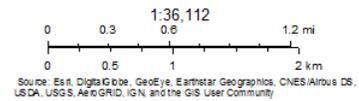


This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.



December 21, 2018

- Buffer Area
- + Digitized Point



### Sites reporting to EPA

Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

Selected Variables	Value	State Average	Percentile in State	EPA Region Average	Percentile in EPA Region	USA Average	Percentile in USA
<b>Environmental Indicators</b>							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$ )	8.47	8.92	10	9.97	4	9.53	28
Ozone (ppb)	40.1	43.6	3	44.3	1	42.5	29
NATA* Diesel PM ( $\mu\text{g}/\text{m}^3$ )	0.253	0.77	7	0.921	<50th	0.938	<50th
NATA* Air Toxics Cancer Risk (risk per MM)	34	42	20	42	<50th	40	<50th
NATA* Respiratory Hazard Index	0.87	1.8	7	1.8	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	1.5	430	6	360	6	600	5
Lead Paint Indicator (% pre-1960s housing)	0.19	0.21	61	0.36	39	0.29	50
Superfund Proximity (site count/km distance)	0.068	0.1	58	0.14	53	0.12	60
RMP Proximity (facility count/km distance)	0.059	0.37	16	0.6	14	0.72	13
Hazardous Waste Proximity (facility count/km distance)	0.022	0.67	5	1.3	1	4.3	4
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0022	2.7	90	100	68	30	72
<b>Demographic Indicators</b>							
Demographic Index	39%	32%	71	30%	73	36%	62
Minority Population	37%	37%	55	32%	65	38%	57
Low Income Population	42%	27%	78	28%	77	34%	67
Linguistically Isolated Population	6%	3%	84	2%	86	4%	74
Population with Less Than High School Education	19%	11%	80	11%	83	13%	75
Population under Age 5	3%	6%	20	6%	22	6%	20
Population over Age 64	22%	14%	85	15%	83	14%	85

\*The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: [www.epa.gov/environmentaljustice](http://www.epa.gov/environmentaljustice)

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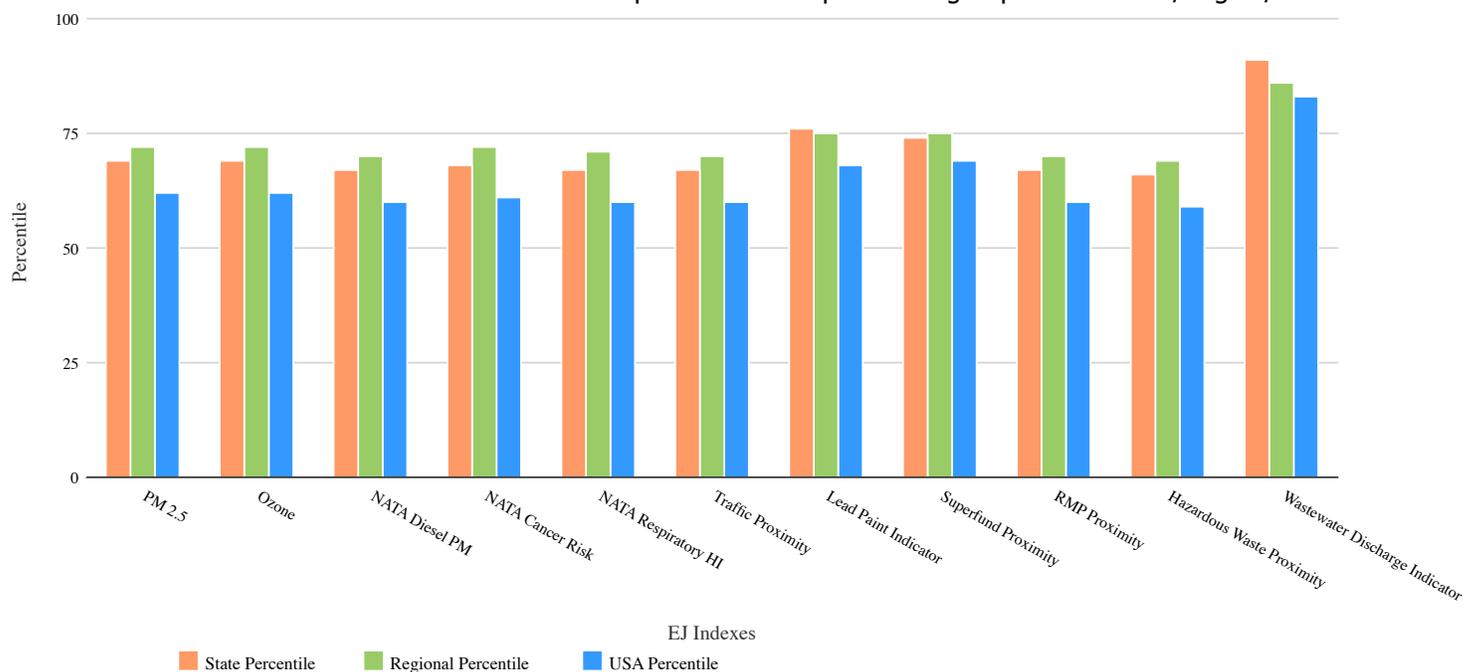


**EJSCREEN Report (Version 2018)**  
**2 mile Ring Centered at 37.589136,-78.658300**  
**VIRGINIA, EPA Region 3**  
**Approximate Population: 270**  
**Input Area (sq. miles): 12.56**  
 ACP\_2mi

