UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS; Proposed Rule 85 Fed. Reg. 68,964 (Oct. 30, 2020)	Docket ID No. EPA–HQ–OAR–2020–0272

COMMENTS OF EARTHJUSTICE, T.E.J.A.S., SIERRA CLUB, APPALACHIAN MOUNTAIN CLUB, ENVIRONMENTAL DEFENSE FUND, CHESAPEAKE BAY FOUNDATION, CLEAN AIR TASK FORCE, DOWNWINDERS AT RISK, NATURAL RESOURCES DEFENSE COUNCIL, CLEAN WISCONSIN, AIR ALLIANCE HOUSTON, AND ENVIRONMENTAL LAW AND POLICY CENTER ON EPA'S PROPOSED REVISED CSAPR UPDATE

Submitted via regulations.gov and e-mail on December 14, 2020 by Earthjustice

Earthjustice, t.e.j.a.s., Sierra Club, Appalachian Mountain Club, Environmental Defense Fund, Chesapeake Bay Foundation, Clean Air Task Force, Downwinders at Risk, Natural Resources Defense Council, Clean Wisconsin, Air Alliance Houston, and Environmental Law and Policy Center, submit these comments on EPA's proposal to revise the Cross-State Air Pollution Rule (CSAPR) Update in response to the D.C. Circuit's decision in *Wisconsin v. EPA*, 938 F.3d 303 (D.C. Cir. 2019). *See* Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS; Proposed Rule, 85 Fed. Reg. 68,964 (Oct. 30, 2020) (Revised CSAPR Update). Our organizations represent millions of members and supporters across the country who are deeply concerned about the health, environmental, and economic impacts of ozone pollution, which disproportionately burden environmental justice communities. While we support EPA's decision to require incremental reductions in interstate ozone pollution, EPA must go further and eliminate the pollution that contributes significantly to nonattainment of the 2008 ozone standard and interferes with maintenance of the standard. We urge EPA to follow the requirements of the Clean Air Act and strengthen the Revised CSAPR Update to expeditiously meet its obligations.

I. OZONE POLLUTION DAMAGES HUMAN HEALTH AND THE ENVIRONMENT.

A. Harm to Human Health from Exposure to Ground-Level Ozone

Ozone, the principal component of smog, is one of the most dangerous and persistent forms of air pollution in the United States today. Scientists link ozone to premature deaths, thousands of emergency room visits, and tens of thousands of asthma attacks each year. Short-term exposure to ozone is linked to many health problems including heart disease, reduced lung function, lung inflammation and susceptibility to infection, asthma exacerbation, and premature death from heart and lung diseases. It has even been shown to worsen metabolic diseases like diabetes. Ozone is dangerous to all, but particularly harmful to vulnerable groups like children, older people, those with asthma and other pre-existing lung and heart conditions, and outdoor workers.[1] It is formed by emissions of nitrogen oxides (NOx) and volatile organic compounds (VOCs), intermingling in the presence of heat and sunlight.

EPA's most recent review of the scientific evidence on ozone pollution shows that ozone harms human health and that significant harms occur at ambient levels much lower than what the current national standards allow. Scientific evidence across various disciplines—including controlled human exposure studies, animal toxicology, and epidemiology—confirm these harms and adverse health effects. At levels as low as 60 parts per billion (ppb), studies observe evidence of lung function impairments, pulmonary inflammation, injury, oxidative stress and other respiratory symptoms in children and adults exposed to ozone. EPA, Integrated Science Assessment ("ISA") for Ozone and Related Photochemical Oxidants, EPA/600/R-20/012, at IS-29 (April 2020), https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=348522. Controlled human exposure studies showed ozone-induced decreases in lung function and inflammation in exercising adults at levels as low as 60 ppb. ISA at IS-1. Risks of hospital admissions, emergency department visits, and physician visits for respiratory ailments were found to be elevated at 8-hour maximum levels of 31-55 ppb. ISA at IS-27.

Ozone pollution in the United States moreover poses a unique injustice to low-income communities and communities of color. Across the nation, as EPA's own data confirm, people of color are consistently overrepresented in areas with higher ambient concentrations of ozone

---

[1] Comments of Appalachian Mountain Club, et al. on U.S. EPA's Review of the Ozone National Ambient Air Quality Standards, Docket No. EPA-HQ-OAR-2018-0279-0444 (Oct. 1, 2020) (Commenters extensively address the health and environmental impacts of ozone pollution in these comments. We incorporate those portions of the comments here, by reference).

pollution. Furthermore, the asthma burden of people of color—particularly among Black people—is far higher across the nation than that of white people. The Clean Air Act's mandate to protect public health has never been more urgent, as we also know that communities of color currently face a disproportionately high risk from COVID-19, and that recent studies show significant associations between ozone concentrations and the incidence of COVID-19 infections.[2]

The Clean Air Act targets this pollution by requiring the EPA to set National Ambient Air Quality Standards (NAAQS) to address ozone pollution and set standards at a level that protects public health with an adequate margin of safety. EPA's review of the NAAQS must "accurately reflect the latest scientific knowledge," 42 U.S.C. § 7408(a)(2), and that review must be "thorough." *Id.* § 7409(d)(1). EPA most recently set a national standard for ozone in 2015, selecting the weakest standard from the range it proposed, at 70 ppb. 80 Fed. Reg. 65,292, 65,294 (Oct. 26, 2015). Now, a full five years later, the Agency has proposed to retain this weak 70 ppb standard. 85 Fed. Reg. 49,830 (Aug. 14, 2020). As NGO commenters and others noted at length in comments on the 2020 ozone NAAQS proposal, neither the 2015 standard nor the proposed 2020 standard reflects the latest scientific knowledge, and neither is requisite to protect public health with an adequate margin of safety. In addition, EPA's efforts at implementing the ozone standard are significantly delayed, as is clear from this proposal, which is an attempt to finally fully implement an earlier ambient standard, the 2008 ozone standard set at 75 ppb, which is even less health-protective.

This proposed rule comes in response to litigation demanding that EPA fulfill its duties to fully implement the 2008 standards, in particular, the Clean Air Act's requirement that states adopt plans (state implementation plans, or SIPs) for bringing their smog-afflicted areas in line with the NAAQS as expeditiously as practicable, and that those incorporate measures that prohibit the interstate pollution that causes or contributes to high levels of ozone. Each SIP must "contain adequate provisions . . . prohibiting . . . any source or any other type of emissions activity within the State from emitting any air pollutant in amounts which will . . . contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard." 42 U.S.C. § 7410(a)(2)(D)(i)(I). This requirement is known as the Act's "good neighbor" provision. The Revised CSAPR Update is part of a long history of delay associated with these good neighbor

---

[2] Atin Adhikari and Jingjing Yin, *Short-Term Effects of Ambient Ozone, PM2.5, and Meteorological Factors on COVID-19 Confirmed Cases and Deaths in Queens, New York*, 17 Int. J. Environ. Res. Public Health 4047 (June 5, 2020), https://doi.org/10.3390/ijerph17114047, attached as Exhibit 1.

provisions. Americans have waited years for the EPA to meet its obligations under the Act's good neighbor provisions, and amidst a respiratory pandemic that is exacerbated by ozone pollution, EPA should strengthen the rule to ensure we do not have to wait any longer.

There is room for improvement as EPA moves to finalize this rule—it does not yet go far enough to implement even the 2008 ozone standard. As detailed below, we strongly encourage EPA to finalize a rule that is stronger than the proposal, so that it meets the legal requirement to eliminate interstate transport of significant contributions to ozone nonattainment (and interference with maintenance) under the 2008 standard. That would set the states on a path to more expeditiously meet the 2015 ozone standard of 70 ppb, as required by the Clean Air Act, and provide more protection for all who experience the adverse health effects of air pollution. Communities dealing with pollution blowing in from across state lines have been waiting far too long for EPA to fulfill its statutory duty to prohibit such pollution at levels causing or contributing to downwind nonattainment.

B. Impacts to the Environment and the Chesapeake Bay.

In addition to harming human health, ground-level ozone and its precursor pollutants are damaging to ecosystems. "In terms of forest productivity and ecosystem diversity, ozone may be the pollutant with the greatest potential for region-scale forest impacts."[3] EPA's Regulatory Impact Analysis for the last update to CSAPR, in 2016, discussed these and other environmental co-benefits of reducing precursor NOx emissions, predicting decreases in acidic deposition, visibility impairment, and nutrient enrichment.[4]

The Chesapeake Bay watershed serves as an example of the harm wrought by this pollution on sensitive ecosystems across the country. Of particular relevance to the Chesapeake Bay is the problem of eutrophication caused by excess nutrients in an aquatic ecosystem, especially nitrogen and phosphorus. The excess nutrients lead to large algae blooms which, when decomposing, use up oxygen from the water and create dead zones where no aquatic life can survive.

---

[3] EPA, Regulatory Impact Analysis of the Final Revisions to the Nat'l Ambient Air Quality Standards for Ground-Level Ozone, EPA-452/R-15-007, at 7-3 , Docket No. EPA-HQ-OAR-2015-0500-0580 (Sep. 2015), https://www3.epa.gov/ttnecas1/docs/20151001ria.pdf.

[4] EPA, Regulatory Impact Analysis of the Cross-State Air Pollution Rule (CSAPR) Update for the 2008 Nat'l Ambient Air Quality Standards for Ground-Level Ozone, EPA-452/R-16-004, at 5-42 (Sep. 2016), https://www3.epa.gov/ttn/ecas/docs/ria/transport_ria_final-csapr-update_2016-09.pdf.

> In estuarine waters, excess nutrient enrichment can lead to eutrophication. Eutrophication of estuaries can disrupt an important source of food production, particularly fish and shellfish production, and a variety of cultural ecosystem services, including water-based recreational and aesthetic services. Terrestrial nutrient enrichment is associated with changes in the types and number of species and biodiversity in terrestrial systems.[5]

In 2010, in response to pervasive eutrophication and dead zones in Chesapeake Bay, EPA established a federal-state clean-up plan called the Chesapeake Bay Total Maximum Daily Load (TMDL).[6] To develop the Bay TMDL, EPA calculated the maximum amount of sediment, nitrogen, and phosphorus the Chesapeake Bay could receive and still meet water quality standards.[7] These overall pollutant loads were then allocated to each of the seven Bay jurisdictions. Each jurisdiction is responsible for reducing its amount of pollutant contribution to meet the TMDL goals.[8]

At the time the Bay TMDL was established, EPA found that atmospheric deposition contributed roughly one-third of the total nitrogen loads delivered to the Chesapeake Bay.[9] EPA set a cap of 15.7 million pounds of atmospheric deposition of nitrogen per year directly to the Bay and its tidal tributaries, and accepted responsibility for the reductions necessary to meet this cap.[10] Accordingly, EPA committed to reducing atmospheric nitrogen deposition to the Bay by 3.7 million pounds annually between 2009 and 2025.[11] EPA ensured it would achieve the

---

[5] *Id*.

