947 F.3d 68
United States Court of Appeals, Fourth Circuit.

FRIENDS OF BUCKINGHAM; Chesapeake Bay Foundation, Incorporated, Petitioners,
v.
STATE AIR POLLUTION CONTROL BOARD; Richard D. Langford, Chair of the State Air Pollution Control Board; Virginia Department of Environmental Quality; David K. Paylor, Director, Virginia Department of Environmental Quality, Respondents,
Atlantic Coast Pipeline LLC, Intervenor.
Lawyers' Committee for Civil Rights Under Law; Delegate Dawn Adams; Delegate Lashrecse Aird; Delegate Hala Alaya; Delegate John Bell; Senator Jennifer Boysko; Delegate Jennifer Carroll Foy; Delegate Lee Carter; Delegate Kelly Convirs-Fowler; Senator Creigh Deeds; Delegate Karrie Delaney; Delegate Wendy Gooditis; Delegate Elizabeth Guzman; Delegate Patrick Alan Hope; Delegate Chris Hurst; Delegate Jay Jones; Delegate Mark Keam; Delegate Kaye Kory; Delegate Paul Krizek; Delegate Mark Levine; Delegate Alfonso Lopez; Delegate Kenneth R. Plum; Delegate Sam Rasoul; Delegate Marcus Simon; Delegate Kathy Tran; Delegate Cheryl Turpin; Delegate Debra Rodman; Delegate Ibraheem Samirah; Delegate Lionell Spruill; Virginia Conference NAACP; The Center for Earth Ethics; Virginia State Conference of NAACP Branches; Union Grove Missionary Baptist Church; Sierra Club; Virginia Interfaith Power and Light; Kairos Center for Religions, Rights, and Social Justice, Amici Supporting Petitioners.
Joseph Scruggs; Gerald Washington; Craig White, Amici Supporting Respondents/Intervenor.

No. 19-1152
|
Argued: October 29, 2019
|
Decided: January 7, 2020

Synopsis

Background: Citizens group and environmental organization filed petition for review against Virginia Air Pollution Control Board, its chairman, Virginia Department of Environmental Quality, and its director challenging Board's decision to award natural gas pipeline company permit for construction of compressor station. Pipeline company intervened.

Holdings: The Court of Appeals, Thacker, Circuit Judge, held that:

[1] defendants failed to provide sufficient and rational explanation of their failure to consider electric turbines in place of gas-fired turbines, and

[2] Board did not adequately evaluate health impacts and site suitability.

Vacated and remanded.

Procedural Posture(s): Review of Administrative Decision.

West Headnotes (10)

[1] **Environmental Law** Harmless error

Although failure to consider available alternative control technologies in best available control technology (BACT) analysis when deciding application for prevention of significant deterioration (PSD) permit for new or modified major emitting facility under Clean Air Act (CAA) constitutes clear error, Environmental Protection Agency (EPA) does not have to consider control alternative, even if it is effective at reducing emissions, if it redefines source by requiring complete redesign of facility. Clean Air Act § 165, 42 U.S.C.A. § 7475(a)(4).

[2] **Administrative Law and Procedure** Review for arbitrary, capricious, unreasonable, or illegal actions in general

Agency action is arbitrary and capricious under Administrative Procedure Act (APA) if agency relies on factors that Congress did not intend for it to consider, entirely ignores important aspects of problem, explains its decision in manner contrary to evidence before it, or reaches decision that is so implausible that it cannot be ascribed to difference in view. 5 U.S.C.A. § 706.

[3] **Administrative Law and Procedure** Review for arbitrary, capricious, unreasonable, or illegal actions in general

In determining whether agency action was arbitrary or capricious under Administrative Procedure Act (APA), court must consider whether agency considered relevant factors and whether clear error of judgment was made, but it is not empowered to substitute its judgment for that of agency. 5 U.S.C.A. § 706.

[4] **Administrative Law and Procedure** Discretion of agency; abuse of discretion

Administrative Law and Procedure Relationship of agency with rule or statute in general

Administrative Law and Procedure Competence, expertise, and knowledge of agency

Under Virginia law, if decision under review involves regulatory interpretation within agency's specialized knowledge and if General Assembly has vested agency with broad discretion to interpret and apply relevant regulations, agency's decision will be reversed only for arbitrary or capricious action that constitutes clear abuse of agency's delegated discretion.

[5] **Administrative Law and Procedure** Review for arbitrary, capricious, unreasonable, or illegal actions in general

Administrative Law and Procedure Substantial evidence

Under Virginia law, reviewing court may set agency action aside, even if it is supported by substantial evidence, if court's review discloses that agency failed to comply with substantive statutory directive.

[6] **Administrative Law and Procedure** Review for arbitrary, capricious, unreasonable, or illegal actions in general

Under Virginia law, state agency action survives judicial review if it examined relevant data and articulated satisfactory explanation for its action including rational connection between facts found and choice made.

[7] **Environmental Law** Power-generating facilities; utilities

Under Virginia law, Virginia Air Pollution Control Board and Department of Environmental Quality (DEQ) failed to provide sufficient and rational explanation of their failure to consider electric turbines in place of gas-fired turbines in deciding to award natural gas pipeline company permit for construction of compressor station, and thus Board's decision to award permit was arbitrary and capricious and unsupported by substantial evidence, where agencies explained that they did not consider electric motors because replacing gas-fired turbines with electric motors would constitute impermissible "redefinition of the source," but did not identify source or definition of purported "redefining the source" doctrine under state law, or explain why or how replacement of emission unit would "redefine the source."

[8] **Administrative Law and Procedure** Theory or grounds not provided or relied upon by agency

Administrative Law and Procedure Timing of theory and grounds asserted

Courts may not accept appellate counsel's post hoc rationalizations for agency action; agency's action must be upheld, if at all, on basis articulated by agency itself.

[9] **Administrative Law and Procedure** Report or opinion; reasons for decision

In explaining its decision, agency must be clear enough that its path may be reasonably discerned.

[10] **Environmental Law** Power-generating facilities; utilities

Under Virginia law, in conducting its environmental justice review of natural gas pipeline company's application for permit to construct compressor station, Virginia Air Pollution Control Board did not adequately evaluate health impacts and site suitability, thus rendering its decision arbitrary and capricious and unsupported by substantial evidence, where Board failed to make any findings regarding character of local population in face of conflicting evidence or to individually consider potential degree of injury to local population independent of national ambient air quality standards (NAAQS) and state emission standards, and Department of Environmental Quality's (DEQ) final permit analysis, ostensibly adopted by Board, relied on evidence in record that was incomplete or discounted by subsequent evidence. Va. Code Ann. § 10.1-1307(E)(1) and (E)(3).

***70** On Petition for Review of a Decision of the State Air Pollution Control Board and the Virginia Department of Environmental Quality. (Permit No. 21599)

Attorneys and Law Firms

ARGUED: David L. Neal, SOUTHERN ENVIRONMENTAL LAW CENTER, Chapel Hill, North Carolina; Jon Alan Mueller, CHESAPEAKE BAY FOUNDATION, INC., Annapolis, Maryland, for Petitioners. Martine Elizabeth Cicconi, OFFICE OF THE ATTORNEY GENERAL OF VIRGINIA, Richmond, Virginia, for Respondents. Elbert Lin, HUNTON ANDREWS KURTH LLP, Richmond, Virginia, for Intervenor. ON BRIEF: Gregory Buppert, Charmayne G. Staloff, SOUTHERN ENVIRONMENTAL LAW CENTER, Charlottesville, Virginia, for Petitioner Friends of Buckingham. Margaret L. Sanner, CHESAPEAKE BAY FOUNDATION, INC., Annapolis, Maryland, for Petitioner Chesapeake Bay Foundation, Inc. Mark R. Herring, Attorney General, Donald D. Anderson, Deputy Attorney General, Paul Kugelman, Senior Assistant Attorney General, Toby J. Heytens, Solicitor General, Michelle S. Kallen, Deputy Solicitor General, Brittany M. Jones, John Marshall Fellow, OFFICE OF THE ATTORNEY GENERAL OF VIRGINIA, Richmond, Virginia, for Respondents. Harry M. Johnson, III, Timothy L. McHugh, Aaron C. Alderman, Richmond, Virginia, Stuart A. Raphael, HUNTON ANDREWS KURTH LLP, Washington, D.C., for Intervenor Atlantic Coast Pipeline, LLC. Kristen Clarke, Jon Greenbaum, Dorian L. Spence, Maryum Jordan, LAWYERS' COMMITTEE FOR CIVIL RIGHTS UNDER LAW, Washington, D.C., for Amicus Lawyers' Committee for Civil Rights Under Law. Elizabeth F. Benson, SIERRA CLUB, Oakland, California, for Amici Virginia State Conference NAACP, Union Grove Missionary Baptist Church, Sierra Club, Virginia Interfaith Power & Light, and Kairos Center for Religions, Rights, and Social Justice. Aderson B. Francois, Taylor Blatz, Civil Rights Clinic, GEORGETOWN UNIVERSITY LAW CENTER, Washington, D.C., for Amici 28 Members of the Virginia General Assembly, Virginia State Conference NAACP, and the Center for Earth Ethics. Andrew P. Sherrod, Jaime B. Wisegarver, HIRSCHLER FLEISCHER, P.C., Richmond, Virginia, for Amici Joseph Scruggs, Gerald Washington, and Craig White.