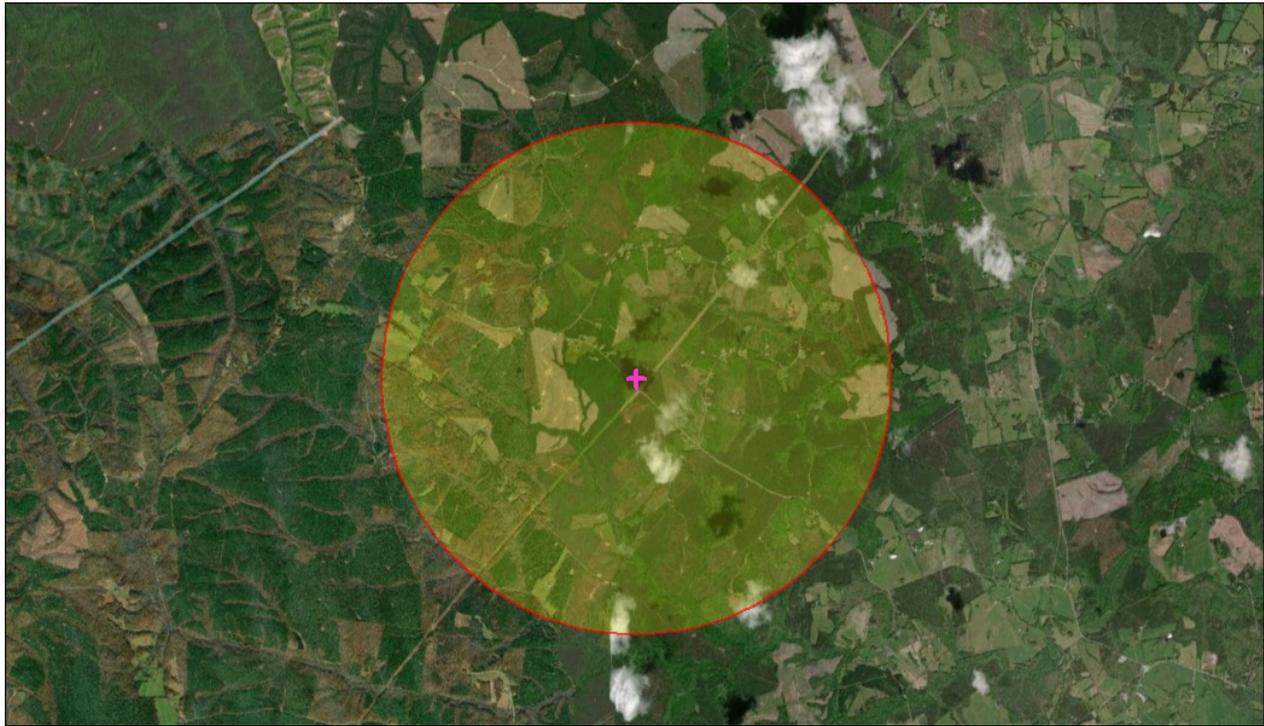


Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
<b>EJ Indexes</b>			
EJ Index for Particulate Matter (PM 2.5)	69	72	62
EJ Index for Ozone	69	72	62
EJ Index for NATA* Diesel PM	67	70	60
EJ Index for NATA* Air Toxics Cancer Risk	68	72	61
EJ Index for NATA* Respiratory Hazard Index	67	71	60
EJ Index for Traffic Proximity and Volume	67	70	60
EJ Index for Lead Paint Indicator	76	75	68
EJ Index for Superfund Proximity	74	75	69
EJ Index for RMP Proximity	67	70	60
EJ Index for Hazardous Waste Proximity	66	69	59
EJ Index for Wastewater Discharge Indicator	91	86	83

**EJ Index for the Selected Area Compared to All People's Blockgroups in the State/Region/US**

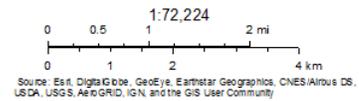


This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.



December 21, 2018

- Buffer Area
- + Digitized Point



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

Selected Variables	Value	State Average	Percentile in State	EPA Region Average	Percentile in EPA Region	USA Average	Percentile in USA
<b>Environmental Indicators</b>							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$ )	8.49	8.92	11	9.97	4	9.53	28
Ozone (ppb)	40.1	43.6	3	44.3	1	42.5	29
NATA* Diesel PM ( $\mu\text{g}/\text{m}^3$ )	0.245	0.77	6	0.921	<50th	0.938	<50th
NATA* Air Toxics Cancer Risk (risk per MM)	34	42	20	42	<50th	40	<50th
NATA* Respiratory Hazard Index	0.86	1.8	7	1.8	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	3.4	430	8	360	8	600	8
Lead Paint Indicator (% pre-1960s housing)	0.19	0.21	61	0.36	39	0.29	51
Superfund Proximity (site count/km distance)	0.09	0.1	70	0.14	62	0.12	68
RMP Proximity (facility count/km distance)	0.064	0.37	18	0.6	16	0.72	14
Hazardous Waste Proximity (facility count/km distance)	0.021	0.67	4	1.3	1	4.3	3
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0017	2.7	89	100	67	30	71
<b>Demographic Indicators</b>							
Demographic Index	39%	32%	71	30%	73	36%	62
Minority Population	38%	37%	57	32%	66	38%	58
Low Income Population	41%	27%	76	28%	75	34%	65
Linguistically Isolated Population	5%	3%	82	2%	83	4%	71
Population with Less Than High School Education	21%	11%	84	11%	87	13%	79
Population under Age 5	4%	6%	30	6%	32	6%	29
Population over Age 64	22%	14%	85	15%	82	14%	84

\*The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

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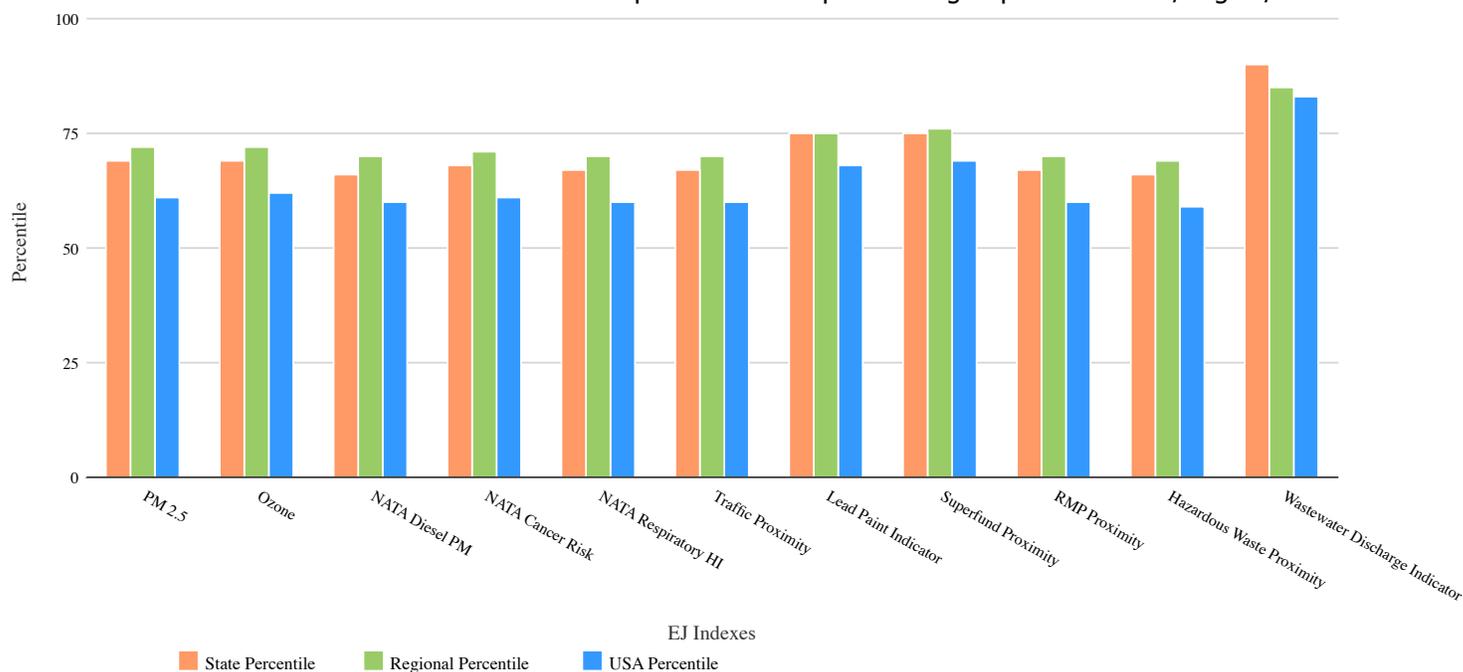


**EJSCREEN Report (Version 2018)**  
**5 mile Ring Centered at 37.589527,-78.659137**  
**VIRGINIA, EPA Region 3**  
**Approximate Population: 1,240**  
**Input Area (sq. miles): 78.53**  
 ACP\_5mi