[6] EPA, Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus, and Sediment (Dec. 2010), https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document ("Bay TMDL").

[7] *See id*. at Executive Summary, ES-1.

[8] *Id*.

[9] *Id*. at Section 4, 4-33.

[10] *Id*. at Section 8, 8-33; *see also*, Bay TMDL Appendix L, at L-23 ("the nitrogen deposition directly to the Bay's tidal surface waters is a direct loading with no land-based management controls and, therefore, needs to be linked directly back to the air sources and air controls as EPA's allocation of atmospheric nitrogen deposition.").

[11] EPA, The Importance of Clean Air to Clean Water in the Chesapeake Bay (Jan. 2015), https://www.epa.gov/sites/production/files/2015-06/documents/cb_airwater_fact_sheet_jan2015.pdf, attached as Exhibit 2.

atmospheric nitrogen reductions based on state and federal compliance with Clean Air Act regulations, including efforts to attain and maintain the National Ambient Air Quality Standards ("NAAQS").[12] Specifically, EPA explained that "[t]he air allocation scenario represents emission reductions from regulations implemented through the CAA authority to meet National Ambient Air Quality Standards for criteria pollutants in 2020," including the Clean Air Interstate Rule ("CAIR"), the precursor to the CSAPR rule.[13]

At 570,000 square miles, the Bay airshed is roughly nine times the size of the Bay watershed and sources of NOx in this expansive airshed contribute nitrogen to the Bay and its tributaries.[14] Fifty percent of the atmospheric deposition of nitrogen to the Bay watershed comes from areas outside of the Bay watershed.[15] Thus, the Bay TMDL depends upon the nationwide implementation of the Clean Air Act, including enforcement of the good neighbor provision, to reduce interstate transport of NOx and ensure that reductions in nitrogen from atmospheric deposition continue and are maintained.

As the federal partner to the Bay TMDL and signatory to the Chesapeake Bay Watershed Agreement,[16] [17] [18] EPA must consider impacts to the Chesapeake Bay, in addition to other ecosystems. These environmental considerations provide further reason to strengthen the proposal before finalization.

---

[12] Bay TMDL, *supra* note 6, at Section 6, 6-28.

[13] *Id.*

[14] Bay TMDL, *supra* note 6, at Section 4, 4-34.

[15] *Id.*

[16] *See* Chesapeake Bay Watershed Agreement (2014), https://www.chesapeakebay.net/channel_files/24334/2014_chesapeake_watershed_agreement.pdf (recommitting the Chesapeake Bay Program partners, including EPA, to the goals of Chesapeake Bay watershed restoration), attached as Exhibit 3; *see also*, Executive Order 13508—Chesapeake Bay Protection and Restoration, 74 Fed. Reg. 23,099 (May 15, 2009).

[17] 33 U.S.C. § 1267(g)(1).

[18] *See* Chesapeake Bay Watershed Agreement, *supra* note 16, at 7.

II. DOWNWIND COMMUNITIES HAVE WAITED FAR TOO LONG FOR CLEAN AIR.

Against a backdrop of decades of delay, EPA's Revised CSAPR Update is a partial step forward. Unfortunately, however, this proposal still allows large interstate contributions to unhealthy ozone levels to continue. EPA must at long last eliminate these contributions, as required by the Clean Air Act, and remedy the years-long delay in doing so. And at this point, this is clearly a U.S. EPA responsibility. *New Jersey v. Wheeler*, 2020 WL 4331604 (S.D.N.Y. July 28, 2020). While the Clean Air Act places the burden first upon the states themselves to create implementation plans discharging their NAAQS-implementation obligations (including the good neighbor obligation), if states fail to prepare and submit to EPA adequate plans, EPA is directed to create a federal plan that resolves those obligations, "at any time within 2 years after the Administrator finds that a State has failed to make a required submission." 42 U.S.C. § 7410(c)(1)(A), (k)(1)(B). That deadline expired long ago. Indeed, EPA's history of delay with respect to ozone pollution from downwind states has entered its third decade, and the Agency must do everything in its power to act expeditiously to clean up this pollution.

This history began in earnest with the setting of the 1997 ozone NAAQS. In 1997, EPA completed a NAAQS revision for ozone, setting a new standard of 80 ppb on an eight-hour average. 62 Fed. Reg. 38,856 (July 18, 1997). After several years of litigation, the D.C. Circuit upheld the standard against industry challenge. *Am. Trucking Ass'ns v. EPA*, 283 F.3d 355 (D.C. Cir. 2002); *see also Am. Trucking Ass'ns v. EPA*, 175 F.3d 1027 (D.C. Cir. 1999), *reh'g granted in part and denied in part*, 195 F.3d 4 (D.C. Cir. 1999), *aff'd in part and rev'd in part sub nom. Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457 (2001). Although the Clean Air Act requires EPA to review and update the NAAQS every five years, EPA did not timely review this 1997 ozone NAAQS, leading to a lawsuit forcing it to carry out its mandatory duty under 42 U.S.C. § 7409(d). *Am. Lung Ass'n v. Whitman*, No. 03-CV-778 (D.D.C. 2003). In the review process, the Clean Air Scientific Advisory Committee (CASAC), which is charged with reviewing the air quality criteria and NAAQS and making scientific recommendations on them, unanimously found that the primary NAAQS should be revised to a level between 60 and 70 ppb. In 2008, EPA disagreed with CASAC and set the primary standard at 75 ppb. 73 Fed. Reg. 16,436 (Mar. 27, 2008). EPA subsequently promulgated area designations under that NAAQS on May 21, 2012, effective July 20, 2012. 77 Fed. Reg. 30,088 (May 21, 2012).

As EPA was establishing the 2008 ozone NAAQS, it was also attempting to address the interstate transport implications of the 1997 NAAQS. This included the 2005 CAIR (70 Fed. Reg. 25,162 (May 12, 2005)), which was the subject of litigation and ultimately vacated (*see North Carolina v. EPA*, 531 F.3d 896, 921 (D.C. Cir. 2008) (per curiam)), but then subsequently left in place pending EPA resolution of problems in CAIR that the Court had identified. *North*

Carolina v. EPA, 550 F.3d 1176, 1178 (D.C. Cir. 2008) (per curiam). CAIR covered 28 states and the District of Columbia and set up an interstate trading program to control SO_2 and NO_x.

EPA adopted the 2008 ozone NAAQS of 75 ppb on March 12, 2008, triggering EPA's obligation to promulgate nonattainment designations by March 12, 2010. 73 Fed. Reg. at 16,503, 16,511; *see NRDC v. EPA*, 777 F.3d 456, 463 (D.C. Cir. 2014). EPA extended the two-year deadline by an additional year, to March 12, 2011, then missed the extended deadline. *See* 77 Fed. Reg. at 30,088, 30,090-91; *NRDC*, 777 F.3d at 463. Organizations representing those affected by this dereliction filed suit to compel the designations. In response, EPA designated 46 nonattainment areas (many containing multiple counties), effective July 20, 2012—36 of them marginal, three moderate, two serious, three severe, and two extreme. 77 Fed. Reg. at 30,160, 30,163.[19]

Although the Act provides that attainment deadlines are calculated from the date of designation—here, July 20, 2012—EPA attempted to extend those attainment deadlines by several months, to December 31 of the corresponding year. *NRDC*, 777 F.3d at 463; 77 Fed. Reg. at 30,160. Conservation groups filed suit once more, and the D.C. Circuit Court rejected the delay of attainment deadlines as "untethered to Congress's approach." *NRDC*, 777 F.3d at 469. In response, EPA affirmed that attainment deadlines for marginal and moderate ozone nonattainment areas are July 20, 2015 and July 20, 2018, respectively. 80 Fed. Reg. 12,264, 12,268/2 (Mar. 6, 2015).[20] Meanwhile, on July 13, 2015, EPA finally made findings that 24 states had failed to submit plans fulfilling their good neighbor obligations under 42 U.S.C. § 7410(a) by the statutory deadline of March 12, 2011. 81 Fed. Reg. 74,504, 74,512/1 (Oct. 26, 2016). These findings, in turn, triggered EPA's obligation to issue a FIP within two years. 42 U.S.C. § 7410(c)(1).

On a parallel track, EPA issued CSAPR in 2011 to address interstate transport of SO2 and NOx that contributed to, among other things, exceedances of the 1997 ozone NAAQS. CSAPR covered 27 states in the eastern U.S. Under CSAPR, EPA employed an initial screening step, removing from the program states whose emissions to downwind nonattainment and maintenance areas constituted a contribution of less than 1 percent of the relevant NAAQS. *EPA v. EME Homer City Generation LP*, 572 U.S. 489, 500-01 (2014). Those states that contributed

---

[19] Several areas were subsequently reclassified. *See* 81 Fed. Reg. 90,207 (Dec. 14, 2016).

[20] Several marginal nonattainment areas were subsequently granted one-year extensions of the applicable attainment deadline, to July 20, 2016, pursuant to 42 U.S.C. § 7511(a)(5). *See* 81 Fed. Reg. 26,697 (May 4, 2016).

more than this *de minimis* 1 percent level were incorporated into CSAPR and were required to reduce emissions based on modeling of cost-effective emission reductions necessary to resolve transport of the criteria pollutants. *Id.* CSAPR became operative in 2015.