Before GREGORY, Chief Judge, and WYNN and THACKER, Circuit Judges.

Opinion

Petition for review granted; vacated and remanded by published opinion. Judge Thacker wrote the opinion, in which Chief Judge Gregory and Judge Wynn joined.

THACKER, Circuit Judge:

***71** Friends of Buckingham and the Chesapeake Bay Foundation, Inc. (collectively, "Petitioners") challenge the Virginia Air Pollution Control Board ("Board")'s award of a permit for construction of a compressor station on behalf of Intervenor Atlantic Coast Pipeline, LLC ("ACP") in the historic community of Union Hill in Buckingham County, Virginia (the "Compressor Station"). The Compressor Station is one of three such stations planned to support the transmission of natural gas through the ACP's 600-mile pipeline (the "Pipeline"), which is projected to stretch from West Virginia to North Carolina.

Petitioners filed this petition for review against the Board and its chairman, and the Virginia Department of Environmental Quality ("DEQ") and its director (collectively, "Respondents"), raising two assignments of error. First, Petitioners contend the Board erred in failing to consider electric turbines as zero-emission alternatives to gas-fired turbines in the Compressor Station. Second, they contend the Board erred in failing to assess the Compressor Station's potential for disproportionate health impacts on the predominantly African-American community of Union Hill, and in failing to independently evaluate the suitability of that site.

***72** As explained below, we agree with Petitioners and vacate and remand to the Board.

I.

A.

Legal Background

This petition for review is governed by a complex intertwining of local, state, and federal laws and regulations. Therefore, we first set forth the law at play before turning to the facts at hand.

1.

The Clean Air Act

a.

National Air Quality Standards

Pursuant to the Clean Air Act ("CAA"), 42 U.S.C. §§ 7401–7671q, the Environmental Protection Agency ("EPA") is tasked with establishing national ambient [1] air quality standards ("NAAQS") for certain "criteria" pollutants. 42 U.S.C. § 7409. Criteria pollutants are pollutants which EPA has determined may endanger the public health or welfare, and they include: sulfur dioxide, carbon monoxide, nitrogen dioxide (referred to herein as "NOx"), ozone, particulate matter, and lead. *See generally* 40 C.F.R. Part 50.

There are both primary and secondary NAAQS. The primary NAAQS for a given pollutant are the acceptable concentrations of pollutants in the ambient air required to "protect the public health," allowing an "adequate margin for safety." 42 U.S.C. § 7409(b)(1). The secondary NAAQS are the levels set to "protect the public welfare," including environmental and economic interests such as "soils, water, crops," "manmade materials," "visibility," and "climate," in addition to "effects on economic values and on personal comfort." *Id.* § 7409(b)(2), 7602(h).

Once set by the EPA, the NAAQS are then implemented by nationwide limitations on mobile sources like vehicles, and on new or modified stationary sources; and, relevant here, by state implementation plans ("SIP"s), which implement the NAAQS through emission limitations on stationary and mobile sources. *See* 42 U.S.C. §§ 7409–10.

There are two types of stationary sources: major emitting sources and minor emitting sources. A major source is one that has the "potential to emit two hundred and fifty tons per year or more of any air pollutant," and a minor source is one that falls below that benchmark. 42 U.S.C. § 7479(1). The Compressor Station is indisputably a minor source, as it has the potential to emit 43 tons per year.

b.

Best Available Control Technology ("BACT")

The CAA also requires major source facilities (but not minor ones) to be subject to "the best available control technology [BACT] for each pollutant subject to regulation under this chapter emitted from, or which results from, such facility." 42 U.S.C. § 7475(a)(4). BACT is a guarantee that the emitting source is using the best available technology to limit emissions of regulated pollutants. It is defined in the CAA as:

> an emission limitation based on the maximum degree of reduction of each [regulated] pollutant ... emitted from or which results from any major emitting facility, which the permitting authority, *73 on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant.

42 U.S.C. § 7479(3).

c.

"Redefining the Source"

[1] Control technologies "are those technologies that have 'a practical potential for application to the emissions unit and the regulated pollutant under evaluation.' " *Helping Hand Tools v. U.S. Envtl. Prot. Agency*, 848 F.3d 1185, 1190 (9th Cir. 2016) (quoting EPA, *New Source Review Workshop Manual*, at B.5 (1990)). Generally, under federal law the failure to consider available alternative control technologies (also referred to as "control alternatives") in BACT analysis "constitutes clear error." *Id.* at 1194. However, the EPA "does not have to consider [a] control alternative[ ]" -- even if it is effective at reducing emissions -- if it "redefines the source." *Id.* "[A] control alternative redefines the source if it requires a complete redesign of the facility. In a classic and simple example, a coal-burning power plant need not consider a nuclear fuel option as a 'cleaner' fuel because it would require a complete redesign of the coal-burning power-plant." *Id.*

"Redefining the source" in the federal administrative world is applicable to projects certified under the prevention of significant deterioration ("PSD") program. The PSD provisions were added to the CAA in 1977 to focus on "facilities which, due to their size, are financially able to bear ... substantial regulatory costs ... and which, as a group, are primarily responsible for emissions of the deleterious pollutants that befoul our nation's air." *Ala. Power Co. v. Costle*, 636 F.2d 323, 353 (D.C. Cir. 1980). The purpose of the PSD program is to "protect public health and welfare from any actual or potential adverse effect which in [EPA's] judgment may reasonably be anticipate[d] to occur from air pollution ... notwithstanding attainment and maintenance of all [NAAQS]." 42 U.S.C. § 7470(1). The PSD program was designed to "combat incumbency by ensuring that, in addition to new facilities, existing facilities will eventually have to satisfy stringent technology-based requirements when they make major modifications." Sage Ertman, *Climate Change and the PSD Program: Using BACT to Combat the Incumbency of Fossil Fuels*, 47 Envtl. L. 995, 1006 (2017).

The "redefining the source" doctrine was developed by the EPA to resolve an ambiguity in the CAA. Specifically, some hearing officers and courts had recognized the "tension between" two CAA requirements in the PSD program. *In re Prairie State Generating Co.*, 13 E.A.D. 1, 2006 WL 2847225, at *16 n.15 (Aug. 24, 2006), *aff'd sub nom.* *Sierra Club v. Envtl. Prot. Agency*, 499 F.3d 653 (7th Cir. 2007) (citing § 7475(a)(1)). First, there is an "obligation to conduct the BACT analysis on the 'proposed facility.' " *Id.* Second, there is a "concurrent obligation to consider as BACT 'application of production processes and available methods, systems, and techniques,' including lower-emitting fuels." *Id.* (citing § 7479(3)). According to the EPA's Office of Air and Radiation, the redefining the source doctrine "reasonably harmonizes" these competing obligations in that the entity issuing the permit "review[s] the project as proposed -- not something fundamentally different," but also "review[s] all elements of the proposed project's design and, in particular, consider[s] whether ***74** lower emissions are achievable through application of production processes and available methods, systems, and techniques." *Id.* at *16 (internal quotation marks omitted).

The EPA has clarified that, under the redefining the source doctrine, BACT review depends on a company's proposed plans and purpose. Thus, for the PSD program, a permitting agency must consider all means of lowering emissions, as long as those means would not "regulate the applicant's objective or purpose for the proposed facility" or require a redesign of a proposed facility. *Helping Hand*, 848 F.3d at 1195; *see also* *Sierra Club*, 499 F.3d at 654 ("EPA's position is that [BACT] does not include redesigning the plant proposed by the permit applicant" (citing EPA, *New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting* B.13 (1990))); John-Mark Stensvaag, *Preventing Significant Deterioration Under the Clean Air Act: The BACT Determination – Part I*, 41 Envtl. L. Rep. News & Analysis 11101, 11112 (2011) ("EPA will not insist on a BACT technology that would redefine the permit applicant's facility."). For example, "[w]hen a fuel source is co-located with a facility, EPA need not consider in the BACT analysis fuel sources that are not readily available, because it would redefine the source." *Helping Hand*, 848 F.3d at 1195. Therefore, in the context of major source PSD permits, the EPA does not have to consider control alternatives that would "redefine the source" in a given project.

To our knowledge, this federal redefining the source doctrine has never been applied to a non-PSD, minor source by a state pollution board, which is what we have here.[2]

2.

Virginia Law

a.

Virginia's State Implementation Plan

The CAA "establishes a program of cooperative federalism that allows the [s]tates, within limits established by federal minimum standards, to enact and administer their own regulatory programs, structured to meet their own particular needs." *Virginia v. Browner*, 80 F.3d 869, 883 (4th Cir. 1996) (internal quotation marks omitted). The federal NAAQS are merely "[pollutant] concentration ceilings," *In re Prairie*, 2006 WL 2847225, at *5, that "allow[ ] an adequate margin of safety," 42 U.S.C. § 7409(b)(1), and "protect not only average healthy individuals, but also 'sensitive citizens' -- children, for example, or people with asthma, emphysema, or other conditions rendering them particularly vulnerable to air pollution," *North Carolina v.*

TVA, 615 F.3d 291, 310 (4th Cir. 2010) (internal quotation marks omitted). However, the CAA makes clear that "air pollution control at its source is the primary responsibility of States and local governments." 42 U.S.C. § 7401(a)(3). Therefore, states are tasked with adopting a SIP "which provides for implementation, maintenance, and enforcement of [primary and secondary NAAQS] in each air quality control region (or portion thereof) within such State." *Id.* § 7410(a)(1).