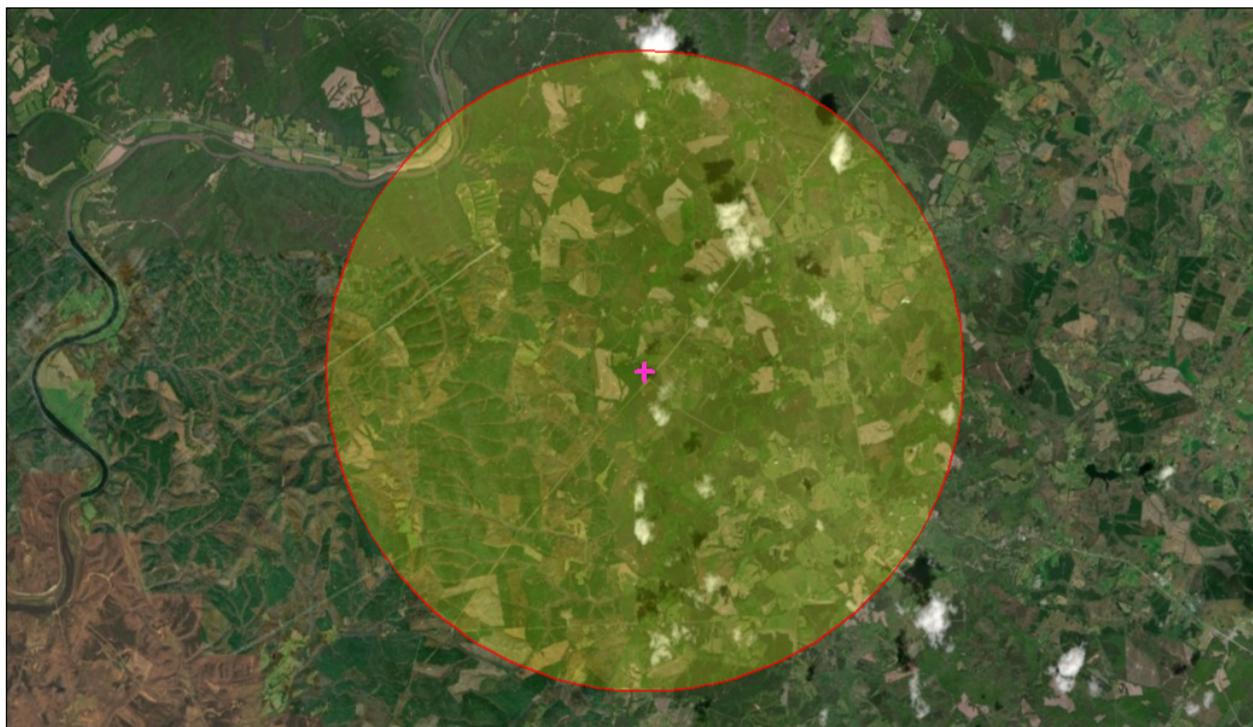


Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
<b>EJ Indexes</b>			
EJ Index for Particulate Matter (PM 2.5)	69	72	61
EJ Index for Ozone	69	72	62
EJ Index for NATA* Diesel PM	66	70	60
EJ Index for NATA* Air Toxics Cancer Risk	68	71	61
EJ Index for NATA* Respiratory Hazard Index	67	70	60
EJ Index for Traffic Proximity and Volume	67	70	60
EJ Index for Lead Paint Indicator	75	75	68
EJ Index for Superfund Proximity	75	76	69
EJ Index for RMP Proximity	67	70	60
EJ Index for Hazardous Waste Proximity	66	69	59
EJ Index for Wastewater Discharge Indicator	90	85	83

**EJ Index for the Selected Area Compared to All People's Blockgroups in the State/Region/US**

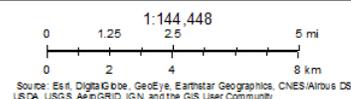


This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.



December 22, 2018

- Buffer Area
- + Digitized Point



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

Selected Variables	Value	State Average	Percentile in State	EPA Region Average	Percentile in EPA Region	USA Average	Percentile in USA
<b>Environmental Indicators</b>							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$ )	8.52	8.92	14	9.97	5	9.53	29
Ozone (ppb)	40	43.6	3	44.3	1	42.5	29
NATA* Diesel PM ( $\mu\text{g}/\text{m}^3$ )	0.235	0.77	5	0.921	<50th	0.938	<50th
NATA* Air Toxics Cancer Risk (risk per MM)	34	42	20	42	<50th	40	<50th
NATA* Respiratory Hazard Index	0.86	1.8	6	1.8	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	6.6	430	13	360	13	600	13
Lead Paint Indicator (% pre-1960s housing)	0.2	0.21	62	0.36	40	0.29	51
Superfund Proximity (site count/km distance)	0.12	0.1	79	0.14	71	0.12	76
RMP Proximity (facility count/km distance)	0.075	0.37	23	0.6	20	0.72	18
Hazardous Waste Proximity (facility count/km distance)	0.021	0.67	4	1.3	1	4.3	3
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0011	2.7	86	100	64	30	68
<b>Demographic Indicators</b>							
Demographic Index	39%	32%	70	30%	73	36%	62
Minority Population	39%	37%	58	32%	67	38%	59
Low Income Population	39%	27%	74	28%	73	34%	63
Linguistically Isolated Population	3%	3%	74	2%	76	4%	64
Population with Less Than High School Education	24%	11%	88	11%	90	13%	83
Population under Age 5	6%	6%	56	6%	60	6%	55
Population over Age 64	21%	14%	83	15%	79	14%	82

\*The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: [www.epa.gov/environmentaljustice](http://www.epa.gov/environmentaljustice)

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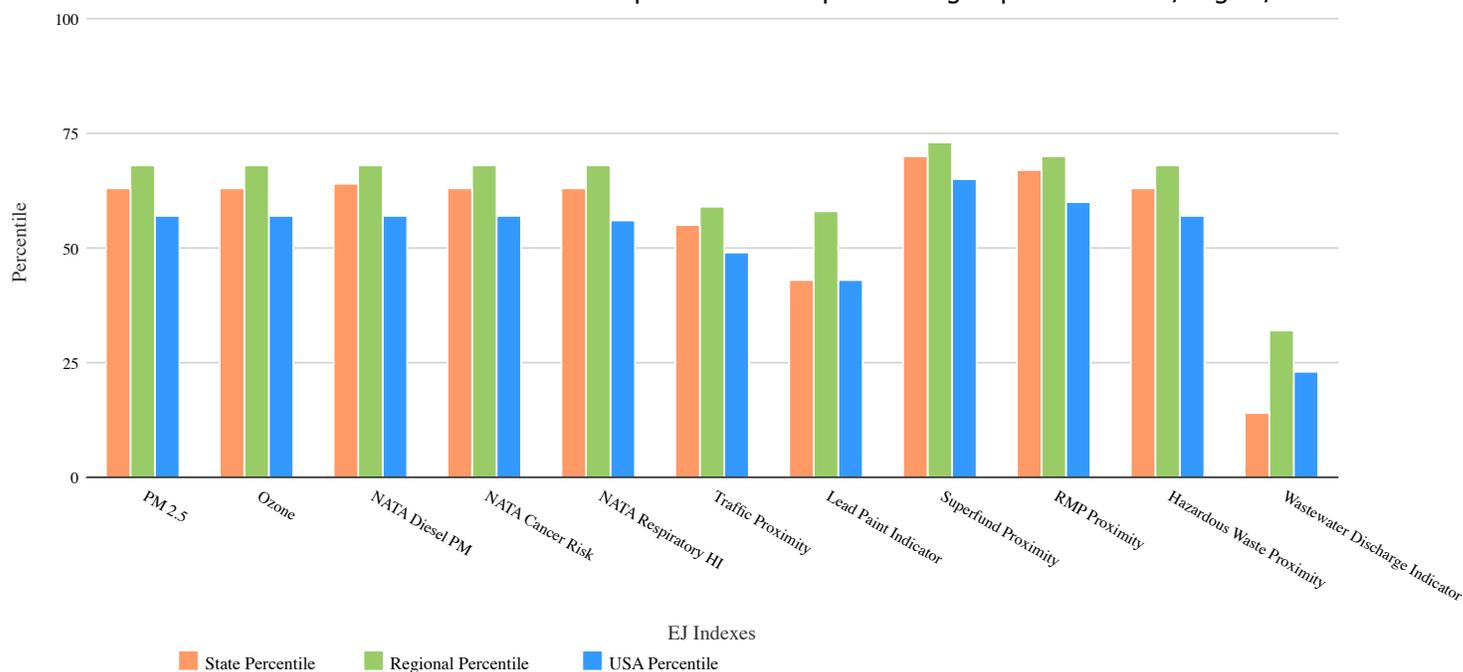