On September 7, 2016, EPA issued the "CSAPR Update" to address interstate transport of ozone for the 2008 ozone NAAQS in the eastern United States. In the CSAPR Update, EPA concluded that upwind ozone pollution continues to be a major driver of elevated ozone levels in downwind states, including citing one study that found that "on average 77 percent of each state's ground-level ozone is produced by precursor emissions from upwind states." 81 Fed. Reg. at 74,514.[21] EPA established 2017 budgets for 22 states with the goal of promoting downwind attainment of the 2008 ozone standard. Rather than discharging EPA's statutory obligation to prohibit interstate air pollution as required by the good neighbor provision, however, the 2016 rule was, by EPA's admission, a half measure, intended only to "mitigate" upwind contributions. *See* 81 Fed. Reg. at 75,512/1. As EPA explained in the final rule, "when all the emission reductions required by this rule are in place, both attainment and maintenance problems at downwind receptors may remain." *Id.* at 75,520/3. "[T]he emission reductions required by this rulemaking do not fully resolve most of the air quality problems identified in this rule." *Id.* at 75,536/2.

Nonetheless, in 2018, the Trump EPA decided against additional action and finalized the "CSAPR Close-Out Rule." 83 Fed. Reg. 31,915 (July 10, 2018). EPA asserted that states would be in attainment of the 2008 ozone standard by 2023. The Agency determined that the CSAPR Update "fully addresses certain states' obligations under the good neighbor provision of the Clean Air Act (CAA) regarding interstate pollution transport for the 2008 ozone NAAQS." 85 Fed. Reg. at 65,878/1 (Dec. 21, 2018). The Close-Out Rule points to a 2017 EPA analysis and claims that there would no longer be states with nonattainment designations in the eastern U.S. by 2023.[22]

Several environmental groups challenged the CSAPR Update in 2019. *Wisconsin v. EPA*, 938 F.3d 303. The *Wisconsin* court held that the Clean Air Act "require[s] upwind States to

---

[21] *See* Jiang et al., Unexpected slowdown of US pollutant emission reduction in the past decade, PNAS (Apr. 30, 2018), attached as Exhibit 4.

[22] EPA, Memorandum from Director Stephen D. Page regarding Supplemental Information on the Interstate Transport State Implementation Plan Submissions for the 2008 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(1) (Oct. 27, 2017), at 1, https://www.epa.gov/sites/production/files/2017-10/documents/final_2008_o3_naaqs_transport_memo_10-27-17b.pdf, attached as Exhibit 5.

eliminate their significant contributions in accordance with the deadline by which downwind States must come into compliance with the NAAQS," *id*. at 313. Another group of states and environmental groups challenged the Close-Out Rule, and the U.S. Court of Appeals vacated the rule, finding that EPA must abide by the 2021 attainment deadline. *New York v. EPA*, 781 F. App'x 4, 7 (D.C. Cir. 2019). In February 2020, a coalition of environmental groups and a group of states consisting of New Jersey, Connecticut, Delaware, New York, Massachusetts, and New York City filed additional lawsuits to compel EPA to act. In response to the States' suit, the Southern District of New York ordered EPA to act to address ozone transport by March 15, 2021. *New Jersey v. Wheeler*, 2020 WL 4331604 (S.D.N.Y. July 28, 2020). Environmental groups' case in the U.S. District Court for D.C. is currently held in abeyance until March 15.

This proposed rule—the Revised CSAPR Update for the 2008 ozone NAAQS—addresses the remand of the CSAPR Update by the U.S. Court of Appeals for the D.C. Circuit on September 13, 2019. *Wisconsin v. EPA*, 938 F.3d 303.

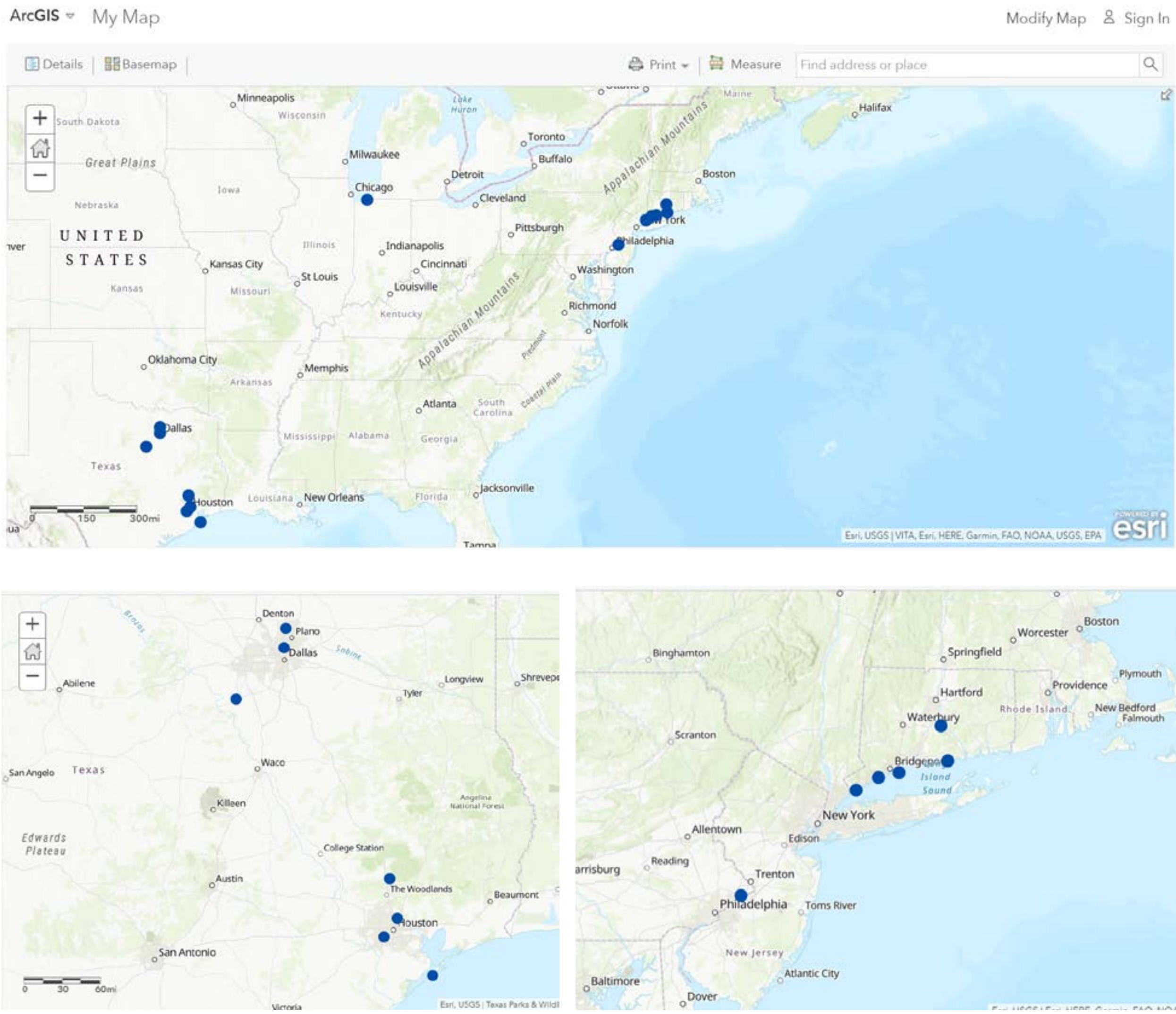
As explained below, the current proposal promises even more delay for communities burdened by unhealthy air. While it proposes to incrementally reduce the amount of ozone pollution that upwind states can emit, it is ultimately inadequate to meet the core requirement of the Clean Air Act—healthy air for all. Instead, it represents yet another partial step forward.

The delay represented by this proposal is particularly egregious with respect to EPA's continued refusal to limit NOx pollution from major polluters other than power plants. EPA has been citing an alleged lack of information on non-power plant sources of NOx pollution to avoid controlling these sources for more than a decade. EPA cited lack of information to justify declining to require reductions from non-power plant sources for the Clean Air Interstate Rule <u>in 2005</u>, claiming it was "working to improve its inventory of emissions and control cost information." 70 Fed. Reg. 25,162, 25,214-15 (May 12, 2005). Eleven years later, in the 2016 Transport Rule, EPA was "still in the process," and again declined to require reductions. 81 Fed. Reg. at 74,522/2. In this rule, EPA again relies on lack of information and uncertainty to justify its decision not to require any reductions from these sources—even though such reductions are needed for attainment and maintenance of the 2008 ozone standard downwind. This is unlawful and arbitrary. EPA "has offered no good reason for treating this problem with such passivity," *Pub. Citizen v. Fed. Motor Carrier Safety Admin.*, 374 F.3d 1209, 1222 (D.C. Cir. 2004), particularly because the Act grants EPA authority to collect the information it needs, 42 U.S.C. § 7414(a)(1). "Having chosen not to [collect the appropriate data], EPA cannot now rely on the resulting paucity of data[.]" *North Carolina*, 531 F.3d at 920.

III. INTERSTATE TRANSPORT CONTRIBUTES TO EASTERN STATES' ONGOING DIFFICULTIES IN ATTAINING AND MAINTAINING THE 2008 OZONE STANDARD.

More than 12 years after the 2008 ozone standard was issued, and 9 years after most areas were required to comply, several areas of the Eastern United States (including Texas) are still failing to attain and maintain the standard. 14 monitors in nonattainment and maintenance areas for the 2008 ozone standard recorded ozone levels (measured by design value, or DV) above the standard in 2019. *See* Figure 1.

Figure 1: ***Sites in nonattainment of the 2008 Ozone Standard (DV 2019 >75 ppb) with close-up of Mid-Atlantic and Texas***



Source:https://services.arcgis.com/cJ9YHowT8TU7DUyn/ArcGIS/rest/services/ALL_NAAQS_Design_Values_2019/FeatureServer/11

Note that there is no valid data for New York monitor 360850067 on Staten Island, Richmond County beyond DV 2017.