***75** Virginia's SIP is set forth predominantly in Title 9 of the Virginia Administrative Code. New minor stationary sources with emissions above a certain level must receive an air permit issued pursuant to Article 6 of Chapter 80 of the Virginia Administrative Code ("Permit" or "Article 6 Permit") by DEQ or the Board. *See* 9 Va. Admin. Code § 5-80-1120(A). ACP applied for an Article 6 Permit on September 17, 2015. DEQ took ACP's application and elevated it to the Board for approval.

Pursuant to Virginia's SIP, all new stationary sources, whether major or minor, are subject to BACT review. *See* 9 Va. Admin. Code § 5-50-260(B) ("A new stationary source shall apply best available control technology for each regulated pollutant for which there would be an uncontrolled emission rate equal to or greater than the levels in 9 Va. Admin. Code § 5-80-1105 [providing charts of exemption levels in tons per year for various pollutants]."). This is so even though *federal* law does not require a BACT analysis of minor sources.

Virginia's BACT relies on emission reduction per emissions unit via production processes, methods, or techniques. *See* 9 Va. Admin. Code § 5-50-260(C) ("This [BACT] requirement applies to *each affected emissions unit* in the project." (emphasis supplied)). Specifically, Virginia's BACT analysis requires the development of "an emissions limitation ... based on the maximum degree of emission reduction ... which the [B]oard, on a case-by-case basis, ... determines is achievable for the new stationary source ... through the application of production processes or available methods, systems and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques." *Id.* § 5-50-250(C). Of note, there is no reference to the "redefining the source" doctrine in Virginia law or regulations.

b.

The Commonwealth Energy Policy

In addition to the SIP, Virginia law also contains a Commonwealth Energy Policy, which "[e]nsure[s] that development of new, or expansion of existing, energy resources or facilities does not have a disproportionate adverse impact on economically disadvantaged or minority communities." Va. Code Ann. § 67-102(A)(11). Likewise, one of the "[e]nergy objectives" of the Commonwealth Energy Policy is to "[d]evelop[ ] energy resources and facilities in a manner that does not impose a disproportionate adverse impact on economically disadvantaged or minority communities." *Id.* § 67-101(12).

c.

Virginia's Regulatory Structure

The Board is a seven-member citizen board selected by the Governor "from the Commonwealth at large on the basis of merit without regard to political affiliation." Va. Code Ann. § 10.1-1302; *see id.* § 10.1-1301. The Board is empowered to "make, or cause to be made, such investigations and inspections and do such other things as are reasonably necessary" to discharge its duties. *Id.* § 10.1-1306. For example, the Board may "call upon any state department or agency for technical assistance" in performing its duties. *Id.* § 10.1-1303.

The Board often calls upon DEQ to provide technical support and help the Board to fulfill its obligations. In general, DEQ can review permit applications, prepare draft permits and related documents, review and respond to comments from the public, and hold public hearings. *See* ***76** *Aegis Waste Sols., Inc. v. Concerned Taxpayers of Brunswick Cty.*, 261 Va. 395, 544 S.E.2d 660, 663 (2001); *see generally* 9 Va. Admin. Code § 5-170-180 (delegating Board's administrative functions to DEQ). Either the Board or DEQ can issue minor source Article 6 Permits, but when the Board does so, as in this case, it must consider:

> (i) the verbal and written comments received during the public comment period made part of the record, (ii) any explanation of comments previously received during the public comment period made at the Board meeting, (iii) the comments and recommendation of [DEQ], and (iv) the agency files.

Va. Code Ann. § 10.1-1322.01(P). If the Board adopts the recommendation of DEQ, it "shall provide in writing a clear and concise statement of the legal basis and justification for the decision reached." Va. Code Ann. § 10.1-1322.01(P). Likewise, if the Board's decision varies from DEQ's recommendation, the Board must "provide a clear and concise statement explaining the reason for the variation and how the Board's decision is in compliance with applicable laws and regulations." *Id.*

3.

Local Permitting

Finally, before ACP can construct a compressor station in Buckingham County, it is required to obtain a separate special use permit ("SUP") from the Buckingham County Board of Supervisors. *See* Va. Code Ann. § 10.1-1321.1(A) ("No application for a permit for a new or major modified stationary air pollution source shall be considered complete unless the applicant has provided the Director [of DEQ] with notification from the governing body of the county ... in which the source is to be located that the location and operation of the source are consistent with all [local] ordinances."). The Board of Supervisors issued the SUP in February 2017, and it contained 41 conditions for the Compressor Station. These conditions included emergency response requirements, a notification process for planned natural gas venting events, noise mitigation measures, light regulations, and zoning setbacks. Based on the SUP, Buckingham County certified to DEQ that the Compressor Station "is fully consistent with all applicable local ordinances." J.A. 323 (bolding omitted).[3]

B.

Factual and Procedural History

Because natural gas transported through the Pipeline must remain pressurized, ACP sought to construct three compressor stations in different locations along the Pipeline -- one in West Virginia, one in Virginia (the Buckingham County location at issue here), and one in North Carolina.

ACP claims the Compressor Station site in Buckingham County is "the only feasible location" because: (1) "it allows the ACP to interconnect with the existing Transco pipeline";[4] (2) "it was available for [ACP] to purchase commercially"; and (3) "the

Federal Energy Regulatory Commission ('FERC') ruled out the only other site that met the previous two criteria [the Midland Road Site,[5] which would require 1.1 miles of additional pipeline]." ACP Br. 10–11.

*77 As stated above, on September 17, 2015, ACP filed an application with DEQ for a Permit to construct and operate the Compressor Station. DEQ deemed the application complete in the summer of 2018.

1.

Public Comments and Hearings

After the Permit application was complete, DEQ provided several comment periods. On August 16, 2018, at the beginning of the first 30-day comment period, DEQ held an informational session for the residents of Buckingham County. DEQ representatives stated that, before the Board would take final action on the permit application, it would consider all comments. They also assured all public commenters that they could address the Board at a public meeting. After the comment period closed, DEQ conducted a public hearing on September 11, 2018, and heard proposed comments. Almost 200 people attended, and 60 people made oral comments. DEQ extended the comment period by 10 days. Over the 40 day comment period, DEQ received more than 5,300 comments. "Many comments" expressed "concerns about the potential for disproportionate impacts of the proposed facility on the African American population in Union Hill." J.A. 2174.

On November 8, 2018, the seven-member Board held its first public hearing. DEQ presented its summary of public comments from the 40 day comment period for the Board's consideration. These comments included concerns such as whether the "[f]acility should use electric turbines" instead of natural gas turbines, criticism that EPA's "[a]ir quality standards [are] not adequately protective," and "[e]nvironmental [j]ustice" and "[s]ite suitability issues." J.A. 1584. More than 80 people spoke at the hearing, and the Board made the following statements to and inquiries of DEQ officials:

- "[W]hat can you tell me about the demographics of Union Hill? I'd like to know about the community. I'd like to know about the race, the age distribution, anything you know about the health status of the community." J.A. 2260.
- "I thought [DEQ presented] a very narrow construction of what environmental justice means, and the reason I feel it's important for me to point that out is because I do think that site suitability and environmental justice are wrapped up together." *Id.* at 2344.
- "[H]ow is it that DEQ interprets [the Commonwealth Energy Plan] with respect to its obligations to consider environmental justice?" *Id.* at 2285.

Based on these concerns, the Board deferred consideration of the Permit. One week later, Governor Ralph Northam removed two Board members who had voiced concerns about the disproportionate harm to Union Hill and replaced them with two new members. *See* Patrick Wilson, *Northam Removes 2 Members from Air Board Before Buckingham Project Vote*, Richmond Times-Dispatch (Nov. 15, 2018), https://bit.ly/2HvnsAU (saved as ECF opinion attachment); Press Release, Gov. Ralph S. Northam, *Governor Northam Announces Administration Appointments* (Nov. 16, 2018), https://www.governor.virginia.gov/newsroom/all-releases/2018/november/headline-836509-en.html (saved as ECF opinion attachment). A third Board member identified a "conflict of interest in the action" and removed himself from consideration of the Permit. J.A. 2481. The Board, with only the four original members present, reconvened on December 19, 2018. It once again deferred a decision on the Permit and ordered a limited *78 period of public comment on documents pertaining to demographics and site suitability.

2.

DEQ's Recommendations and Responses

Throughout the permitting process, and relevant to the issues presented here, DEQ provided the following recommendations and responses to the public and the Board:

- Email from Southern Environmental Law Center to Patrick Corbett at DEQ (September 6 and 10, 2018):

  Question: "In the course of its BACT analysis, did DEQ consider electric motor turbines (which would have zero emissions at the Compressor Station) as an alternative to gas-fired turbines[?]"

  DEQ Answer: "No, electric compressors were not considered as they would redefine the source." J.A. 1381.