**EJSCREEN Report (Version 2018)**  
**20 mile Ring Centered at 37.589527,-78.659137**  
**VIRGINIA, EPA Region 3**  
**Approximate Population: 41,534**  
**Input Area (sq. miles): 1256.38**  
 ACP\_20mi

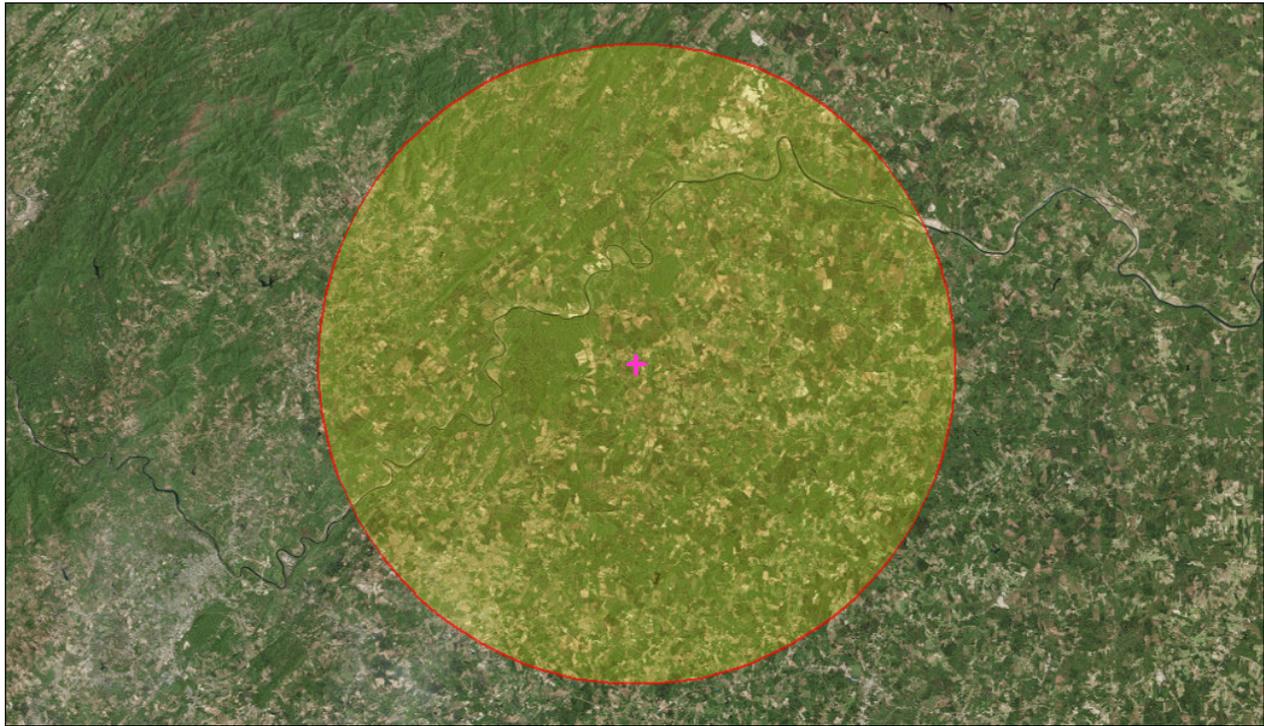


Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
<b>EJ Indexes</b>			
EJ Index for Particulate Matter (PM 2.5)	63	68	57
EJ Index for Ozone	63	68	57
EJ Index for NATA* Diesel PM	64	68	57
EJ Index for NATA* Air Toxics Cancer Risk	63	68	57
EJ Index for NATA* Respiratory Hazard Index	63	68	56
EJ Index for Traffic Proximity and Volume	55	59	49
EJ Index for Lead Paint Indicator	43	58	43
EJ Index for Superfund Proximity	70	73	65
EJ Index for RMP Proximity	67	70	60
EJ Index for Hazardous Waste Proximity	63	68	57
EJ Index for Wastewater Discharge Indicator	14	32	23

EJ Index for the Selected Area Compared to All People's Blockgroups in the State/Region/US

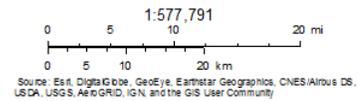


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December 22, 2018

- Buffer Area
- + Digitized Point



Sites reporting to EPA	
Superfund NPL	1
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

Selected Variables	Value	State Average	Percentile in State	EPA Region Average	Percentile in EPA Region	USA Average	Percentile in USA
<b>Environmental Indicators</b>							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$ )	8.54	8.92	16	9.97	6	9.53	29
Ozone (ppb)	40	43.6	3	44.3	1	42.5	29
NATA* Diesel PM ( $\mu\text{g}/\text{m}^3$ )	0.262	0.77	7	0.921	<50th	0.938	<50th
NATA* Air Toxics Cancer Risk (risk per MM)	34	42	19	42	<50th	40	<50th
NATA* Respiratory Hazard Index	0.98	1.8	12	1.8	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	23	430	29	360	29	600	28
Lead Paint Indicator (% pre-1960s housing)	0.22	0.21	65	0.36	42	0.29	53
Superfund Proximity (site count/km distance)	0.068	0.1	58	0.14	53	0.12	60
RMP Proximity (facility count/km distance)	0.16	0.37	53	0.6	40	0.72	35
Hazardous Waste Proximity (facility count/km distance)	0.028	0.67	8	1.3	3	4.3	6
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.00056	2.7	82	100	59	30	65
<b>Demographic Indicators</b>							
Demographic Index	33%	32%	61	30%	66	36%	55
Minority Population	29%	37%	45	32%	59	38%	49
Low Income Population	37%	27%	71	28%	70	34%	60
Linguistically Isolated Population	1%	3%	57	2%	59	4%	48
Population with Less Than High School Education	20%	11%	82	11%	84	13%	77
Population under Age 5	5%	6%	42	6%	45	6%	41
Population over Age 64	18%	14%	72	15%	66	14%	71