Table 1 shows EPA reported data for 2019 design values in current nonattainment areas.[23]

Table 1: Nonattainment areas with EPA reported DV 2019 data above the 2008 standard

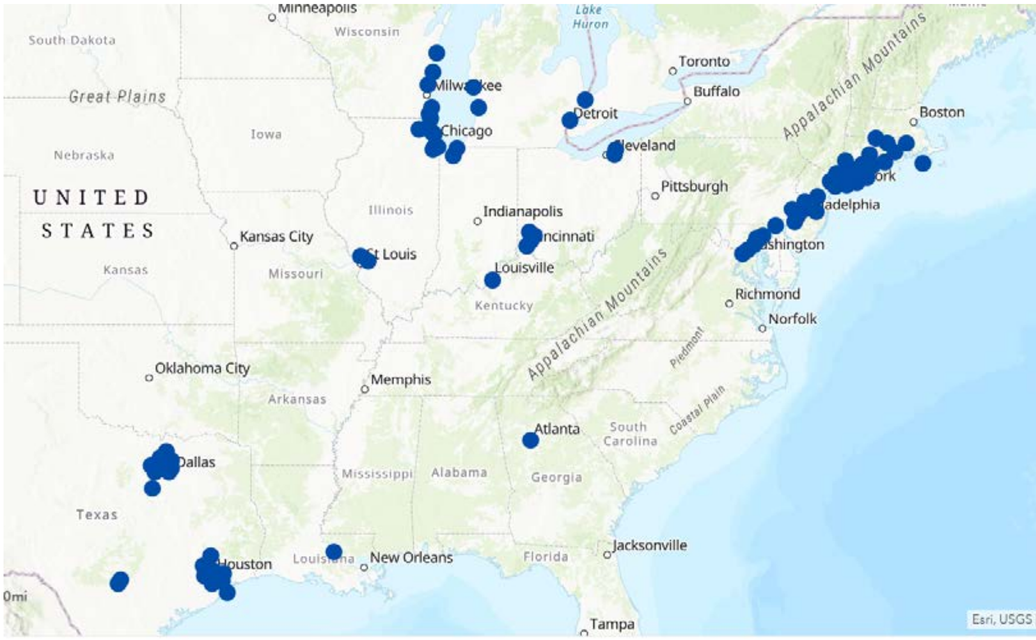
Designated Area	Designation Status	Classification	2017-2019 Design Value (ppm)
Dallas-Fort Worth, TX	Nonattainment	Serious	0.077
Houston-Galveston-Brazoria, TX	Nonattainment	Serious	0.081
New York-N. New Jersey-Long Island, NY-NJ-CT	Nonattainment	Serious	0.082
Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	Nonattainment	Marginal	0.076

LaPorte County in Indiana, in the region of Michigan City-La Porte, IN, was also not in attainment, according to EPA's monitoring data, with monitor 180910005 reporting a 2019 design value of 0.076 ppm. And preliminary data for 2020 indicates that the design value at that receptor has actually increased.

Notably, actions not taken to meet the 2008 standard only make meeting the 2015 standard more difficult, a fact that the EPA must consider here. Figure 2 shows the sites that exceed the 2015 ozone standard based on their current design values. Not only are the same areas failing to attain the 2008 standard showing up as not attaining the 2015 standard, but numerous additional regions of the Eastern U.S. are experiencing unhealthy ozone levels.

[23] *See* Air Quality Design Values | National Air Quality: Status and Trends of Key Air Pollutants | US EPA," o3_designvalues_2017_2019_final_05_26_20," Table 1b. Design Values in Areas Previously Designated Nonattainment for the 2008 8-Hour Ozone NAAQS.

Figure 2: Sites in nonattainment of the 2015 Ozone Standard (DV 2019 >0.070 ppm)



Source:https://services.arcgis.com/cJ9YHowT8TU7DUyn/ArcGIS/rest/services/ALL_NAAQS_Design_Values_2019/FeatureServer/11

A. EPA's modeling does not align with monitoring data and must include more receptor sites.

One of the first steps EPA took in the analytic process for this proposed rule was to identify receptor sites with attainment and maintenance problems. EPA made projections of ambient ozone levels—expressed as design values—at ozone monitoring sites in non-attainment and maintenance areas. EPA estimated both an average and a maximum design value for each receptor site to represent nonattainment and maintenance problems, respectively. 85 Fed. Reg. at 68,984-85. The basis of these projections was centered around 2016, the year with the most recent and comprehensive emission inventory, *see id.* at 68,982, and included a 5-year window of 2014-2018 8-hour ozone design values that were then modeled forward.[24] Air quality in future years was simulated using the Comprehensive Air Quality Model with Extensions (CAMx

[24] The 2016 base year centered ozone is the average ambient 8-hour ozone design values for the period 2014 through 2018 (i.e., the average of design values for 2014-2016, 2015-2017 and 2016-2018) to calculate the 5-year weighted average design values for the 2016-centered year to coordinate with this base emission year. *See* EPA, Air Quality Modeling Technical Support Document for the Proposed Revised Cross-State Air Pollution Rule Update, at 9 (Oct. 2020), EPA-HQ-OAR-2020-0272-0064.

version 7beta 6).[25] These data are shown in Table 2 for each receptor site EPA identified in the Revised CSAPR Update proposal; two sites in Connecticut that would not attain the 2008 standard in 2021 and one site each in Connecticut and Texas that would likely not achieve maintenance of the standard in 2021.

EPA's method for identifying receptor sites must take full account of actual monitoring data where it contradicts EPA's modeled and interpolated values. In order to estimate design values for 2021, EPA modeled levels for 2023 and then did a linear interpolation to predict levels in 2021. 85 Fed. Reg. at 68,985. The agency's selection of receptor sites was based on these 2021 results in conjunction with the 2019 design value nonattainment status. *Id.* at 68,986 n.90. More specifically, EPA describes its method in selecting receptor sites:

> [W]e evaluated 2021 projected average and maximum design values in conjunction with the most recent measured ozone design values (i.e., 2019) to identify sites that may warrant further consideration as potential nonattainment or maintenance sites in 2021. Those monitoring sites with 2021 average design values that exceed the NAAQS (i.e., 2021 average design values of 76 ppb or greater) and that are currently measuring nonattainment are considered to be nonattainment receptors in 2021. Similarly, monitoring sites with a projected 2021 maximum design value that exceeds the NAAQS would be projected to be maintenance receptors in 2021. In the CSAPR Update approach, maintenance-only receptors include both those monitoring sites where the projected average design value is below the NAAQS, but the maximum design value is above the NAAQS, and monitoring sites with projected 2021 average design values that exceed the NAAQS, but for which current design values based on measured data do not exceed the NAAQS.[26]

EPA's failure to include all sites that are currently measuring nonattainment, including those with 2019 design values greater than 75 ppb, in addition to those that had both 2021 average and the 2019 design values greater than 75 ppb,[27] ensures that the proposal is weaker than it can and

---

[25] Ramboll Environment and Health, May 2020, www.camx.com. Note that CAMx v7beta6 is a pre-lease of CAMx version 7 that was used by EPA because the official release of version 7 did not occur until May 2020, which was too late for use in the air quality modeling for this proposed rule. The scripts used for the CAMx model simulations can be found in the following file in the docket: CAMx Model Simulation Scripts.docx. *See* EPA, Air Quality Modeling Technical Support Document for the Proposed Revised Cross-State Air Pollution Rule Update, at 2 (Oct. 2020), EPA-HQ-OAR-2020-0272-0064.

[26] EPA, Air Quality Modeling Technical Support Document for the Proposed Revised Cross-State Air Pollution Rule Update, at 8 (Oct. 2020), EPA-HQ-OAR-2020-0272-0064.

[27] *See* 85 Fed. Reg. 68,986 n.20 ("EPA examined the 2019 design values as a way to support the set of monitoring sites that were identified as receptors based on the 2021 interpolated design values. The outcome of this analysis was that each of the five receptors in 2021 had 2019

must be. A more conservative approach is warranted due to the variation in modeling results from actual measurements discussed below. In Table 3 we highlight (shaded rows) the sites that EPA should have included as receptors for 2021. We include New York monitor 360850067 in Richmond County, even though no 2019 design value data was available, because, given this site's history of nonattainment, lack of data cannot rationally be interpreted as compliance.

EPA made ozone predictions from model simulations to project 5-year weighted average ambient design values at each site in 2016 to the year 2023. 85 Fed. Reg. at 68,985.[28] Relying largely on a 5-year average is problematic as it is smoothing the data on a metric that is already adjusted for interannual variability (the design value is already a 3-year average). Also of concern is that the projected design values for 2021 are based on an interpolation between the 2016-centered average and maximum design values and the corresponding average and maximum design values projected for 2023. This approach is simplistic and proves inadequate as is evident by using it to estimate 2019 design values and then comparing them to the 2019 design values actually recorded at monitors. *See* Table 3. Out of 26 sites with 2019 design values presented, 21 were higher than the interpolated values, by an average of 2.4 ppb. *See* Table 4. Nine of the sites had differences of 3 ppb or greater. The five sites that had lower actual DV2019 than estimated by EPA had an average difference of only -0.8 ppb. Thus, EPA's interpolation technique has the clear effect of understating actual ozone levels, yet EPA fails to rationally grapple with this tendency. EPA should not use its projections to exclude sites from the protections of this rule, and should instead include all receptor sites that are currently exceeding the 2008 standard based on the most recent, 2019 design value.

measured design values that exceeded the 2008 NAAQS. In addition, there are four other monitoring sites in the eastern U.S. that are not projected to be receptors in 2021, but that have 2019 design values that exceeded the NAAQS. Because the measured design values at these sites are only 1 or 2 ppb above the NAAQS, it is reasonable to assume that these four sites will be clean by 2021—which is consistent with the projections for these monitoring sites.").

[28] EPA, Air Quality Modeling Technical Support Document for the Proposed Revised Cross-State Air Pollution Rule Update, at 9 (Oct. 2020), EPA-HQ-OAR-2020-0272-0064.

Table 2. EPA-identified problem receptor sites for 5-year base period and modeled design values.[29] 2016-Centered, 2021 average and maximum design values, and 2019 design values at projected nonattainment and maintenance-only receptor sites in the Eastern U.S. (units are ppb).

Nonattainment Receptors							
Monitor ID	State	Site	2016-Centered Average	2016-Centered Maximum	2021 Average	2021 Maximum	DV2019
090013007	CT	Stratford	83.0	83	76.5	77.4	82
090019003	CT	Westport	82.7	83	78.5	78.9	82
Maintenance-Only Receptors							
090099002	CT	Madison	79.7	82	74.0	76.1	82
482010024	TX	Houston	79.3	81	75.5	77.1	81

[29] 85 Fed. Reg. at 68,986, Table VI.C-1.

Table 3. Ozone monitoring sites for 5-year base period and modeled design values where the 2016-Centered average and/or maximum design values were > 75 ppb, EPA estimated 2021 values, and monitored 2019 design values in the Eastern U.S. (units are ppb).