- Comment and Response (Oct. 24, 2018):

  Comment: "Electric turbines must be considered as an alternative to natural gas combustion turbines to ensure the 'maximum degree of emission reduction for any pollutant.' "

  DEQ Response: "The application of BACT for Article 6 reviews the affected emission unit(s) that is part of the facility proposed by the source. DEQ has determined that wholesale replacement of a natural gas turbine (the affected emission unit) for an electric turbine (a completely different process unit with a different energy source) constitutes *redefinition of the source* and is not considered in Virginia's BACT determination for [the Compressor Station]. DEQ reviewed permits for this industry type and has determined that the BACT limits for NOx in the draft permit are the most stringent limits for natural gas compression turbines. The draft BACT determination for NOx remains unchanged." J.A. 2178 (emphasis supplied) (footnote omitted). In a footnote, DEQ states, "Natural gas also provides a consistent source of fuel as the pipeline operation provides the fuel needed. Electricity would be subject to grid issues such as power outages and other similar interruptions that would hamper operations at the site." *Id.* n.17.

- DEQ recommendation on site suitability (October 2018): "On January 5, 2017, the Buckingham County Board of Supervisors held a public hearing and then approved a Special Use Permit for the construction and operation of the compressor station. ACP must operate in compliance with the County's approval as well as any other ordinances or regulations related to land use.

  A DEQ site evaluation was conducted on October 31, 2017. The land around the site is forested, with rolling terrain. The area is sparsely populated. No other existing air pollution sources were noted within one mile of the proposed site. The nearest school is approximately 9 miles from the site, with the closest hospital/nursing home located approximately 17 miles away.

  Based on a review of the application, the air quality analysis, and resulting draft permit, the proposed facility complies with all regulatory requirements. Air Quality modeling results indicate compliance with all applicable ambient air quality standards. Therefore, the site is deemed suitable from an air quality perspective." J.A. 1794.

- DEQ Official Presenting to Board (Nov. 9, 2018): "Electric turbines. ***79** Our response to electric turbines is that we view the proposed emission, there's a concept called *redefining the source*.

  Businesses have to be able to determine the activity that they're doing and how they're going to do it.

And DEQ doesn't determine how people make widgits. We look at their proposed emissions and emission units to determine how we can reduce those emissions.

So we can require them to make alterations to their system, like, say, adding catalytic reduction.

So selective catalytic reduction requires a different design than, you know, the straight compression turbine controls, but it's a minor change to the design.

Replacing a natural gas-fired turbine with an electric turbine is a wholesale replacement, and it's inappropriate in redefining in the source." J.A. 2237–38 (emphasis supplied).

- Conclusions reached by DEQ, as presented to the Board at December 19, 2018 meeting:
  - "Air modeling indicated emissions from [the Compressor Station] will not harm human health."
  - "Area surrounding [the Compressor Station] contains fewer existing air pollution sources and far fewer than Virginia average."
  - "Data indicate environmental risks faced by residents of area surrounding [the Compressor Station] overall are *lower* than those faced by residents of Virginia as a whole."
  - "No data indicate [the Compressor Station] would impose any disproportionate adverse environmental or health impacts on surrounding area when compared to Virginia as a whole." J.A. 2455.
  - DEQ official, noting the disparity in the demographic data regarding environmental justice, stated, "regardless of the percentage of the minority population, air modeling indicates that emissions from the proposed Buckingham Compressor Station will not harm human health." J.A. 2546.

3.

The Board's Decision

On January 8, 2019, the Board held its final meeting. A DEQ official made a brief presentation, again stating that "[r]egardless of the demographics of the area surrounding the compressor station, [it] will not cause a disproportionate adverse impact to the community" for two reasons: first, the residents surrounding the Compressor Station site "are already breathing air that is cleaner than the air breathed by 90% of the residents of Virginia"; and second, although "air modeling does indicate ... a slight increase in air pollution concentration [from the Compressor Station], the increase is slight." J.A. 2905–06.

The same four members present at the December meeting[6] voted unanimously on January 8, 2019, to adopt DEQ's recommendation and approve the Permit. In doing so, individual Board members made statements on the record. Specifically, the Board Chairman stated, "For purpose of my review, I have assumed that [the community around the Compressor Station] ***80** may be an E[nvironmental] J[ustice] community." J.A. 2923. Another member said the same. *See id.* at 2947 ("I ... have assumed that the community at issue is an environmental justice community.").

The Board as a whole issued a one-page Decision Statement the same day, stating simply that the Permit was "prepared in conformance with all applicable statutes, regulations, and agency practices"; the limits and conditions in the permit "have been

established to protect public health and the environment"; and "all public comments relevant to the permit [were] considered." J.A. 2999. The Board's Decision Statement specifically incorporated a November 2018 memorandum to the Board from DEQ; a permit engineering analysis from DEQ; [7] DEQ's October 24, 2018 response to comments; and DEQ's December 2018 outline of possible amendments to the draft permit. *Id.* However, in a handwritten notation, the Decision Statement also stated, "[T]he Board does not adopt any legal views expressed by DEQ regarding the Board's authority under Va. Code Section 10.1-1307.E." *Id.* The Permit was issued the following day. *See id.* at 2955–80.

Petitioners filed this timely petition for review of the grant of the Permit. We possess jurisdiction pursuant to the Natural Gas Act, 15 U.S.C. § 717r(d)(1) (providing the "United States Court of Appeals for the circuit in which a [natural gas] facility ... is proposed to be constructed ... or operated shall have original and exclusive jurisdiction over any civil action for the review of an order or action of a ... State administrative agency acting pursuant to Federal law to issue ... any permit ... required under Federal law").

II.

[2] **[3]** The parties dispute the proper standard of review. Petitioners believe we should review the Board's decision under the arbitrary and capricious standard of review that we normally employ when reviewing federal administrative agency actions. [8]

> Agency action is arbitrary and capricious if the agency relies on factors that Congress did not intend for it to consider, entirely ignores important aspects of the problem, explains its decision in a manner contrary to the evidence before it, or reaches a decision that is so implausible that it cannot be ascribed to a difference in view.

Appalachian Voices v. State Water Control Bd., 912 F.3d 746, 753 (4th Cir. 2019) (internal quotation marks omitted). Further,

> [i]n determining whether agency action was arbitrary or capricious, the court must consider whether the agency considered the relevant factors and whether a clear error of judgment was made. Although this inquiry into the facts is to be searching and careful, the ultimate standard of review is a narrow one. The court is not empowered to substitute its judgment for that of the agency. Deference is due where the agency has examined ***81** the relevant data and provided an explanation of its decision that includes a rational connection between the facts found and the choice made.

Id. (internal quotation marks omitted).

ACP, however, believes we should look to Virginia law to determine the standard of review because "by its ... terms, the federal APA does not apply to state agencies." ACP Br. 26–28. ACP notes that under Virginia's version of the APA, "[f]or factual issues, the question is 'whether there was substantial evidence in the agency record to support the agency decision.' " ACP Br. 27–28 (quoting Va. Code Ann. § 2.2-4207). But the same is true for findings of fact under the federal APA, at least in formal proceedings like the one at issue here. *Northrop Grumman Sys. Corp. v. U.S. Dep't of Labor, Admin. Review Bd.*, 927 F.3d 226, 232 (4th Cir. 2019) ("The agency's findings of fact are upheld if supported by substantial evidence.").

[4] ACP does not articulate how the standard for review of the agency's decision arising out of its findings of fact would be different under Virginia law, and we do not believe it would be.

> If the decision under review involves an interpretation within the specialized knowledge of the agency and if the General Assembly has vested the agency with broad discretion to interpret and apply the relevant regulations, the agency's decision will be reversed only for *arbitrary or capricious* action that constitutes a clear abuse of the agency's delegated discretion.

Frederick Cty. Bus. Park, LLC v. Va. Dep't of Envtl. Quality, 278 Va. 207, 677 S.E.2d 42, 44–45 (2009) (emphasis supplied); *see also Northrop Grumman*, 927 F.3d at 232 ("Under the [federal APA], an appellate court may only disturb the [agency]'s decision if it was arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." (internal quotation marks omitted)). Both the federal and Virginia standards require courts to act where the agency's action was not "in accordance with law." *See* 5 U.S.C. § 706 (reviewing courts must "hold unlawful and set aside [such] agency action"); Va. Code Ann. § 2.2-4029 (reviewing courts must "suspend or set [such action] aside and remand the matter to the agency for further proceedings"). And Virginia law, like federal law, provides that in reviewing an agency determination, "issues of law shall be ... review[ed] ... de novo." Va. Code Ann. § 2.2-4027; *see South Carolina v. United States*, 907 F.3d 742, 756 (4th Cir. 2018). Accordingly, it is not surprising that the Virginia Supreme Court has suggested that "the scope of court review under" the federal and Virginia APAs "is 'virtually identical.' " *State Bd. of Health of Va. v. Godfrey*, 223 Va. 423, 290 S.E.2d 875, 881 n.6 (1982) (quoting *Annual Survey of Virginia Law*, 61 Va. L. Rev. 1632, 1639 (1975)); *see also id.* at 881 (citing approvingly the discussion of the federal APA in *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 91 S.Ct. 814, 28 L.Ed.2d 136 (1971)).