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For additional information, see: [www.epa.gov/environmentaljustice](http://www.epa.gov/environmentaljustice)

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# **ATTACHMENT C**

# On the Demographics and Site Suitability for Buckingham Natural Gas Compressor Station

## Ryan E. Emanuel, Ph.D.

### Summary

On December 21, 2018, the Virginia State Air Pollution Control Board opened a public comment period on documents pertaining to the air pollution permitting for the Dominion Energy Buckingham Compressor Station (BCS). I reviewed the documents provided by the Virginia Department of Environmental Quality (DEQ) during the two-week comment period. I provide a summary here and detailed findings below. Overall, some documents provided to the Air Board contain suspect methods (e.g., the federal environmental justice analysis) or have been implemented in ways that were not intended by developers (e.g., EJSCREEN reports). Even so, the screening results suggest that in-depth fieldwork would be prudent based on federal environmental justice policy (i.e., Executive Order 12898) and de facto state environmental justice policy (i.e., definition of environmental justice within Governor's Executive Order 73). I advise the Air Board to officially adopt the results of Dr. Fjord's community survey or to conduct a similar study of its own. Regardless of its ultimate decision, I urge the Board to formally acknowledge the body of evidence suggesting that the compressor station would place a disproportionately high and adverse burden on the surrounding community, which available evidence suggests is among the state's most vulnerable to environmental harm.

### Federal Environmental Justice Analysis

The demographic analysis within the federal environmental justice study is mathematically flawed.<sup>1</sup> Tract-level comparisons provided in Section 4.9.9.1 of the Final Environmental Impact Statement<sup>2</sup> made available on the DEQ website are only valid if all US Census tracts within the FERC-defined study area have equal populations. In reality, tract populations vary between as few as 10 and as many as 11,000+ among the 120 populated tracts constituting the study area. Any conclusions about environmental justice drawn from the demographic analysis in Section 4.9.9.1 are therefore suspect, and FERC has yet to address this problem in any of its issuances to date. Please see the full explanation of this error and other design flaws in my April 2017 report submitted to FERC during its public comment period.<sup>3</sup>

### Screening Reports

Virginia DEQ supplied Board members with reports generated using the EPA's EJSCREEN tool, but pages were missing that contain the main results for each report. The key feature of EJSCREEN is the set of eleven EJ Indexes, defined by EPA as numerical scores intended to identify communities with "high combinations of environmental burdens and vulnerable populations."<sup>4</sup> These indexes provide a high-level ranking of the study community's overall vulnerability compared to state, EPA region, and national reference populations. The indexes are only shown on page 1 of the EJSCREEN report, but page 1 of each report was omitted from documentation provided to the Air Board by DEQ.<sup>5</sup> Therefore, Air Board members did not receive the main information that EJSCREEN was designed to convey. This

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<sup>1</sup> Emanuel, R. E. Flawed environmental justice analyses. *Science* **357**, 260–260 (2017).

<sup>2</sup> See paragraph beginning with "Appendix U" on p. 4.512 of US Federal Energy Regulatory Commission. *Atlantic Coast Pipeline and Supply Header Project Final Environmental Impact Statement*. (2017).

<sup>3</sup> Emanuel, Ryan E. *Comment of Ryan E Emanuel on the Draft Environmental Impact Statement of the Atlantic Coast Pipeline under CP15-554, et al.* (2017).

<sup>4</sup> US EPA, Frequent Questions about EJSCREEN. *US EPA* (2015). Available at: <https://www.epa.gov/ejscreen/frequent-questions-about-ejscreen>. (Accessed: 4th January 2019)

<sup>5</sup> In an email dated December 22, 2018, Cindy M. Berndt confirmed to me that EJSCREEN documents posted to the DEQ website were identical to those given to the Air Board by DEQ before the December 2018 Air Board meeting.

information - the combined effects of demographic and environmental factors - is actually the definition of environmental justice according to Governor's Executive Order 73, which states, "some environmental impacts may be compounded or concentrated as the result of demographic factors." Thus, without page 1, it could be argued that the EJSCREEN report does not contain useful information about environmental justice because page 2 does not report the compounding effects of demographic factors on environmental burdens.

Sections of the EJSCREEN reports that were not provided to the Air Board show that for distances up to 5 miles away from the proposed compressor station, the community is highly vulnerable to environmental harm, including harms associated with air quality. Specifically, EJSCREEN shows that the community is in the top 8% to top 34% most vulnerable of all communities in the Commonwealth of Virginia for conditions represented by each of the EJ Indexes. I recreated the reports, including missing pages, for the Air Board's benefit.<sup>6</sup>

The EJSCREEN results are not trivial, and it is especially noteworthy that the results show such high vulnerability despite the limitations and caveats placed on the tool by EPA.<sup>7</sup> Moreover, the only way for members of the Air Board or other regulators to understand the combined effects of demographics and environmental factors on environmental justice is to view page 1 of the report.

Not only did Air Board members fail to receive key results from EJSCREEN, but they also failed to receive results at the appropriate phase in the decision-making process. According to EPA guidance, EJSCREEN is intended to be implemented "at the beginning of the scoping process to determine whether minority populations and low-income populations may be present and could be affected by the proposed action."<sup>8</sup> In this case, Air Board members appear to have received EJSCREEN results on December 3, 2018, toward the end of their decision-making process. Because EJSCREEN is a preliminary scoping tool, use of results to draw definitive conclusions about vulnerable populations affected by the compressor station appears to be a mis-application. Similar criticism is warranted for other Census-based geospatial tools, including those used by the developer to produce supplemental analyses for this case. Experts have long cautioned that inferences about environmental justice drawn from US Census data may be incorrect if populations are not distributed uniformly within Census units (tracts, block groups).<sup>9</sup> This appears to be the case in Buckingham County.

Two additional points need to be made about screening reports. First, they are intended for preliminary screening. For all of the same reasons that the National Wetlands Mapper, an online geospatial tool, cannot be used to make jurisdictional determinations or regulatory delineations of wetlands for compliance with Sections 404 and 401 of the Clean Water Act, Census-based geospatial tools should not be used to environmental justice determinations for compliance with state or federal policies.

Second, geospatial tools are frequently used to privilege perspectives associated with governmental and corporate power while demoting perspectives that have historically been excluded from decision-making

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<sup>6</sup> PDF of complete reports available at: <https://bit.ly/2sahTAL>

<sup>7</sup> US EPA, Limitations and Caveats in Using EJSCREEN. US EPA (2014). Available at: <https://www.epa.gov/ejscreen/limitations-and-caveats-using-ejscreen>. (Accessed: 4th January 2019)

<sup>8</sup> Federal Interagency Working Group on Environmental Justice & NEPA Committee. *Promising Practices FOR EJ Methodologies IN NEPA Reviews*. (2016).

<sup>9</sup> Bullard, R. D. Environmental Justice: It's More Than Waste Facility Siting. *Social Science Quarterly* 77, 493–499 (1996).

processes.<sup>10</sup> The selection of tools, the timing of their implementation, and selectivity in reporting results are all factors that have the potential to promote misuse of otherwise useful tools.