Monitor ID (AQS Code)	**State**	**County**	2016-Centered Average	2016-Centered Maximum	2021 Average	2021 Maximum	Monitoring DV2019
090010017	Connecticut	Fairfield	79.3	80	75.0	75.7	81
090011123	Connecticut	Fairfield	77	78	70.9	71.8	73
090013007	Connecticut	Fairfield	82.0	83	76.5	77.4	82
090019003	Connecticut	Fairfield	82.7	83	78.5	78.8	82
090079007	Connecticut	Middlesex	78.7	79	71.8	72.1	77
090090027	Connecticut	New Haven	75.7	77	69.9	71.1	75
090099002	Connecticut	New Haven	79.7	82	73.9	76.1	82
090110124	Connecticut	New London	74.3	76	68.8	70.5	75
340070002	New Jersey	Camden	75.3	77	69.2	70.7	73
360850067	New York	Richmond	76.0	76	71.2	71.2	NA
361030002	New York	Suffolk	74.0	76	69.0	70.8	74
361030004	New York	Suffolk	74.3	76	69.0	70.7	72
420170012	Pennsylvania	Bucks	79.3	81	72.8	74.4	76
421010024	Pennsylvania	Philadelphia	77.7	78	71.3	71.5	75
421010048	Pennsylvania	Philadelphia	75.3	76	69.0	69.7	74
481210034	Texas	Denton	78.0	80	70.6	72.5	73
481211032	Texas	Denton	74.0	76	67.0	68.8	71
481671034	Texas	Galveston	75.7	77	71.5	72.7	76

482010024	Texas	Harris	79.3	81	75.5	77.1	81
482010047	Texas	Harris	73.7	76	69.2	71.4	73
482010055	Texas	Harris	76	77	71.5	72.4	77
482010066	Texas	Harris	75.0	76	69.6	70.5	71
484393009	Texas	Tarrant	75.3	76	68.5	69.1	75
550590019	Wisconsin	Kenosha	78.0	79	73.1	74.1	75
550590025	Wisconsin	Kenosha	73.7	77	69.2	72.3	74
551010020	Wisconsin	Racine	76.0	78	71.3	73.2	74
551170006	Wisconsin	Sheboygan	80.0	81	75.0	75.9	75

*Ozone_Design_Values_Contributions_Proposed_Revised_CSAPR_Update, EPA-HQ-OAR-2020-0272-0064; Air Quality Design Values | National Air Quality: Status and Trends of Key Air Pollutants | US EPA, "o3_designvalues_2017_2019_final_05_26_20," Table 5. Site-Level Design Values for the 2015 8-Hour Ozone NAAQS, EPA-R03-OAR-2020-0268-0007, attached as Exhibit 6.

Table 4. All previously identified ozone sites for 5-year base period and modeled design values. 2016-Centered, 2021 average and maximum design values, and 2019 design values at projected nonattainment and maintenance-only receptor sites in the Eastern U.S. (units are ppb).

Monitor ID (AQS Code)	**State**	**County**	2016-Centered Average	2021 Average	DV 2019	Interpolated Avg. DV2019	Diff
90010017	Connecticut	Fairfield	79.3	75.0	81	76.8	4.2
90011123	Connecticut	Fairfield	77.0	70.9	73	73.4	-0.4
90013007	Connecticut	Fairfield	82.0	76.5	82	78.7	3.3
90019003	Connecticut	Fairfield	82.7	78.5	82	80.2	1.8
90079007	Connecticut	Middlesex	78.7	71.8	77	74.6	2.4
90090027	Connecticut	New Haven	75.7	69.9	75	72.3	2.7
90099002	Connecticut	New Haven	79.7	73.9	82	76.3	5.7
90110124	Connecticut	New London	74.3	68.8	75	71.0	4.0
340070002	New Jersey	Camden	75.3	69.2	73	71.7	1.3

360850067	New York	Richmond	76.0	71.2	NA	73.1	NA
361030002	New York	Suffolk	74.0	69.0	74	71.0	3.0
361030004	New York	Suffolk	74.3	69.0	72	71.2	0.8
420170012	Pennsylvania	Bucks	79.3	72.8	76	75.4	0.6
421010024	Pennsylvania	Philadelphia	77.7	71.3	75	73.9	1.1
421010048	Pennsylvania	Philadelphia	75.3	69.0	74	71.6	2.4
481210034	Texas	Denton	78.0	70.6	73	73.6	-0.6
481211032	Texas	Denton	74.0	67.0	71	69.8	1.2
481671034	Texas	Galveston	75.7	71.5	76	73.2	2.8
482010024	Texas	Harris	79.3	75.5	81	77.0	4.0
482010047	Texas	Harris	73.7	69.2	73	71.0	2.0
482010055	Texas	Harris	76.0	71.5	77	73.3	3.7
482010066	Texas	Harris	75.0	69.6	71	71.8	-0.8
484393009	Texas	Tarrant	75.3	68.5	75	71.2	3.8
550590019	Wisconsin	Kenosha	78.0	73.1	75	75.1	-0.1
550590025	Wisconsin	Kenosha	73.7	69.2	74	71.0	3.0
551010020	Wisconsin	Racine	76.0	71.3	74	73.2	0.8
551170006	Wisconsin	Sheboygan	80.0	75.0	75	77.0	-2.0

Ozone_Design_Values_Contributions_Proposed_Revised_CSAPR_Update, EPA-HQ-OAR-2020-0272-0064; Air Quality Design Values | National Air Quality: Status and Trends of Key Air Pollutants | US EPA, "o3_designvalues_2017_2019_final_05_26_20," Table 5. Site-Level Design Values for the 2015 8-Hour Ozone NAAQS.

B. EPA's rule must reflect the modeling contributions for all receptor sites that exceeded the standard based on 2019 design values.

Table 5 shows the receptor sites we identified based on DV2019 monitoring values (see Table 3 above) and the largest contributing states in 2021, above 1%, based on EPA's modeling assessment. EPA should update its proposal to address the contribution assessment of all of these receptor sites which are currently experiencing attainment and maintenance difficulties.

Table 5. Significant contributor states in 2021 to EPA receptor sites exceeding the 2008 ozone standard in 2019. Contributor states based on EPA's Revised CSAPR Update modeling results.

AQS Site ID	State	County	AL	AR	CT	DE	IN	LA	MD	MI	MS	NJ	NY	OH	PA	TX	VA	WV
90010017	CT	Fairfield	0.03	0.10	6.31	0.31	0.87	0.12	0.69	1.35	0.05	7.77	18.62	1.54	6.02	0.34	0.61	0.79
90013007	CT	Fairfield	0.11	0.18	4.16	0.43	0.99	0.27	1.21	1.16	0.10	7.70	14.42	2.34	6.72	0.58	1.29	1.45
90019003	CT	Fairfield	0.11	0.17	2.73	0.43	1.26	0.27	1.20	1.71	0.10	8.62	14.44	2.55	6.86	0.59	1.30	1.49
90079007	CT	Middlesex	0.13	0.22	5.33	0.37	1.16	0.35	1.19	1.21	0.13	5.11	10.70	3.09	6.09	0.74	1.35	1.62
90099002	CT	New Haven	0.07	0.15	3.96	0.53	1.08	0.15	1.56	1.62	0.07	5.71	12.54	2.35	5.64	0.36	1.69	1.55
360850067	NY	Richmond	0.06	0.07	0.44	0.32	0.89	0.06	1.17	1.47	0.03	12.00	9.82	1.62	7.35	0.26	0.96	1.09
420170012	PA	Bucks	0.07	0.10	0.23	1.56	0.75	0.11	3.14	0.52	0.03	6.44	2.13	2.45	19.20	0.38	2.12	2.03
481671034	TX	Galveston	1.32	0.96	0.00	0.00	0.62	9.36	0.00	0.31	1.59	0.00	0.01	0.65	0.02	20.72	0.02	0.06
482010024	TX	Harris	0.27	0.08	0.00	0.00	0.02	4.68	0.00	0.00	0.37	0.00	0.00	0.00	0.00	32.68	0.00	0.00
482010055	TX	Harris	0.44	1.09	0.00	0.00	0.11	5.70	0.00	0.00	0.61	0.00	0.00	0.03	0.00	30.83	0.01	0.00

Ozone_Design_Values_Contributions_Proposed_Revised_CSAPR_Update, EPA-HQ-OAR-2020-0272-0064.

EPA's remedy must account for the needed reductions to achieve compliance based on its own design value metric. For example, the site 90010017 in Fairfield County, Connecticut, has 4th highest values of 86 and 84 ppb in 2018 and 2019.[30] Based on these values, the 4th highest value needs to be reduced to 55 ppb in the final year for Connecticut to timely attain the standard in that year. Failing to establish a remedy that reflects the level of reductions needed to eliminate significant contributions to air quality issues under the 2008 standard makes this proposal incomplete. And this analysis shows that EPA's proposal does not go far enough.

EPA's proposed rule relies too heavily on modeled data and undervalues the actual, monitored data that is currently available and, in some cases as discussed above, offers conflicting evidence.

IV. THE PROPOSAL FAILS TO PROTECT COMMUNITIES OF COLOR AND LOW-INCOME COMMUNITIES DISPROPORTIONATELY BURDENED BY UNHEALTHY OZONE POLLUTION.

A. EPA must finalize additional NOx reductions.

As proposed, this rule allows continued interstate ozone pollution that will disproportionately harm communities of color, low-income communities, and children,

---

[30] Air Quality Design Values | National Air Quality: Status and Trends of Key Air Pollutants | US EPA, "o3_designvalues_2017_2019_final_05_26_20," Table 5. Site-Level Design Values for the 2015 8-Hour Ozone NAAQS.

perpetuating environmental injustice. Because the Clean Air Act is centrally concerned with ensuring clean air for all, EPA must require further reductions in NOx emissions from both electric generating units (EGUs) and non-EGUs, reduce VOC emissions in VOC-constrained regions, and place limits on the trading of emission credits.