[5] In our prior decisions reviewing Virginia Water Control Board permitting decisions, *Appalachian Voices v. State Water Control Board* and *Sierra Club v. State Water Control Board*, the state agency argued for a substantial evidence standard of review. Nevertheless, we applied an arbitrary and capricious standard of review, noting that even under a substantial evidence standard, the result would be the same. *See Appalachian Voices*, 912 F.3d at 753 n.1; *Sierra Club*, 898 F.3d 383, 403 n.13 (4th Cir. 2018). We are content to do the same here, especially because under Virginia law, a "reviewing court may set [an] agency action aside, even if it is supported by substantial evidence, if the ***82** court's review discloses that the agency failed to comply with a substantive statutory directive." *Browning-Ferris Indus. v. Residents Involved in Saving the Env't, Inc.*, 254 Va. 278, 492 S.E.2d 431, 434 (1997); *see also Envtl. Def. Fund, Inc. v. Va. State Water Control Bd.*, 15 Va.App. 271, 422 S.E.2d 608, 612 (1992).

III.

A.

The Board's Failure to Consider Electric Motors

Petitioners assert that under Virginia's SIP, the Compressor Station is subject to BACT review because it is a minor emitting source and Virginia law requires such review of minor sources, even though the CAA does not. Respondents do not disagree

with this statement. Then, Petitioners contend that the Board was required to evaluate BACT for each regulated pollutant emitted from the Compressor Station, but it failed to even consider a control technology that would eliminate almost all on-site pollution: electric motors. Specifically, Petitioners submit:

> Electric motors, in place of gas-fired turbines, are an available control technology that would eliminate almost all of the on-site air pollution from the Compressor Station. [DEQ and the Board] refused to consider these zero-emission alternatives based on a misapplication of EPA's "redefinition of the source" doctrine, which EPA developed to address a specific statutory ambiguity in a section of the Clean Air Act that does not apply to this Permit.

Pet'rs' Br. 21–22. Even if the redefining the source doctrine applied, say Petitioners, the Board "made no effort" to determine if using electric motors would constitute such a redefinition of the source. *Id.* at 22.

1.

Redefinition of the Source

The only rationale the Board could have ostensibly relied upon (via the Decision Statement's incorporation of DEQ's response to comments) for refusing to consider electric motors in its BACT analysis was that replacing gas-fired turbines with electric motors would constitute an impermissible "redefinition of the source." J.A. 2178 (Resp. to Comments 33) ("DEQ has determined that wholesale replacement of a natural gas turbine (the affected emission unit) for an electric turbine (a completely different process unit with a different energy source) constitutes *redefinition of the source* and is not considered in Virginia's BACT determination" (emphasis supplied)). Review of the "whole record," 5 U.S.C. § 706; *see also* Va. Code Ann. § 2.2-4027, does not suggest any additional justification. *See* J.A. 1381 (Corbett Email) (DEQ did not consider electric compressors because "they would *redefine the source*" (emphasis supplied)); *id.* at; *id.* at 2237–38 (Nov. 9, 2018 Hearing Transcript 36:22-37:17) ("Our response to electric turbines is that ... there's a concept called *redefining the source*. Businesses have to be able to determine the activity that they're doing and how they're going to do it. ... [W]e can require them to make alterations to their system, like, say, adding catalytic reduction [which is] a minor change to the design .... Replacing a natural gas-fired turbine with an electric turbine is a wholesale replacement, and it's inappropriate in *redefining the source*." (emphases supplied)).

Petitioners make three arguments on this point: first, if DEQ was referring to the federal EPA redefining the source doctrine, it is not applicable to the Compressor Station project, which is a minor ***83** source outside of the PSD program; second, even if the federal doctrine were applicable here, it would not satisfy the EPA's two part test for redefining the source; [9] and third, if DEQ was referring to a Virginia redefining the source doctrine, it does not exist, and neither DEQ nor the Board explained what that doctrine is or how it works. Through briefing and oral argument, Respondents conceded that they were not relying on any *federal* redefinition of the source doctrine. *E.g.*, Oral Arg. at 16:59–17:12, *Friends of Buckingham v. State Air Pollution Control Bd.*, No. 19-1152 (4th Cir. Oct. 29, 2019) (hereinafter "Oral Arg."). Therefore, Petitioners' first and second arguments cited above are of no moment. We are left to address the third argument: DEQ was referring to a Virginia-specific doctrine. Indeed, ACP refers to "Virginia's redefining the source doctrine" several times in its response brief. *See, e.g.*, ACP Br. 34, 36; *see also id.* at 35 (referring to a "Virginia-specific" version of the doctrine (emphasis omitted)).

2.

[6] [7] A state agency action survives our review if it "examined the relevant data and articulated a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *Appalachian Voices*, 912 F.3d at 753 (alterations and internal quotation marks omitted); *see also Frederick Cty. Bus. Park*, 677 S.E.2d at 44–45. Having considered the entire record, we are not satisfied that the Board provided a sufficient and rational explanation of its failure to consider electric turbines in place of gas-fired turbines, and DEQ's responses to the public are likewise insufficient.

a.

Nowhere in DEQ's comments, recommendations, or the Board's Decision Statement can we find a reference to a case, regulation, other project, or common practice that would sufficiently explain what "redefining of the source" means under Virginia law. The EPA cautions that, even when applying the federal doctrine (which is actually laid out in regulations and case law, unlike the purported Virginia doctrine), "any decision to exclude an option on 'redefining the source' grounds must be explained and documented in the permit record, especially where such an option has been identified as significant in public comments." *PSD AND TITLE V PERMITTING GUIDANCE FOR GREENHOUSE GASES*, EPA Manual at 27, https://www.epa.gov/sites/production/files/201507/documents/ghgguid.pdf (saved as ECF opinion attachment). There was no such explanation here. We -- and most importantly, the citizens of Virginia -- do not know what the Virginia redefining the source doctrine is, how it works, and how this project meets its requirements.

b.

[8] Respondents and ACP have marshaled a host of post hoc justifications in an attempt to explain what DEQ meant when repeatedly using the phrase "redefinition of the source." But "courts may not ***84** accept appellate counsel's post hoc rationalizations for agency action. It is well-established that an agency's action must be upheld, if at all, on the basis articulated by the agency itself." *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 50, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983) (citation omitted); *see Va. Ret. Sys. v. Cirillo*, 54 Va.App. 193, 676 S.E.2d 368, 372 (2009) (citing *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 48, 103 S.Ct. 2856); *see also* Va. Code Ann. § 10.1-1322.01(P) (requiring the Board to articulate its reasoning when making a decision about a permit). Respondents and ACP claim that DEQ's use of this phrase was merely an exercise in "semantics" or "shorthand." Oral Arg. at 18:24–59 (Respondents), 37:10–37 (ACP). Indeed, at oral argument Respondents completely disavowed the notion that the redefining the source doctrine exists under Virginia law. *See id.* at 18:05–40 ("There is not a specific doctrine for minor source permits that we would call the redefining the source doctrine."). At oral argument, ACP, for its part, threw out four citations to Virginia regulations and Regulatory Town Hall guidance -- never mentioned in DEQ's response to public comments or the Board's decision -- to attempt to explain what DEQ meant. *See id.* at 39:03–40:32. But none of these arguments or regulations support the decision made by DEQ during the permitting process to decline to even *consider* electric turbines.

ACP also contends that, buried in a footnote in DEQ's response to public comments (adopted by the Board in its Decision Statement), DEQ provides a separate and sufficient reason for rejecting the electric turbines. There, DEQ states, "Natural gas also provides a consistent source of fuel as the pipeline operation provides the fuel needed. Electricity would be subject to grid issues such as power outages and other similar interruptions that would hamper operations at the site." J.A. 2178 n.17.

Respondents also cite to FERC's environmental impact statement ("EIS"), which states that an electric turbine would require the construction of 12 miles of overhead power lines and a new substation. *See* Resp's' Br. 47.

These arguments fail. We have held that a permitting agency "may adopt FERC's EIS only if it undertakes 'an independent review of the EIS' and 'concludes that its comments and suggestions have been satisfied.' " *Cowpasture River Pres. Ass'n v. Forest Serv.*, 911 F.3d 150, 170 (4th Cir. 2018) (quoting 40 C.F.R. § 1506.3(c) (alteration omitted)). There is no evidence that such review happened here with regard to electric turbines. Relatedly, because DEQ relied on a nonexistent redefining the source doctrine, DEQ effectively relieved the Board from even *considering* the alternative energy source *at all*, so the Board could not have sufficiently and independently considered the impacts of electric turbines. As a result, we have no idea how much of an impact the Board thinks the electric turbines would make.

Finally, Respondents contend that we should essentially overlook any mention of redefining the source, and rather place emphasis on DEQ's statement that the natural gas turbines were the applicable "emission unit" under state law and that Virginia's BACT determination does not require "wholesale replacement" of an emission unit. *See* Resp'ts' Br. 40–41 (citing J.A. 2178). Further, they argue electric turbines are not "processes, methods, or techniques" and therefore, they are not considered "control technology" for purposes of BACT. *Id.* We decline to adopt these arguments.