### **Fieldwork and Community Engagement**

The Union Hill Community Household Study Site and Methods Report led by Dr. Lakshmi Fjord is a good example of the type of fieldwork that should follow early implementation of scoping tools such as EJSCREEN. Geospatial data such as those used in EJSCREEN often require ground-truthing, and I hope that regulators will adopt formal policies for field methods in support of state and federal environmental justice policies. I have seen some of Dr. Fjord's results filed with federal regulators and publicly available in the federal docket. These results suggest that the compressor station would place a disproportionately high and adverse burden on the surrounding community. If the Air Board fails to account for the results of this survey or other fieldwork in its decision on the compressor station, I believe that the decision will be ill-informed and could perpetuate the ugly history of environmental injustice that exists in Virginia and North Carolina.

As the Air Board and other regulators consider how to follow state policy on environmental justice, I offer this advice. Be careful not to conflate outreach and engagement with “meaningful involvement” criteria of environmental justice policies. The conceptual centerpiece of environmental justice is deliberate involvement of historically excluded communities in the decision-making process.<sup>11</sup> This can be accomplished through outreach and engagement, but these activities are often conducted *pro forma* in ways that do not result in any actual involvement in decision-making. At the end of the day, regulatory decisions conducted with meaningful involvement should be able to articulate community concerns accurately and justify decisions made in light of those concerns. Regulators should avoid justifications that ignore or erase historically excluded voices, and they should avoid justifications that mis-state community concerns.

Parties should also be careful not to conflate environmental justice with deliberate efforts to persuade historically excluded communities to accept a disproportionate share of environmental burdens. Even if such efforts involve mitigation, economic development, or other remedies, they do not fit within the conceptual framework of environmental justice if they are imposed for the convenience of regulators or developers. To prescribe a remedy when alternative actions could have avoided the ailment in the first place must never be construed as environmental justice.

### **Biographical Information**

Dr. Emanuel holds a Ph.D. in Environmental Sciences from the University of Virginia, where he received the Award for Excellence in Scholarship in the Sciences and Engineering from the Vice President for Research and Graduate Studies. He also holds an M.S. in Environmental Sciences from the University of Virginia and a B.S. in Geology from Duke University. Dr. Emanuel has authored nearly 40 journal articles on topics related to atmospheric sciences, ecology, geoscience, hydrology, and human dimensions of the environment. He has more than a decade of experience teaching undergraduate and graduate courses in hydrology, geology, environmental management, and indigenous knowledges. These comments reflect Dr. Emanuel's individual, expert opinion and do not necessarily reflect the views of his employer or any other organizations referenced herein.

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<sup>10</sup> Thatcher, J. *et al.* Revisiting critical GIS. *Environment and Planning A* **48**, 815–824 (2016).

<sup>11</sup> Executive Order Number 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994).

# **ATTACHMENT D**

Union Hill Household Study (01-02-2019)

Lakshmi Fjord, Ph.D.

**100 households** were identified by US postal service markers in the ¼-mile to 2-mile radius of Union Hill, Buckingham, Virginia -- site chosen for Atlantic Coast Pipeline Virginia compressor station. ACP used Buckingham County’s 2010 average person per square mile census data - 29.6 people - as the site population.

Our study teams reached **77 households of 100 households** for a **77% response rate**.

Weekday residents of 77 households: **200**

Weekend, bi-monthly, and annual family reunion numbers add hundreds more frequent visitors.

Of the 67 households for which we have a full set of data, **42 or 62.6%**, are known descendants of formerly enslaved people at nearby plantations. **8 households** mention unmarked slave and freedmen graves on their property or nearby.

Race by self-identification: Taken together minorities make up 83.5% of residents:

	African American	Native American and African American	White	Native American and White	Native American	Hispanic	Asian
Count	124	27	33	9	3	3	1
%	62	13.5	16.5	4.5	1.5	1.5	.5

Weekday residents’ ages: 32% are Children; 25% Elderly. Both age ranges mask actual ages that are disproportionately the very young and very old (age range used to protect confidentiality):

Age Range	0-6	7-18	18-21	22-40	41-65	65+	Unknown	Total
Count	28	36	5	36	43	50	2	200
%	14	18	2.5	18	21.5	25	1	100

**Health Data:** For the 67 households where we were able to have extensive questionnaire time, **35 responded with pre-existing medical diagnoses or 59.32% of reached households**.

Highest levels of existing diagnosed health conditions are for autoimmune conditions (asthma, allergies, multiple sclerosis, lupus) and lung/respiratory conditions (COPD, asthma, chronic bronchitis, pneumonia, congestive heart failure), circulatory conditions (heart disease and heart conditions, stroke) and diabetes -- all known to be caused by environmental toxins and exacerbated by them. Other conditions include arthritis, bipolar disorder, cancers (brain and breast cancer), epilepsy, kidney condition, migraines, light sensitivity, noise sensitivity, and skin disease.

# **ATTACHMENT E**

COMMONWEALTH OF VIRGINIA  
STATE CORPORATION COMMISSION  
AT RICHMOND, DECEMBER 7, 2018

GOV-CLERK'S OFFICE  
DOCUMENT CONTROL CENTER

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COMMONWEALTH OF VIRGINIA, *ex rel.*

STATE CORPORATION COMMISSION

CASE NO. PUR-2018-00065

In re: Virginia Electric and Power Company's  
Integrated Resource Plan filing pursuant to  
Va. Code § 56-597 *et seq.*

ORDER

On May 1, 2018, Virginia Electric and Power Company ("Dominion" or "Company") filed with the State Corporation Commission ("Commission") the Company's 2018 Integrated Resource Plan ("IRP") pursuant to § 56-597 *et seq.* of the Code of Virginia ("Code").

Dominion's 2018 IRP encompasses the planning period from 2019 to 2033.

On May 7, 2018, the Commission issued an Order for Notice and Hearing in this proceeding that, among other things, established a procedural schedule; set an evidentiary hearing date; directed Dominion to provide public notice of its IRP; and provided any interested person an opportunity to file comments on the Company's IRP, or to participate in the case as a respondent by filing a notice of participation. Notices of participation were filed by Appalachian Voices ("Environmental Respondents"); the Virginia Chapter of the Sierra Club ("Sierra Club"); the Board of Supervisors of Culpeper County, Virginia ("Culpeper County"); the Mid-Atlantic Renewable Energy Coalition ("MAREC"); the Solar Energy Industries Association ("SEIA"); the Virginia Committee for Fair Utility Rates ("Committee"); Sandra L. Meyer, Trustee of the Meyer Family Trust ("Meyer Trust"); and the Virginia Office of the Attorney General, Division of Consumer Counsel ("Consumer Counsel").

The Commission's Order for Notice and Hearing also provided for the pre-filing of testimony and exhibits by Dominion, respondents and the Commission's Staff ("Staff"). The Company, Environmental Respondents, Sierra Club, MAREC, and Staff pre-filed testimony in this proceeding.

On September 7, 2018, Dominion filed a Motion *in Limine* ("Motion"). On September 21, 2018, the Environmental Respondents filed a response in opposition to Dominion's Motion. On October 5, 2018, Dominion filed its reply.

Beginning on September 24, 2018, the Commission convened a hearing on the Company's 2018 IRP.<sup>1</sup> During the hearing, the Commission received the testimony of public witnesses.<sup>2</sup> The Commission also received testimony and exhibits from Dominion, the respondents, and Staff.<sup>3</sup> The hearing concluded, after closing arguments, on September 27, 2018.

NOW THE COMMISSION, upon consideration of this matter, is of the opinion and finds as follows.