The Clean Air Act is centrally concerned with protecting environmental justice communities and children from harm, as EPA has recognized. *Ethyl Corp v. EPA*, 541 F.2d 1, 41 n.89 (D.C. Cir. 1976) (Act is intended to protect "the most vulnerable in our population" (quoting Hearings on S. 3229, S. 3455, S. 3546 before the Subcomm. on Air and Water Pollution of the Senate Comm. on Public Works, 91st Cong., 2d Sess, at 74 (1970) (statement of Senator Muskie))); 79 Fed. Reg. 75,234, 75,244 n.15 (Dec. 17, 2014) (recognizing that clean air rules should protect vulnerable "at-risk" groups, including groups with lower socioeconomic status.). Yet, this proposal unreasonably and arbitrarily fails to consider the harm to public health and welfare in environmental justice communities from the continued downwind attainment and maintenance problems it allows. EPA's proposal does not address, for example, how many children and adults will die from exposure to elevated ozone in the affected downwind areas between now and 2025 as a result of the agency's failure to adopt a stronger rule, how many will experience asthma attacks, or how many will suffer permanent lung damage. As EPA has repeatedly recognized, children are especially vulnerable to the harmful effects of ozone, including asthma. *E.g.*, 80 Fed. Reg. at 65,310/3, 65,446/1; Earthjustice Comments on CSAPR Close-Out Rule (Aug. 31, 2018) (EPA, Ozone and Children's Health), attached as Exhibit 7. Asthma-related hospitalizations and deaths are elevated "among children in general and black children in particular." 62 Fed. Reg. at 38,864/2. In fact, "Black children are two times as likely to be hospitalized for asthma and are four times as likely to die from asthma as White children."[31] Yet EPA fails to consider that its proposal will exacerbate the serious racial health disparities that afflict this country. EPA must strengthen the rule to secure clean air for every community afflicted by interstate air pollution from upwind states that significantly contribute to downwind pollution, or rationally explain why it is choosing to prioritize industry compliance costs over.[32]

---

[31] EPA, Children's Environmental Health Disparities: Black and African American Children and Asthma at 3, https://www.epa.gov/sites/production/files/2014-05/documents/hd_aa_asthma.pdf (accessed December 11, 2020) ("Black children are two times as likely to be hospitalized for asthma and are four times as likely to die from asthma as White children."), attached as Exhibit 8.

[32] *See Sec'y of Labor, Mine Safety and Health Admin. V. Nat'l Cement Co. of California*, 494 F.3d 1066, 1074-75 (D.C. Cir. 2007); *PDK Labs., Inc. v. U.S. DEA*, 362 F.3d 786, 796 (D.C. Cir. 2004) ("the problem Congress sought to solve should be taken into account."); State Farm, 463 U.S. at 43.

EPA's proposal allows interstate air pollution to continue to contribute to nonattainment or interfere with maintenance of the 2008 ozone standard in Houston, Harris County, TX, and Fairfield and New Haven, CT, 85 Fed. Reg. 69,001, Tbl. VII.D.1-1, beyond the 2021 deadline for attainment. U.S. Census data from 2018[33] show that the downwind areas that continue to experience violations of the 2008 ozone standard due to transported pollution are disproportionately LatinX, Black, and low-income. The disparity in the populations that EPA proposes to allow to continue to bear significant upwind contributions to ozone pollution in violation of the standard compared to the Eastern Region is stark.[34] For example, people living in Harris County, Texas are nearly twice as likely to be LatinX or people of color (69.9% compared to 35.6% in the Eastern Region[35]), more than three times more likely to be LatinX (42.6% compared to 14.1% in the Eastern Region; and 17.6% and 19.3% for New Haven and Fairfield Counties, CT), and nearly 25% more likely to live below the poverty level (16.6% compared to 13.4% in the Eastern Region).

Houston receives significant contributions from only one state: Louisiana. Despite this—and the fact that Louisiana has the highest NOx emissions budget in 2021 of the relevant states, EPA proposes only a 3.4% NOx reduction from 2021 to 2022 with no tightening of the budget beyond that. 85 Fed. Reg. 68,969, Tbl. 1.B-1. For comparison, in states with similar NOx emissions budgets in 2021, like West Virginia, Kentucky, and Indiana, EPA requires a 13.7%, 17.0%, and 24.4% NOx reduction over the course of the program respectively. *Id.* (West Virginia, 13,686 to 11,810 ozone season tons; Kentucky, 14,383 to 11,936; and Indiana, 12,500 to 9,447; compared to Louisiana, 15,402 to 14,871). EPA's own analysis shows that the air quality improvement in the Houston area from these small pollution reductions will be paltry, reducing the maximum design value—EPA's test for maintenance problems—by a mere 0.13 ppb in 2021.[36] Further, even this minimal air quality improvement is overstated, because it is

---

[33] 2018 ACS 5-Year Estimates tables (race); 2018 ACS 1-Year Estimates tables (poverty status). *See* Earthjustice, Ozone Transport – EJ Demo Analysis 2018 update v1.xlsx, attached as Exhibit 9.

[34] The Eastern Region includes the states EPA analyzed in the Cross State Air Pollution Rule, plus Washington D.C.: Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, West Virginia, and Wisconsin. 76 Fed. Reg. 48,208, at 48,239 (Aug. 8, 2011).

[35] Non-Hispanic White alone represents 30.1%, so the remaining 69.9% include Hispanic/LatinX people and people of color. *See* 2018 ACS 5-Year Estimates tables (Hispanic or Latino and Race); Earthjustice, Ozone Transport – EJ Demo Analysis 2018 update v1.xlsx.

[36] EPA, Ozone_Design_Values_Contributions_Proposed_Revised_CSAPR_Update, EPA-HQ-OAR-2020-0272-0064.

based on EPA's counterfactual assumption that downwind states—namely, Texas—will implement the control measures adopted by upwind states. 85 Fed. Reg. 69,001/1. But EPA has not required any such reduction in Texas's emissions, or provided any other basis to assume that these reductions will actually materialize. EPA's baseless assumption is therefore arbitrary.

In addition to downwind environmental justice impacts discussed above, EPA's decision not to eliminate significant contributions to this pollution will also expose upwind communities that contain the sources emitting ozone precursors to continued high levels of pollution.

Separately, Executive Order 12898 requires that EPA "shall" identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on communities of color, indigenous communities, and low-income communities. Executive Order No. 12,898, § 1-101, 59 Fed. Reg. 7629 (Feb.16, 1994). However, EPA's proposed rule allows continued interstate ozone pollution contributing to violations of the 2008 and 2015 health-based standard for ozone, yet EPA fails to identify or address the disproportionately high and adverse impact of this pollution on communities of color and low-income communities. This failure conflicts with Executive Order 12898.

Additionally, Executive Order 13045 requires that EPA "identify and assess environmental health risks and safety risks that may disproportionately affect children" and "ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks." Executive Order No. 13,045, § 1-101(a)-(b), 62 Fed. Reg. 19,885 (Apr. 23, 1997). Even though EPA has consistently recognized that children are more vulnerable to asthma, scarring of the lungs, and other health harms from exposure to ground-level ozone,[37] EPA has failed to identify and assess the health risks to children from its decision to authorize continued interstate ozone pollution that contributes to violations of the 2008 and 2015 ozone air quality standards in downwind states. In addition, by authorizing continued pollution that will harm children, EPA has failed to ensure that its policies, programs, activities, and standards address the disproportionate risks to children from the environmental health risk of ozone. These failures by EPA conflict with Executive Order 13045.

The agency's attempt to justify its failure to identify and address disproportionately high and diverse impacts on environmental justice communities is unlawful and arbitrary, and contrary to Executive Orders 12898 and 13045. EPA cannot ignore the disproportionately high and adverse effects its proposed rule allows now—and which result from years of unlawful and arbitrary inaction or inadequate action—on the basis that it may be less disproportionately high and adverse in the future. *See* 85 Fed. Reg. 69,036. EPA could act to reduce these disparities quickly, and its choice not to is unlawful and arbitrary.

---

[37] E.g., EPA Fact Sheet, Ozone and Children's Health (2015), attached as Exhibit 10.

Further, NOx reductions are especially important during a pandemic that is disproportionately affecting the same communities already overburdened by air pollution.[38] And, exposure to NOx and ozone pollution is correlated with increased COVID-19 cases and COVID-19 related lethality.[39]

B. EPA must finalize VOC reductions.

Given the disproportionately high and adverse impact of the proposed rule's allowed pollution to downwind communities and children, EPA's must reduce VOCs in addition to NOx.

Ozone formation requires both NOx and VOCs, *see Am. Trucking Ass'ns v. EPA*, 283 F.3d 355, 359 (D.C. Cir. 2002) (citing Office of Air Quality Planning and Standards, U.S. EPA, EPA/451-K-97-002, Ozone: Good Up High, Bad Nearby 2-3 (1997)), and many urban areas are VOC-limited.[40] In those areas, ozone concentrations are driven primarily by VOC emissions.[41] Houston—the largest city in Harris County, Texas—is unique nationally in that it is comprised

---

[38] CDC, Health Equity Considerations and Racial and Ethnic Minority Groups (updated July 24, 2020), https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html, attached as Exhibit 11; Price-Haywood et al., Hospitalization and Mortality among Black Patients and White Patients with Covid-19 (June 25, 2020), https://www.nejm.org/doi/10.1056/NEJMsa2011686, attached as Exhibit 12; Millett et al., Assessing Differential Impacts of Covid-19 on Black Communities (July 2020), https://www.sciencedirect.com/science/article/pii/S1047279720301769?via%3Dihub, attached as Exhibit 13.

[39] Liang et al., Urban Air Pollution May Enhance COVID-19 Case-Fatality and Mortality Rates in the United States, 1:3 The Innovation (Sept. 21 2020), https://pubmed.ncbi.nlm.nih.gov/32511493/, attached as Exhibit 14; Ogen, Y., Assessing nitrogen dioxide (NO2) levels as a contributing factor to coronavirus (COVID-19) fatality. Sci Total Environ (July 15, 2020), https://www.sciencedirect.com/science/article/abs/pii/S0048969720321215, attached as Exhibit 15; Adhikari, Atin and Yin, Jingjing, Short-Term Effects of Ambient Ozone, PM2.5, and Meteorological Factors on COVID-19 Confirmed Cases and Deaths in Queens, New York, International Journal of Environmental Research and Public Health 17 (June 5, 2020), https://doi.org/10.3390/ijerph17114047.

[40] University of Houston, Evaluation of the air quality impacts of clean combustion technologies, emissions controls and fleet electrification in the Houston Metropolitan Area for the year 2040 at 8 (2018), attached as Exhibit 16.