[9] In explaining its decision, an agency must be "clear enough that its path may be reasonably discerned." ***85** *Encino Motorcars, LLC v. Navarro*, —— U.S. ——, 136 S. Ct. 2117, 2125, 195 L.Ed.2d 382 (2016) (internal quotation marks omitted); *see also Cirillo*, 676 S.E.2d at 371–72. In analyzing the "path" the Board took here, we cannot simply ignore that by way of explanation, DEQ invoked the term of art "redefining the source." Even if DEQ understood that the turbine is an emission unit, and wholesale replacement of an emission unit is not required because it would redefine the source, DEQ did not explain why or how. Is it because, as under federal law, replacement of an emission unit would change the purpose of the Compressor Station, and natural gas turbines are inherent to that purpose? And in using this phrase, does DEQ believe the "source" is the same as an "emission unit" such that the turbine would be "redefined"? *See* J.A. 2177 (DEQ referring to "source type" by the kind of energy a compressor station uses). *But see* 9 Va. Admin. Code § 5-80-1110(C) (Virginia regulations defining "emissions unit" as "*part of a stationary source* which emits ... any regulated air pollutant" (emphasis supplied)). DEQ itself admits that a "minor change to the design" of a source would not constitute redefinition of the source, but what constitutes a "minor" change? J.A. 2238. Clearly, DEQ's responses raise more questions than they answer. Thus, it has not "articulated a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *Appalachian Voices*, 912 F.3d at 753. And, we cannot simply guess.

For these reasons, the Board's decision was arbitrary and capricious and unsupported by substantial evidence. As Petitioners point out, ACP's and Respondents' arguments on appeal read as "convenient litigation position[s]." Pet'rs' Reply Br. 8. Nothing more. We vacate and remand for further explanation of reliance on the redefining the source doctrine, and/or why electric turbines are not required to be considered in Virginia's BACT analysis of the Compressor Station.

B.

The Board's Health Risk and Site Suitability Assessment

Petitioners' second argument is that the Board arbitrarily and capriciously decided issues of health risk and site suitability.

1.

Background

Union Hill is a historic community with a high population of African-Americans whose ancestors established the community in the aftermath of the Civil War. Community members founded the Union Hill Baptist Church, as well as the Union Grove Missionary Church, and have buried their dead there for generations. In 2015, ACP bought a neighboring 68.5-acre plot of land and chose that site for the placement of the Compressor Station.

According to the ACP permit application, the Compressor Station's four turbines, with a combined 58,162 horsepower, would burn gas 24 hours a day, 365 days a year. Together, the turbines' combustion of gas accounts for 83% of the facility's projected nitrogen oxide emissions and 95% of its emissions of particulate matter (PM, PM2.5, and PM10), and also generates emissions of toxic materials such as formaldehyde and hexane. FERC determined that the Compressor Station will increase the area's amount of nitrogen oxide pollution and fine particle (PM2.5) pollution, and emit known carcinogens into the community. FERC likewise recognized that pollutants from compressor stations "are known to increase the effects of asthma and may increase the risk of lung cancer." J.A. 2601 (footnote omitted).

***86** Friends of Buckingham, Inc., a group of Buckingham County citizens, conducted a demographic survey (the "Friends of Buckingham Survey"). According to Petitioners:

> The study indicated that about 84% of [Union Hill] residents are nonwhite, most of African-American descent -- a percentage far higher than the county-wide percentage of African Americans (34.7%). Of the 67 households for which a full set of responses exists, 42 (or 62.6%) are known descendants of formerly enslaved people from area plantations. Eight households reported unmarked slave and Freedmen graves on their property or nearby. An independent analysis found that the area within one mile of the proposed Compressor Station has a population density 51% higher than the county average -- and 77% higher than either A[CP] or DEQ identified in community profiles they prepared during the Compressor Station permitting process.
>
> The Friends of Buckingham study also revealed a prevalence of health conditions consistent with national data showing higher rates of respiratory sickness among the African-American population. Thirty-five households reported pre-existing medical diagnoses, chiefly respiratory and heart conditions. Residents of Union Hill, including many elderly residents, reported suffering from chronic ailments including asthma, chronic obstructive pulmonary disease, chronic bronchitis and pneumonia, heart disease, and other conditions that would make them particularly susceptible to air pollution from the Compressor Station.

Pet'rs' Br. 10–11 (citations omitted).

2.

Health Impacts and Site Suitability

Petitioners contend that the Board (and to the extent its recommendations were adopted, DEQ), violated Virginia law by "failing to assess the Compressor Station's disproportionate health impacts on the predominantly African-American Union Hill community and the suitability of the site." Pet'rs' Br. 38 (capitalization omitted). These arguments are grounded in a Virginia statute, which provides:

> The Board in ... approving ... permits ..., shall consider facts and circumstances relevant to the reasonableness of the activity involved and the regulations proposed to control it, including:
>
> 1. The character and degree of injury to, or interference with, safety, health, or the reasonable use of property which is caused or threatened to be caused;
>
> 2. The social and economic value of the activity involved;
>
> 3. The suitability of the activity to the area in which it is located; and
>
> 4. The scientific and economic practicality of reducing or eliminating the discharge resulting from such activity.

Va. Code Ann. § 10.1–1307(E). Petitioners argue the Board failed to consider the potential for disproportionate health impacts under (E)(1), and made an incomplete and misinformed site suitability determination under (E)(3).

[10] We conclude that the Board thrice erred in performing its statutory duty under sections 10.1–1307(E)(1) and (E)(3): (1) it failed to make any findings regarding the character of the local population at Union Hill, in the face of conflicting evidence; (2) it failed to individually consider the potential degree of injury to the local population independent of NAAQS and state emission standards; and (3) DEQ's final permit analysis, ostensibly adopted by the Board, relied on evidence in the record that was incomplete or discounted by subsequent evidence.

***87** Before delving into these issues, we begin with a discussion of environmental justice ("EJ").

a.

Environmental Justice

"As Justice Douglas pointed out nearly [fifty] years ago, '[a]s often happens with interstate highways, the route selected was through the poor area of town, not through the area where the politically powerful people live.' " *Jersey Heights Neighborhood Ass'n v. Glendening*, 174 F.3d 180, 195 (4th Cir. 1999) (King, J., concurring) (quoting *Triangle Improvement Council v. Ritchie*, 402 U.S. 497, 502, 91 S.Ct. 1650, 29 L.Ed.2d 61 (1971) (Douglas, J., dissenting)); *see also* Nicky Sheats, *Achieving Emissions Reductions for Environmental Justice Communities Through Climate Change Mitigation Policy*, 41 Wm. & Mary Envtl. L. & Pol'y Rev. 377, 382 (2017) ("There is evidence that a disproportionate number of environmental hazards, polluting facilities, and other unwanted land uses are located in communities of color and low-income communities."). "The purpose of an environmental justice analysis is to determine whether a project will have a disproportionately adverse effect on minority and low income populations." *Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 541 (8th Cir. 2003). "Although the term 'environmental justice' is of fairly recent vintage, the concept is not." *Jersey Heights*, 174 F.3d at 195 (King, J., concurring).

Of note, on August 16, 2018, Governor Northam's own Advisory Council on Environmental Justice recommended suspending the permitting decision for the Compressor Station "pending further review of the station's impacts on the health and the lives of those living in close proximity." J.A. 2791.

Indeed, under Virginia law, the Board is *required* to consider "character and degree of injury to ... health," and "suitability of the activity to the area." Va. Code Ann. § 10.1–1307(E). Both Respondents and ACP acknowledge that Virginia law -- including the Commonwealth Energy Policy and factors outlined in § 10.1-1307(E)(3) – "require[s] the Board to consider the potential for disproportionate impacts to minority and low income communities." Resp'ts' Br. 53; *see also* ACP Br. 19 n.6 ("Environmental justice is a component of the Commonwealth Energy Policy."). In fact, no party argues that the Board was excused from considering EJ in its analysis. Therefore, we accept that the Board was required to consider EJ in the Compressor Station Permit approval process. Underpinning Petitioners' arguments here is the idea that not only did the Board consider EJ separate and apart from site suitability, it did not give this point enough consideration.

As explained below, it is clear to us that the Board's EJ review was insufficient, which undermines the Board's statutory duties and renders the Board's Permit decision arbitrary and capricious, and unsupported by substantial evidence.

b.

No Findings Regarding the Character of Local Population

To begin, Petitioners contend, "Despite access to a wealth of information, the Board failed to make any findings regarding the demographics of Union Hill that would have allowed for a meaningful assessment of the likelihood of disproportionate harm." Pet'rs' Br. 51. We agree. The Board was presented with conflicting evidence about whether and how Union Hill was a "minority" EJ population, and it made no finding as to its resolution of this ***88** conflict. This is improper under both federal law, and Virginia administrative law.

i.

Throughout the public comment period and public meetings, one of the main points of dispute was whether the Union Hill community could be deemed a "minority" EJ community. As noted by the Board and ACP, the Board deferred its vote twice in order to obtain more information on this issue. Yet in the end, it did not even bother to make a finding on this issue. Rather, at least two Board members "assumed" that Union Hill was an EJ minority community without performing further analysis on what that means.