Pursuant to § 56-599 C of the Code, the Commission must, after giving notice and an opportunity to be heard, determine whether Dominion's IRP is reasonable and in the public interest. For the reasons discussed below, the Commission finds, based on the record of this proceeding and applicable statutes, that the Company has failed to establish that its 2018 IRP, as

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<sup>1</sup> Staff and all parties except Culpeper County, the Committee, and the Meyer Trust participated in the hearing.

<sup>2</sup> Tr. 12-50. The Commission also received public comments filed pursuant to the Order for Notice and Hearing.

<sup>3</sup> At the hearing, the Commission noted that it would rule on the Motion in its Final Order in this proceeding. Tr. 9. We deny any objections we took under advisement and admit the testimony of Environmental Respondents witness Lander (Ex. 22). As noted during the hearing, admission of an exhibit is not tantamount to a finding of fact. Findings of fact are contained in orders as such. Tr. 10-11. The Motion is denied.

currently filed, is reasonable and in the public interest. The Commission further finds that the Company shall correct and refile its 2018 IRP subject to the provisions of this Order.

#### Compliance with Prior Commission Order

In its Order on Dominion's 2017 IRP,<sup>4</sup> the Commission took judicial notice of Senate Bill 966,<sup>5</sup> recognizing that the new legislation would impact subsequent IRPs. The Commission directed "that Dominion's future IRPs, beginning with the IRP due to be filed on May 1, 2018, shall include detailed plans to implement the mandates contained in that legislation, as well as plans that comply with all other legal requirements."<sup>6</sup> The Commission noted "[t]his includes, for example, the utility's least-cost plan along with plans compliant with proposed federal carbon-control regulations . . . ."<sup>7</sup>

The record in the instant proceeding reflects that the Company's least-cost plan includes resources, such as the Coastal Virginia Offshore Wind ("CVOW") demonstration project, that were not selected by the Company's modeling on a least-cost basis, but rather were forced into each of the Company's alternative plans.<sup>8</sup> The record also reflects that the Company's modeling was not permitted to select certain highly-efficient natural gas-fired combined-cycle facilities for

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<sup>4</sup> *Commonwealth of Virginia, ex rel. State Corporation Commission, In re: Virginia Electric and Power Company's Integrated Resource Plan filing pursuant to Va. Code § 56-597 et seq.*, Case No. PUR-2017-00051, Doc. Con. Cen. No. 180320095, Order (Mar. 12, 2018) ("2017 IRP Order").

<sup>5</sup> 2018 Acts ch. 296.

<sup>6</sup> 2017 IRP Order at 3-4.

<sup>7</sup> *Id.* at 4 n.8. The Commission also explicitly required the Company to include a least-cost plan as part of its 2017 IRP. See *Commonwealth of Virginia, ex rel. State Corporation Commission, In re: Virginia Electric and Power Company's Integrated Resource Plan filing pursuant to Va. Code § 56-597 et seq.*, Case No. PUE-2016-00049, 2016 S.C.C. Ann. Rept. 405, 407 (Dec. 14, 2016).

<sup>8</sup> See, e.g., Ex. 37 (Abbott) at 7 n.3; Tr. 601.

purposes of developing a least-cost plan.<sup>9</sup> Forcing in higher-cost resources and excluding other lower-cost resources results in a more expensive least-cost plan. While there may be appropriate or defensible reasons, including review of various potential state and federal carbon restrictions, for Dominion to include the scenarios it chose for the IRP, omitting a true least-cost plan does not provide the analysis needed to assess the incremental cost of various options, for Commission analysis, and for statutorily required reporting to the General Assembly. Based on the foregoing, the Commission finds that the Company did not comply with the Commission's directive to include a least-cost plan in its 2018 IRP.

With respect to the requirement to address the mandates contained in Senate Bill 966, the record reflects that the Company included some, but not all, of those mandates in its 2018 IRP. For example, the Company's plans include CVOW as well as solar photovoltaic ("PV") resources ranging in amounts up to 6,640 megawatts ("MW").<sup>10</sup> The Company did not, however, model \$870 million in energy efficiency programs, nor did it model a battery storage pilot required by Senate Bill 966.<sup>11</sup> The 2018 IRP also did not include costs associated with the Company's Strategic Undergrounding Program ("SUP"), Grid Transformation Plan, or Transmission Line Undergrounding Pilot, each of which was contained in, or modified by, Senate Bill 966.<sup>12</sup> Again, by omitting certain mandates the IRP as filed does not provide the analysis and back-up data needed to assess the cost of these mandates, for Commission review, and for statutorily required reporting to the General Assembly. Based on the foregoing, the Commission further

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<sup>9</sup> See, e.g., Ex. 31 (Samuel) at 17; Ex. 37 (Abbott) at 7.

<sup>10</sup> See, e.g., Ex. 37 (Abbott) at 5.

<sup>11</sup> See, e.g., *id.*; Ex. 24 (Hausman) at 20, 22-23; Tr. 139-140, 164.

<sup>12</sup> See, e.g., Ex. 37 (Abbott) at 6.

finds that the Company's 2018 IRP did not fully comply with the Commission's prior directive to include detailed plans to implement the mandates contained in Senate Bill 966.<sup>13</sup>

Corrected 2018 IRP

The Commission finds that the Company shall re-run and re-file the corrected results of its 2018 IRP within 90 days from the date of this Order, subject to the requirements of this Order.

In its corrected 2018 IRP, for purposes of its least-cost plan, the Company shall not force the modeling to select any resource, nor exclude any reasonable resource.<sup>14</sup> This requirement does not reflect any finding that the Company should pursue any specific resource included in the least-cost plan; rather, as the Commission has repeatedly recognized, the IRP is a planning document, and it is reasonable, for planning purposes, to identify the least-cost plan to provide a benchmark against which to measure the costs of other alternative plans.

As previously ordered, the Company shall also calculate the incremental cost impacts of the mandates contained in Senate Bill 966, including a comparison to the identified least-cost plan. This includes CVOW; 5,000 MW of nameplate wind and solar, including at least 25 percent of such resources from non-utility generators; \$870 million in spending on energy efficiency programs; the 30 MW battery storage pilot; the SUP;<sup>15</sup> the Grid Transformation Plan; and the Transmission Line Undergrounding Pilot.

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<sup>13</sup> The Commission accepts the Company's explanation that it misunderstood the requirements set forth in the Commission's prior order, *see* Tr. 1003-1005, and the Commission does not find bad faith on the part of the Company.

<sup>14</sup> The record reflects that the Company did not include fuel transportation costs in the modeled costs of certain natural gas generation facilities. Tr. 610. For purposes of the corrected 2018 IRP, the Company should include a reasonable estimate of fuel transportation costs, including interruptible transportation, if applicable, associated with all natural gas generation facilities in addition to the fuel commodity costs.

<sup>15</sup> With respect to the SUP, the Company shall calculate the incremental cost impacts associated with those SUP conversions after September 1, 2016, that were not approved for recovery prior to the effective date of Senate Bill 966.

In sum, while an IRP is a planning document and does not approve any specific expenditure, legally-mandated costs are likely to be borne by customers in one form or another, so it is essential that an IRP provide the public and policymakers with projected costs for such mandates that are as accurate as possible.