[41] University of Houston, Evaluation of the air quality impacts of clean combustion technologies, emissions controls and fleet electrification in the Houston Metropolitan Area for the year 2040, at 8 (2018).

of both NOx and VOC-limited areas.[42] Thus, NOx and VOC reductions are key to reducing ozone concentrations in Houston.

Numerous studies show that communities in the Houston Ship Channel already disproportionately shoulder pollution burdens.[43] The Evaluation of Vulnerability and Stationary Source Pollution in Houston study characterized people of color, people living in poverty and limited English speaking households within the Houston-Galveston-Brazoria Area as vulnerable to VOCs and other pollutants of concern.[44] VOCs in particular place an alarmingly outsized burden on low-income people of color within the Houston area. For example, in Houston, people of color and limited English-speakers bear nearly twice the VOC emissions burden as non-people of color.[45] And for people living in poverty, VOC emissions burdens are about 50% greater than for people not living in poverty.[46] The emissions burden is particularly high in the Harrisburg/Manchester neighborhoods compared to more affluent sections of Houston.[47]

Many VOCs are also carcinogenic, such as 1,3-butadiene, benzene, and ethylene oxide.[48] The Houston Ship Channel is home to a number of communities where long-term exposure to

---

[42] *Id.*

[43] *See* Sustainable Systems Research, LLC, Evaluation of Vulnerability and Stationary Source Pollution in Houston, at 32 (Feb. 8, 2019) [hereinafter Vulnerability Study], attached as Exhibit 17.

[44] *Id.* at 15, Tbl. 2; *see also* Center for Science and Democracy at the Union of Concerned Scientists & Texas Environmental Justice Advocacy Services, Double Jeopardy, Acute and Chronic Chemical Exposure Pose Disproportionate Risks for Marginalized Communities, 3 (Oct. 2016) [hereinafter Double Jeopardy], (finding "Households isolated by language…tend to reside in areas facing significantly greater exposure to high-impact acute events"), attached as Exhibit 18.

[45] *See* Vulnerability Study at 15, Tbl. 2; *id.* at 17.

[46] *Id.*

[47] *Id.* at 31.

[48] NIH, National Cancer Institute, Cancer-Causing Substances in the Environment, https://www.cancer.gov/about-cancer/causes-prevention/risk/substances, attached as Exhibit 19.

pollution already increases cancer risk by a factor of 1000.[49] In the case of 1,3-Butadiene, a recent epidemiological investigation confirmed a trend of increased incidence of any type of leukemia in children living in parts of Harris County with higher average ambient air 1,3-butadiene concentrations compared to children living in areas of Harris County with lower concentrations of the pollutant.[50] For children living near the Houston Ship Channel, there is a noted increase in the incidence rate of acute lymphocytic leukemia.[51] For the Harrisburg/Manchester neighborhood, cancer rates are 24-30% higher than in more affluent areas of Houston, and for Galena Park, that number rises to 30-36% higher.[52]

Thus, EPA's failure to reduce significant contributions to downwind nonattainment/maintenance by reducing upwind VOC emissions disproportionately harms communities of color, low-income communities, and children, perpetuating environmental injustice. Because the Clean Air Act is centrally concerned with ensuring clean air for all, EPA's failure to protect environmental justice is also unlawful and arbitrary. In addition, EPA's failure is contrary to Executive Orders 12898 and 13045.

C. EPA must finalize reductions from non-EGUs.

The same is true of EPA's failure to require pollution reductions from non-EGU's which likewise allows continued interstate pollution that will have disproportionately high and adverse impacts on communities of color, low-income communities, and children. As EPA admits, up to 98% of NOx from large non-EGU sources in upwind states are uncontrolled, including 95% of NOx emissions from Louisiana, the only state linked to Houston.[53] EPA must also reduce emissions from non-EGU sources.

---

[49] Harris County Health Care Alliance, Houston Texas, The State of Health in Houston/Harris County 2012, 63 (2012) http://www.houstonstateofhealth.com/content/sites/houston/State_of_Health_2012.pdf, attached as Exhibit 20.

[50] City of Houston Health Department and the University of Texas School of Public Health, Hazardous Air Pollutants Special Report, Epidemiological Investigation, Preliminary epidemiological investigation of the relationship between the presence of ambient hazardous air pollutants and cancer incidence in Harris County, at 3 (accessed on December 11, 2020), http://www.houstontx.gov/health/hazardous.pdf, attached as Exhibit 21.

[51] *Id.*

[52] UCS, Double Jeopardy Report at 13-14.

[53] Non EGU Assessment Technical Memo, EPA-HQ-OAR-2020-0272-0014, at 2, Tbl. 1 (Sept. 2020) (facilities w/ >150 tons per year (tpy) of emissions in the 2017 NEI, by state).

In 2016, EPA projected that non-EGU sources would produce nearly double the NOx pollution of EGUs, and the gap between non-EGU and EGU NOx emissions was widening.[54] In Louisiana in particular, which is linked to Houston, non-EGU NOx emissions were estimated to make up nearly half of total anthropogenic emissions,[55] while Louisiana was only budgeted one quarter of that for EGU NOx emissions, or only about 11% of total anthropogenic NOx emissions.[56] And, as described above, up to 98% of NOx emissions from the relevant states are uncontrolled—including 95% for Louisiana—a state which emits almost triple the amount of NOx of any other relevant state.[57] Failing to reduce these emissions to eliminate significant contributions to Houston is arbitrary and inconsistent with Executive Orders 12898 and 13045.

D. EPA must finalize restrictions on interstate trading.

Given the disproportionately high and adverse impact of continued interstate ozone pollution on downwind communities and children, and the potential for emission credit trading to exacerbate those disproportionate impacts, EPA should restrict the trading of emission credits in the final rule by disallowing interstate trading, eliminating or further reducing the carry-over of banked allowances from the prior trading program, and reducing the variability limits. Even if the relatively unrestricted use of emission credits was an appropriate compliance mechanism in prior CSAPR rules, it is inappropriate here, where EPA claims that the remaining nonattainment and maintenance problems are no longer generalized across the Eastern region, but concentrated in particular locations with a high proportion of people of color and low-income people, and where nonattainment and maintenance are driven by contributions from fewer upwind states—or one state, in the case of Houston.[58]

---

[54] Assessment of Non-EGU NOx Emission Controls, Cost of Controls, and Time for Compliance Final TSD, at 3, Tbl. 1, Figs. 1 and 2 (Aug. 2016) (showing non-EGU NOx emissions increasing from 16% of total in 2011 to 21% in 2017, while EGU emissions stay steady at 12-13% of total), EPA-HQ-OAR-2018-0225-0023, attached as Exhibit 22.

[55] *Id.* at 6, Tbl. 2 (26% non-EGU Point + Oil and Gas Point and 17% Oil & Gas nonpoint + Other nonpoint, for a total of 75,666 tons from these sources; total anthropogenic NOx emissions in Louisiana in the 2017 ozone season were estimated at 173,330 tons).

[56] 81 Fed. Reg. at 74,508, Tbl. I.B-1 (2017 EGU NOx Ozone-season emission budget of 18,639 tons).

[57] Non EGU Assessment Technical Memo, EPA-HQ-OAR-2020-0272-0014, at 2, Tbl. 1 (Sept. 2020)

[58] Ozone_Design_Values_Contributions_Proposed_Revised_CSAPR_Update, EPA-HQ-OAR-2020-0272-0064 (showing only Texas (32.68 ppb) and Louisiana (4.68 ppb) as significant contributors of ozone to receptor 482010024 in Harris County ,Texas, in 2021; Alabama (0.27 ppb), Arkansas (0.08 ppb), Colorado (0.01 ppb), Florida (0.19 ppb), Georgia (0.05 ppb), Illinois (0.02 ppb), Indiana (0.02 ppb), Iowa (0.01 ppb), Kansas (0.01 ppb), Mississippi (0.37 ppb),

Because Houston is linked to only one state—Louisiana—there is a serious risk that a trading program that allows Louisiana to buy credits and exceed its budget will produce no improvement in air quality in Houston, or produce an even smaller improvement than EPA projects. Pollution reductions in the Northeast are of no benefit to people suffering from dirty air in Houston. Indeed, prior trading regimes have failed to resolve the interstate ozone transport problem in Houston. Ozone pollution in Harris County is projected to be nearly the same in 2021 as EPA predicted it would be in 2017,[59] and the interstate contribution from Louisiana to Harris County has nearly doubled.[60] Likewise, pollution reductions in Louisiana are of no benefit to people suffering from dirty air in New York, New Jersey, and Connecticut, and should not be treated as substitutes. Finalizing this rule as proposed, without greater protections for environmental justice communities against the elevated pollution that could result from emission credit trading, would be unlawful and arbitrary, and contrary to Executive Orders 12898 and 13045.

If the continuing ozone transport problem is geographically limited, as EPA asserts, then EPA must finalize a targeted approach, that considers local variations by reducing both NOx and VOCs, and which does not allow trading between states that contribute significantly to a downwind state's nonattainment or nonmaintenance—like Texas's—and states that do not contribute ozone pollution to the same state. In addition, we encourage EPA to follow the model used by the Regional Greenhouse Gas Initiative (RGGI) for addressing banked allowances,[61] which balances the interest in respecting previously purchased allowances with the need to maintain the integrity of the cap and reduce emissions. Rather than discounting the value of previously purchased allowances when the RGGI states adopt a new cap trajectory, the RGGI states account for the size of the outstanding bank by subtracting one fifth of the banked allowances from the cap each year for the first five years. This approach ensures that—at the end of the five years—the total allowances in the system are the same as they would have been had

---

Missouri (0.02 ppb), New Mexico (0.03 ppb), Oklahoma (0.08 ppb), Tennessee (0.05 ppb), and Wyoming (0.01 ppb) are all projected to contribute insignificant amounts of ozone pollution).

[59] *Compare id.* (showing an average DV at receptor 482010024 in Harris County, Texas, of 75.5 ppb ozone in 2021), *with* 81 Fed. Reg. at 74,533, Tbl. V.D-2 (showing an average DV at receptor 482010024 in Harris County, Texas, of 75.4 ppb ozone in 2017).

[60] *Compare* Ozone_Design_Values_Contributions_Proposed_Revised_CSAPR_Update, EPA-HQ-OAR-2020-0272-0064 (showing Louisiana (4.68 ppb) as a significant contributor of ozone to receptor 482010024 in Harris County, Texas, in 2021), *with* 2017 Ozone Contributions, EPA-HQ-OAR-2015-0500-0007 (showing Louisiana (2.82 ppb) as a significant contributor of ozone to receptor 4820`0024 in Harris County, Texas, in 2017).