The minority EJ community designation is important because, if Union Hill is considered a minority EJ community, then information about "African American populations hav[ing] a greater prevalence of asthma" and other health issues is an important consideration. J.A. 2373 (FERC analysis, relied upon by DEQ). For example, FERC's analysis in the EIS -- upon which DEQ originally relied -- outlined all the risks to African Americans from the Compressor Station, e.g., increased risk of asthma and lung cancer, and even noted that African Americans were an "especially sensitive" community for these conditions. *Id.* at 2372–73. But because the African American population around the Compressor Station did not "exceed the threshold[ ] for environmental justice populations," it was of no moment. *Id.* at 2373; *see also id.* at 2372 ("None of the three census tracts within 1 mile of the [Compressor Station] are designated minority [EJ] populations [based on a methodology involving 2013 census data].").

ii.

There are multiple pieces of conflicting evidence about the minority population of Union Hill in this record, presented to DEQ and the Board:

- FERC's analysis, which is based on 2013 census data, states that in Virginia, "minorities comprise 30.8 percent of the total population." J.A. 2371. However, on December 9, 2018, DEQ told the Board that Virginia has an average 37% minority. *See id.* at 2536.

- FERC stated that "[n]one of the three census tracts within 1 mile of the [Compressor Station] are designated minority environmental justice populations." J.A. 2372. But the Friends of Buckingham Study (also called the Fjord Study or Household Study) demonstrates that "the area surrounding the [Compressor Station] is clearly an environmental justice area for minority population." *Id.* at 2545 (DEQ comments to the Board). [10] Indeed, a September 2018 version of this Study found that, in an actual door-to-door household survey, minorities make up 83% of residents, with African Americans comprising around 62%. *See id.* at 2618. After more households were reached, in January 2019, the percentage of minorities increased to 83.5%. *See id.* at 2733 (77% of households responding).

***89** • DEQ also presented an "EJSCREEN" study from the EPA that "found the minority population around the compressor station to be in the range of 37 to 39%." J.A. 2545–46. Yet at an earlier presentation, a DEQ staff member had told the Board, "I wouldn't really rely on" EJSCREEN. *Id.* at 2261.

- There is yet another study called the "Environmental Systems Research Institute's Demographic and Income Profile Report" (the "ESRI Report"), which ACP "recommended the [Board] utilize ... as the best available information to determine the environmental justice components of the proposed Site." J.A. 2853. This study, however, finds that minorities make up only 22–30% of the population "surrounding the proposed Site" with African Americans composing between 22–25%, but it compares this to a *County* percentage of 38% and 34%, respectively. J.A. 2854.

DEQ's final permit analysis submission to the Board says nothing further about EJ. And of course, the Board's decision is only one page long, says nothing about EJ or which stud(ies) it relied on, and even adds a provision in handwriting, professing that "[T]he Board does not adopt any legal views expressed by DEQ regarding the Board's authority under Va. Code Ann. Section 10.1–1307.E," without further explanation. J.A. 2999.

The Board acted arbitrarily in failing to provide *any explanation* regarding the EJ issue, which makes its extensions of public comments and additional meetings ring hollow.

Moreover, under Virginia law, the Board's factfinding would fail under a substantial evidence standard of review because there is conflicting evidence in the record that the Board did not resolve. Virginia law is clear: "It is not unusual for there to be conflicting evidence in contested cases, and it is the job of the *agency*, as factfinder, to resolve those conflicts." *Virginia Ret. Sys. v. Blair*, 64 Va.App. 756, 772 S.E.2d 26, 32 (2015) (emphasis in original); *see also Levine v. Arlington Med. Imaging, LLC*, No. 0145-18-4, 2018 WL 5259252, at *5 (Va. Ct. App. Oct. 23, 2018) ("It is the job of the agency, as factfinder, to resolve th[e] conflicts [in the evidence]." (alterations and internal quotation marks omitted)); *cf. All. to Save the Mattaponi v. Dep't of Envtl. Quality ex rel. State Water Control Bd.*, 270 Va. 423, 621 S.E.2d 78, 91 (2005) ("When there are conflicting expert opinions, the administrative agency, not the courts, must resolve the factual conflicts." (citing *Webb v. Gorsuch*, 699 F.2d 157, 160 (4th Cir. 1983)).

ACP responds to this deficiency in the Board's decision by downplaying the role of the Board, asserting that they must only provide a "*short, concise* statement in writing" in issuing the Permit. ACP Br. 3 (emphasis supplied). First of all, this is a misquote of Virginia Code section 10.1-1322.01(P), which provides, "When the decision of the Board is to adopt the recommendation of [DEQ], the Board shall provide in writing a *clear and concise*" -- not a "short, concise" -- "statement of the legal basis and justification for the decision reached." Va. Code Ann. § 10.1-1322.01(P) (emphasis supplied). A "short" statement is a far

cry from a "clear" statement. In any event, here, to the extent the Board stated that it was not relying on DEQ, the Board was required to "provide a clear and concise statement explaining the reason for the variation [from DEQ] and *how the Board's decision is in compliance with applicable laws and regulations*." *Id.* (emphasis ***90** supplied).[11] The Board failed to do so.

At bottom, there is no evidence the Board "considered the conflicting views presented" and "made a reasonable decision supported by substantial evidence." *Mattaponi*, 621 S.E.2d at 91. ACP correctly states, "As long as the record contains substantial evidence that the Board took into account the relevant facts and circumstances, the Board's decision must be upheld." ACP Br. 41 (citing *Mattaponi*, 621 S.E.2d at 92-93). Unfortunately, there is no such evidence in the record before us here.

iii.

Two of the Board members and DEQ assumed for the purpose of argument that Union Hill was an EJ community, and Respondents suggest we should impute that reasoning to the rest of the Board. *See* Resp'ts' Br. 30–31, 55–56; Oral Arg. at 25:30–26:50. We decline to do so. *Cf.* *Flickinger v. Sch. Bd. of City of Norfolk, Va.*, 799 F. Supp. 586, 594–95 (E.D. Va. 1992) (imputing motive of three school board members to the whole board improper). In any event, the Board cannot assume away what it is required to decide.

Even if the entire Board made this assumption, it did not properly carry this assumption through its analysis. *See* Va. Code Ann. § 10.1–1307(E) (requiring Board to consider "character and degree of injury to, or interference with, safety, health, or the reasonable use of property which is caused or threatened to be caused"); *id.* § 67-102 (Board must "ensur[e] that development of new" energy facilities "does not have a disproportionate adverse impact on economically disadvantaged or minority communities"). If the area around the Compressor Station is indeed an EJ minority community, the demographic and statistics change regarding whether this is a "especially sensitive" community for certain conditions. J.A. 2372. Rather than take this into account in its assumption, the Board merely falls back on NAAQS and state air quality standards not tailored to this specific EJ community. The record is replete with such reliance, up to and including the very last Board meeting:

- DEQ draft permit approval submitted to the Board (October 2018) and final permit approval (January 9, 2019): As to site suitability, "[a]ir quality modeling results indicate compliance with all applicable ambient air quality standards. Therefore, the site is deemed suitable from an air quality perspective." J.A. 1794, 2993.

- DEQ response to comments (incorporated into the Decision Statement) (Oct. 24, 2018): "In reviewing the application for this draft permit, DEQ performed a comprehensive regulatory review with respect to Virginia and federal air quality regulations. This includes the health-based standards promulgated by the [EPA] as [NAAQS], as well as Virginia's own health-based standards for toxic pollutants. ... [T]he draft air permit requirements are designed to ***91** ensure protection of public health and the environment in accordance with the state and federal ambient air quality standards and regulations." J.A. 2147.

  In response to comments "stat[ing] concerns about the NAAQS and whether these standards were adequately protective of human health and the environment," DEQ stated that the CAA "requires EPA to set NAAQS for pollutants considered harmful to public health and the environment" and sets "limits to protect public health, including the health of 'sensitive' populations such as asthmatics, children, and the elderly." J.A. 2150–51.

- DEQ presentation to Board (Nov. 9, 2018): "[W]hat we strive to do and what we've done in this case, is to assure that pollution, air pollution from this source, does not harm public health.

  And we do that by doing the modeling and making sure it complies with all health-based standards.

Our view is that if ... all the health based standards are being complied with, then there really is no disproportionate impact, because everyone is being subjected to the same air pollution but well below health-based standards." J.A. 2286.

When asked by the Board about the standard, DEQ official responded, "[T]he NAAQS protect human health including sensitive populations with an ample margin of safety." J.A. 2288.

- DEQ presentation to the Board (Jan. 8, 2019): "The air modeling shows that emissions from the Buckingham Compressor Station will not cause an exceedance ... of any [NAAQS] and will not violate any Virginia State air toxic standards for formaldehyde and hexane." J.A. 2902.

- DEQ presentation to the Board (Jan. 8, 2019): "[T]he highest emission limits ... allowed under the [P]ermit for the [C]ompressor [S]tation will result in highest concentrations of $PM_{2.5}$ well below the [NAAQS]." J.A. 2912.

- Board Chairman before his vote on January 8, 2019: "The fence line maximum concentrations were below the [NAAQS] or the State toxic standard[s] as applicable.

  The exposure to PM2.5 is considered safe by the EPA max, that's the [NAAQS], if concentrations in the ambient air are below those standards." J.A. 2927.

  Then, recognizing that concentrations of PM2.5 at the fence line of the property will "increase by ... 20 to 40%," and that there may be a sensitive population that will breathe the air, those concentrations are still "30 to 40% below that standard that was set to protect sensitive populations." J.A. 2928.