### Load Forecast

The reasonableness of the Company's load forecast was a significant issue in this proceeding and the Commission received considerable evidence and argument related to the Company's load forecast. Several alternative load forecasts were presented by Staff and respondents for the Commission's consideration, each of which supported, to varying degrees, lower peak load and energy sales forecasts compared to the Company.<sup>16</sup> Notably, the Company's peak load and sales forecasts are higher than those of PJM,<sup>17</sup> the regional transmission entity of which the Company is a member, and the entity that sets the Company's capacity obligation within the PJM capacity market.<sup>18</sup> For example, the evidence showed that PJM's 2018 Load Forecast projects a peak demand 15-year compound annual growth rate ("CAGR") of 0.8% for the Dominion Zone of PJM, compared to the Company's internal forecast of 1.4%.<sup>19</sup> For energy, PJM projects a 15-year CAGR of 0.9% for the Dominion Zone, compared to the Company's

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<sup>16</sup> See, e.g., Ex. 20 (Wilson) at 10; Ex. 28 (McBride) Drilling Info Report at 29-34; Ex. 35 (White) at 14-15.

<sup>17</sup> PJM Interconnection, L.L.C.

<sup>18</sup> Tr. 737-38.

<sup>19</sup> Ex. 4 (IRP) at 17, 22.

internal forecast of 1.4%.<sup>20</sup> The record further reflects that, since 2016, Dominion's forecast has begun to diverge significantly from PJM's forecast.<sup>21</sup>

The record further reflects that the load forecasts contained in the Company's past IRPs have been consistently overstated, particularly in years since 2012, with high growth expectations despite generally flat actual results each year.<sup>22</sup> For example, the evidence showed that the Company's 2012 IRP projected peak load of approximately 21,500 MW in 2017 whereas the actual peak was approximately 19,500 MW.<sup>23</sup> Moreover, for the past several years, the Company has generally lowered its expected base year forecast with each subsequent IRP, while maintaining a similar slope for its long term forecast.<sup>24</sup>

The Commission recognizes that every forecast has strengths and weaknesses and that no forecast will exactly match actual results except by chance; however, weighing the evidence presented in this proceeding, the Commission has considerable doubt regarding the accuracy and reasonableness of the Company's load forecast for use to predict future energy and peak load requirements. In reaching this conclusion, the Commission has considered all evidence presented in this proceeding including the alternative forecasts presented, as well as trends in the Company's historical load forecasts.

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<sup>20</sup> *Id.*

<sup>21</sup> Ex. 35 (White) at 13-14; Tr. 514.

<sup>22</sup> Ex. 20 (Wilson) at 4-5; Ex. 23 (Shobe) at 3-6; Ex. 28 (Drilling Info Report) at 36.

<sup>23</sup> *See, e.g.*, Ex. 54; Ex. 50 (Thomas Rebuttal) at 26. The evidence also showed, as another example, that the Company's 2015 IRP projected a 2018 peak that was 2,500 MW higher than the actual 2018 peak. Tr. 516.

<sup>24</sup> Ex. 35 (White) at 13.

Based on the foregoing, rather than the Company's internal load forecast, the Commission directs that, for purposes of its corrected 2018 IRP, the Company shall utilize the Dominion Zone PJM coincident peak load forecast and energy sales forecast, scaled down to the Dominion load serving entity level, consistent with the methodology presented by Staff witness White, as further modified below.<sup>25</sup> The coincident peak is appropriate because, as Dominion acknowledges, PJM establishes the Company's capacity obligation based on Dominion's contribution to PJM's coincident peak.<sup>26</sup> Moreover, as acknowledged by the Company, one of the benefits of PJM membership is the capacity available to the Company for purchase from the PJM market during times of Dominion's non-coincident peak.<sup>27</sup>

As acknowledged by the Company, one of the primary purposes of energy efficiency measures is to reduce load.<sup>28</sup> In order to assess more fully the impact of the requirement of Senate Bill 966 that the Company propose \$870 million in spending on new energy efficiency programs by 2028, the Company shall also model the impact of that requirement on the load forecast in all plans other than the least cost plan.<sup>29</sup> Specifically, this should be modeled separately as (1) an impact on the PJM peak load and energy sales forecast, and (2) a supply-side resource as currently presented. The Company should model the impact on forecasted peak load and energy sales using reasonable assumptions based on actual Virginia-specific data.

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<sup>25</sup> *Id.* at 14-15; Tr. 537-542. Consumer Counsel supported this recommendation. Tr. 976.

<sup>26</sup> Ex. 35 (White) at 14; Tr. 880-881. The Company's original analysis using its projected load forecast remains part of this record.

<sup>27</sup> Tr. 880-881.

<sup>28</sup> Tr. 867.

<sup>29</sup> *See* Senate Bill 966, Enactment cl. 15.

### Solar Capacity Factor

The solar capacity factor modeled by the Company was also a significant issue in this proceeding. The record reflects that the Company's existing solar PV resources, which include both fixed tilt and solar tracking resources, have experienced lower-than-modeled capacity factors. While the Company models an approximately 26 percent capacity factor for future solar PV resources, the Company's resources have experienced actual capacity factors of approximately 20 percent on average over the past five years.<sup>30</sup> Several explanations for the lower-than-expected capacity factors were offered. In particular, evidence was offered that suggested wetter than normal weather, technical difficulties including outages, and differences between fixed and solar tracking technologies, which caused the actual capacity factor to be lower than the 26 percent modeled in the 2018 IRP.<sup>31</sup>

For purposes of the Company's corrected 2018 IRP, the Commission finds that the Company should model a 23 percent capacity factor for solar PV resources. In reaching this decision, the Commission carefully considered and weighed all of the evidence regarding the causes of the actual solar capacity factors and evidence supporting technological efficiency improvements of solar resources over time.<sup>32</sup>

Further in this regard, the Commission finds the Company's methodology for forecasting solar renewable energy certificate ("REC") prices to be unreasonable. The record shows that the Company's REC price methodology does not consider actual market prices of RECs, but instead

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<sup>30</sup> See, e.g., Ex. 37 (Abbott) at 7; Tr. 561-62; Ex. 38; Ex. 41.

<sup>31</sup> See, e.g., Tr. 401-403, 567-571; Ex. 39; Ex. 48.

<sup>32</sup> See, e.g., Ex. 37 (Abbott) at 7; Tr. 561; Ex. 38; Ex. 41; Ex. 42; Ex. 48.

the REC price forecast is directly tied to and dependent upon the Company's forecasts of energy and capacity.<sup>33</sup> Specifically, the REC price forecast is the residual level necessary to make the renewable resource investment economic given the utility's forecasts of market prices for energy and capacity.<sup>34</sup> For purposes of the corrected 2018 IRP filing, the Company shall present an alternative methodology for forecasting REC prices that incorporates actual observable market prices for RECs.

Accordingly, IT IS SO ORDERED, and this matter IS CONTINUED.

AN ATTESTED COPY hereof shall be sent by the Clerk of the Commission to all persons on the official Service List in this matter. The Service List is available from the Clerk of the Commission, c/o Document Control Center, 1300 East Main Street, First Floor, Tyler Building, Richmond, Virginia 23219.

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<sup>33</sup> See, e.g., Ex. 35 (White) at 18-21; Ex. 43 (Scheller Rebuttal) at 14-15.

<sup>34</sup> See, e.g., Ex. 35 (White) at 19-20; Tr. 512.