  This "sensitive" standard, however, appears to simply be the NAAQS themselves. *See* *North Carolina v. TVA*, 615 F.3d 291, 310 (4th Cir. 2010) (explaining that NAAQS protect "sensitive citizens -- children, for example, or people with asthma, emphysema, or other conditions rendering them particularly vulnerable to air pollution." (internal quotation marks omitted)).

The Board's reliance on air quality standards led it to dismiss EJ concerns. Even if all pollutants within the county remain below state and national air quality standards, the Board failed to grapple with the likelihood that those living closest to the Compressor Station -- an overwhelmingly minority population according to the ***92** Friends of Buckingham Survey -- will be affected more than those living in other parts of the same county. The Board rejected the idea of disproportionate impact on the basis that air quality standards were met. But environmental justice is not merely a box to be checked, and the Board's failure to consider the disproportionate impact on those closest to the Compressor Station resulted in a flawed analysis.

iv.

By all accounts, PM2.5 is the most harmful particulate matter to be emitted from the Compressor Station.[12] A report in the record from George Thurston, a Doctor of Science and Director of the Program in Exposure Assessment and Human Health Effects at the NYU School of Medicine, explains that even short-term exposures to PM2.5 are causally connected to heart trouble and "increased risk of mortality." *See* J.A. 1454. A comment from Dr. Larysa Dyrszka stated that PM2.5 is one of the deadliest air pollutants in part due to its ability to "lodge deep in the lungs" and "pass easily into the blood stream." *Id.* at 1407. Indeed, any amount of PM2.5 in the system is harmful. *See Am. Trucking Ass'ns v. EPA*, 283 F.3d 355, 360 (D.C. Cir. 2002) (recognizing the "lack of a threshold concentration below which [particulate matter is] known to be harmless"). Thus, even when NAAQS are not violated as to this particulate matter, the record reflects that exposure to PM2.5 will increase the risk of asthma, heart attacks, and death. *See, e.g.*, J.A. 1454–62.

We have yet to find -- and the Board and ACP do not indicate -- where the Board analyzed the risk of $PM_{2.5}$ emissions *to this specific EJ community*, without simply falling back on NAAQS. Even in the section of its brief responding to this issue, ACP merely noted, "$PM_{2.5}$ is addressed by the NAAQS." ACP Br. 48; *see also* Resp'ts' Br. 24 (comparing $PM_{2.5}$ "worst case" concentrations to NAAQS).

This strikingly limited analysis goes hand in hand with the EJ error analyzed above, making the health risk and site suitability analysis all the more important. Instead, the Board accepts without deciding that this area may be an EJ minority community with a high risk for asthma complications, and then does not properly recognize the localized risk of the *very particulate matter* that exacerbates asthma.

c.

Final Permit Analysis

Because the Board's written statement provides scant analysis, we look to "the comments and recommendation of [DEQ]," and "the agency files," which the Board is required to consider in making its permitting decision. Va. Code Ann. § 10.1-1322.01(P). But, in the final permit analysis, signed by DEQ officials on January 9, 2019, the only issues that DEQ considered as relevant to "Site Suitability" were: (1) an October 2017 site evaluation, which ignored the local residential population; (2) the SUP issued by Buckingham County; and (3) projected compliance with ambient air quality standards. J.A. 2993. This evidence was incomplete, improper, and rendered unreasonable by subsequent evidence presented to the Board throughout the permitting process.

First, as the myriad studies and comments presented to the Board throughout the permitting process made clear, the single-page ***93** October 2017 site evaluation was woefully inadequate to represent the true nature of the area surrounding the Compressor Station. A DEQ environmental inspector deemed the site "Sparsely Populated" and checked only "Forest" (not "Residential") as a land use of the "area around the proposed site." J.A. 861. DEQ listed the approximate distance to the nearest "School" and "Hospital/Nursing Home," but left blank the space on the form for "Other Buildings" -- ignoring that there are around 60 homes within one mile of the proposed site boundary. *Id.*; *see id.* at 2396 (Dec. 7, 2018 SELC Comments Attach. B (map showing Union Hill residences)).

Second, it is improper to rely upon a SUP as a substitute for an independent determination of site suitability under section 10.1–1307(E). *See* 9 Va. Admin. Code § 5-80-1230 "[C]ompliance [with zoning ordinances] does not relieve the board of its duty under ... § 10.1-1307[(]E[)] ... to independently consider relevant facts and circumstances.").

And for the reasons mentioned above, *see supra* III.B.2.b.iii., blindly relying on ambient air standards is not a sufficiently searching analysis of air quality standards for an EJ community. Otherwise, § 10.1–1307(E) is rendered meaningless.

The Board's failure to expand on and correct this erroneous DEQ site suitability analysis -- which remained unchanged from October 2018 to January 2019 -- was arbitrary, capricious, and unsupported by substantial evidence in the record.

d.

Conclusion

For these reasons, we conclude that the Board failed in its statutory duty to determine the character and degree of injury to the health of the Union Hill residents, and the suitability of the activity to the area. We vacate and remand for the Board to make findings with regard to conflicting evidence in the record, the particular stud(ies) it relied on, and the corresponding *local character and degree of injury* from particulate matter and toxic substances threatened by construction and operation of the Compressor Station.

To be clear, if true, it is admirable that the Compressor Station "has more stringent requirements than any similar compressor station anywhere in the United States," J.A. 2920, and that residents of Union Hill "will be breathing cleaner air than the vast majority of Virginia residents even after the Compressor Station goes into operation," ACP Br. 49. But these mantras do not carry the day. What matters is whether the Board has performed its statutory duty to determine whether *this facility* is suitable for *this site*, in light of EJ and potential health risks for the people of Union Hill. It has not.

IV.

For the foregoing reasons, we vacate the Permit and remand to the Board for further proceedings consistent with this opinion.

PETITION FOR REVIEW GRANTED; VACATED AND REMANDED

All Citations

947 F.3d 68

Footnotes

1 "Ambient air" means "that portion of the atmosphere, external to buildings, to which the general public has access." 40 C.F.R. § 50.1(e).

2 *Snyder v. Pa. Department of Environmental Protection*, cited by all parties here, does not apply the federal redefining the source doctrine to a non-PSD state permitting procedure. *See* 2015 WL 9590755 (Pa. Envtl. Hrg. Bd. Dec. 21, 2015). There, the state Environmental Hearing Board merely explained, "Whether Pennsylvania law permits the [BACT] analysis to look at the design elements of a facility is a separate inquiry from what the federal program allows ...." *Id.* at *7.

3 Citations to the "J.A." refer to the Joint Appendix filed by the parties in this appeal.

4 The "Transco Pipeline" is short for the Transcontinental Pipeline, a major north-south natural gas line that is "located on the Buckingham Compressor Station site." J.A. 1548, 1694.

5 The Midland Road site is a 147-acre tract located 1.9 miles southwest of the Buckingham site.

6 Although the Governor appointed two new Board members in place of the ones he removed, they did not participate in the vote on the Permit. Nor did the Board member who had identified a conflict.

7 The record also contains a final permit analysis -- an updated version of the permit engineering analysis from January 2019. The Decision Statement appears to refer to the original version. In any event, the two versions are essentially identical.

8 In briefing, Respondents disagreed that the arbitrary and capricious standard applies but suggested that the distinction is immaterial for purposes of resolving this appeal, arguing that Petitioners' "claims fail even under their preferred standard." Resp'ts' Br. 36 n.9. At oral argument, however, Respondents conceded that the Court's review is under the arbitrary and capricious standard. *See* Oral Arg. 34:48–52 ("[T]he question for this Court is whether the Board's decision was arbitrary."); *see also id.* at 33:26–33, 36:15–23.

9 To determine whether a control alternative redefines the source under federal law, EPA engages in a two-step inquiry: (1) "the permit applicant ... defines the proposed facility's end, object, aim or purpose -- that is the facility's basic design." *In re Prairie*, 2006 WL 2847225, at *18; and (2) EPA takes a "hard look" at the proposed definition to determine which design elements are inherent to the applicant's purpose and which elements can be changed to reduce pollutant emissions without disrupting the applicant's basic business purpose. *Helping Hand*, 848 F.3d at 1194.

10 Interestingly, counsel for Respondents conceded at oral argument that the Friends of Buckingham Study contained accurate results as to the percentage of minorities around the Compressor Station. *See* Oral Arg. 31:40–57 (conceding that "84–85% of the people who live in the 1.1 [mile] band of the Compressor [Station] are people of color predominantly African Americans," explaining, "I have no reason to doubt the validity of the door-to-door study").

11 We are bewildered by the handwritten notation in the Board's Decision Statement stating, "[T]he Board does not adopt any legal views expressed by DEQ regarding the Board's authority under Va. Code Section 10.1-1307.E." J.A. 2999. There was some intimation in briefing and oral argument that this was the Board's attempt to disavow DEQ's scant site suitability analysis described herein, in favor of more robust consideration of EJ. *See, e.g.*, Oral Arg. at 28:25–52. Without more in this record, however, we cannot accept that suggestion. And even if we did, more explanation would be required of the Board pursuant to § 10.1-1322.01(P).

12 PM2.5 describes fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.

End of Document