[61] *See* RGGI Program Review: September 25, 2017 Stakeholder Meeting, attached as Exhibit 23.

there been no outstanding bank. But this does not disadvantage existing allowance holders, who retain the full value of their banked allowances.

E. EPA should finalize facility-specific limits to reduce NOx emissions.

To further reduce NOx emissions, EPA should require facility-specific NOx limits needed to ensure that existing pollution control technology is consistently utilized and optimized, including on high ozone days. The Ozone Transport Commission (OTC) has recommended such an approach for Pennsylvania, 85 Fed. Reg. 41,972, 41,973-74 (July 13, 2020) (describing OTC recommendation submitted to EPA on June 8, 2020), which has been under consideration by EPA for over six months. EPA should adopt the OTC's proposal to reduce NOx emissions in Pennsylvania. EPA should also adopt this approach for the other upwind states, either in this rule or, if that is not possible by the deadline for finalization of this rule, as part of the implementation of the 2015 NAAQS.

V. THE PROPOSAL FAILS TO PROHIBIT INTERSTATE POLLUTION THAT THE CLEAN AIR ACT REQUIRES EPA TO PROHIBIT.

Despite EPA's stated intention to incrementally reduce upwind states' pollution budgets, the proposed budgets still authorize too much pollution to satisfy statutory requirements. EPA's own calculations show that the budgets allow large quantities of ozone pollution—above the 1 percent threshold—to flow into the Houston and New York-New Jersey-Connecticut nonattainment areas from upwind states, and that, due in part to this continued interstate pollution, the New York-New Jersey-Connecticut area will fail to attain and maintain the 2008 ozone standard until 2024, and the Houston area will fail to attain and maintain the standard until 2023.[62] As explained below in these comments, EPA can and must require greater reductions in pollution reflecting the application of available pollution control measures, including more effective use of post-combustion controls already installed at EGUs, the shifting of electricity generation to cleaner sources, and the adoption of cost-effective controls at high-polluting non-EGU industrial sources.

EPA's proposal to allow upwind states to continue to pollute at these levels beyond the deadline for attainment still does not satisfy the obligation under the good neighbor provision to "prohibit[]" sources in upwind states "from emitting any air pollutant in amounts which will contribute significantly to nonattainment … or interfere with maintenance by … any other State with respect to" the 2008 ozone standard. 42 U.S.C. § 7410(a)(2)(D). Further, EPA must prohibit this pollution consistent with downwind areas' attainment deadline, *Wisconsin*, 938 F.3d at 318; *North Carolina*, 531 F.3d at 911-13 (quoting 42 U.S.C. § 7410(a)(2)(D)), which is July 20, 2021. Because EPA's proposed rule "does not call for upwind States to eliminate their substantial

---

[62] In fact, as discussed above, EPA's claim that the Houston area will maintain the standard beginning in 2024 is arbitrary, because EPA grossly underestimates future ozone pollution in Texas.

contributions to downwind nonattainment in concert with the attainment deadlines," or their pollution that interferes with maintenance, it would violate the Act if finalized as is. *Wisconsin*, 938 F.3d at 318.

As multiple decisions of the D.C. Circuit and the Supreme Court recognize, Congress enacted the Clean Air Act to ensure timely attainment of clean air standards. *Train v. Nat. Res. Def. Council, Inc.*, 421 U.S. 60, 64 (1975) (Congress reacted to "disappointing" progress "by taking a stick to the States"); *Union Elec. Co. v. EPA*, 427 U.S. 246, 256 (1976) (Clean Air Act is "a drastic remedy to … [the] problem of air pollution"); *Whitman v. Am. Trucking Ass'ns, Inc.*, 531 U.S. 484 (2001). In pursuit of that objective, Congress established deadlines that "require[]" attainment of the standards "within a specified period of time." *Train*, 421 U.S. at 64-65. These deadlines are not only "central to the … regulatory scheme," *Sierra Club v. EPA*, 294 F.3d 155, 161 (D.C. Cir. 2002) (quoting *Union Elec.*, 427 U.S. at 258), but constitute the very "heart" of the Act. *Train*, 421 U.S. at 66-67. Finalizing a rule that would again implement the statute so as to undermine timely attainment does not satisfy the Act's requirements. *Sierra Club*, 294 F.3d at 161 (rejecting interpretation that "would subvert the purposes of the [Clean Air] Act" by delaying attainment); *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. Ruckelshaus*, 719 F.2d 1159, 1165 (D.C. Cir. 1983) ("A statute should ordinarily be read to effectuate its purposes rather than to frustrate them.").

Nor can EPA lawfully override the requirement of timely attainment by making claims that the necessary pollution reductions are too costly. The Clean Air Act's attainment deadlines are "intended to foreclose the claims of emission sources that it would be economically or technologically infeasible for them to achieve emission limitations sufficient to protect the public health within the specified time." *Union Elec.*, 427 U.S. at 258. *See NRDC*, 777 F.3d at 468 ("the attainment deadlines … leave no room for claims of technological or economic infeasibility.") (quoting *Sierra Club*, 294 F.3d at 161); *North Carolina*, 531 F.3d at 912-13 (rejecting EPA's attempt to delay good neighbor reductions based on "reasons of feasibility"); *see also Union Elec.*, 427 U.S. at 259 (Congress "determined that existing sources of pollutants either should meet the standard of the law or be closed down") (quoting S. Rep. No. 91-1196 at 2-3 (1970)). Because claims of economic infeasibility are insufficient to defeat the requirement of timely attainment, EPA's weaker claim in this rule—that the needed reductions are not maximally cost effective because they are less cost effective than other reductions—necessarily fail also.

EPA's proposal also fails to identify any statutory authority to use cost to decline to require pollution reductions necessary for attainment and maintenance. EPA claims authority in a four-step framework that the agency has used before in prior transport rules, claiming that these rules have been upheld. In fact, courts have repeatedly found EPA's prior transport rules to be lawful in some respects and unlawful in others. Nothing in these decisions suggests that a transport rule is lawful just because it employs the four-step framework. Thus, EPA has failed to explain how its approach is consistent with the statute. *See Mountain Commc'ns, Inc. v. FCC*, 355 F.3d 644, 648-49 (D.C. Cir. 2004) (arbitrary for agency to fail to explain how its action comports with statutory requirements). EPA has likewise failed rationally to explain why it is interpreting the statute in a manner that privileges savings to industry over public health, the environment, and the statutory objective. Rather than doubling down on this deeply troubling statutory interpretation, EPA should change course in the final rule and acknowledge that it lacks authority to sacrifice public health for the sake of industry savings. Instead, EPA should require the pollution reductions needed to secure downwind attainment and maintenance, or forthrightly explain why it cannot.

Indeed, EPA lacks statutory authority to decline to prohibit this interstate pollution on grounds of cost. The good neighbor provision simply directs EPA to "prohibit[]" emissions of any air pollutant in "amounts which will . . . contribute significantly to nonattainment" or "interfere with maintenance." 42 U.S.C. § 7410(a)(2)(D). EPA's claim that this language authorizes EPA to use cost to decline to require reductions needed for attainment and maintenance of the standards is inconsistent with the statutory language and barred by the Supreme Court's decision in *EPA v. EME Homer City Generation, L.P.*, 572 U.S. 489 (2014). Not one Justice in that case embraced EPA's claim that "contribute significantly" imparts authority to consider cost. *Id.* 518-19; *see id.* 525 (Scalia, J., dissenting) (pronouncing that argument "so feeble that [the] majority does not even recite it"). To the contrary, the Court held that the good neighbor provision's focus on "amounts" limits EPA's use of cost. *Id.* at 513-14, 522 & n.23 (quoting 42 U.S.C. § 7410(a)(2)(D)). While EPA may use cost to "allocate" necessary emission reductions among states and sources, EPA has a statutory obligation to avoid both over-control and under-control. *Id.* at 523.

EPA proposes here to rely on cost in a manner that produces under-control of interstate ozone pollution, exposing millions of people to unhealthy air, over a decade after the 2008 ozone standard was required to be achieved. Specifically, EPA claims authority to reject any pollution control measure that does not maximize "the ratio of emission reductions to marginal cost and the ratio of ozone improvements to marginal cost," 85 Fed. Reg. at 69,002—i.e., to reject any control measure that does not minimize marginal cost per ton. By choosing to minimize marginal cost per ton of reduction, instead of honoring its statutory obligation to "maximize achievement of attainment downwind," *EME Homer*, 572 U.S. at 523, EPA acts unlawfully and arbitrarily. In the final rule, EPA must change course and require greater pollution reductions. As detailed in these comments, EPA can secure additional reductions in interstate ozone pollution through measures that are cost-effective and expeditious.

EPA claims that its approach is to select the control level at which "incremental EGU NOx reduction potential and corresponding downwind ozone air quality improvements are maximized." 85 Fed. Reg. at 68,968. But this claim is in unexplained conflict with EPA's consistent recognition, elsewhere in the rule, that its approach actually maximizes not air quality, but the <u>ratio</u> of air quality improvements to marginal cost. By advancing two contradictory claims in the same rule, EPA acts arbitrarily. The first claim is also plainly wrong. If EPA's approach maximized air quality improvement, EPA could require reductions based on one of the many control measures that produce greater air quality improvements than the minimal measures it has already required, such as installation of Selective Catalytic Reduction (SCR) on EGUs, or any of the many control measures that could reduce emissions from non-EGUs. *See infra* part VII. That EPA's proposal does not utilize any of these available controls confirms that EPA's approach does not maximize air quality improvements.

Even if it were lawful and rational for EPA to interpret the command to prohibit "amounts" that "contribute significantly to nonattainment" to turn on the cost of achieving those "amounts"—which it is not—EPA would still lack authority to use cost to decline to prohibit "amounts . . . which will . . . interfere with maintenance." This is a distinct statutory requirement, to which EPA must give "independent significance." *North Carolina*, 531 F.3d at 910–911. And nothing in the statutory command to prohibit "amounts" that "interfere with maintenance" grants EPA authority to invoke cost as an exception. Moreover, EPA must "refuse[] to find implicit in ambiguous sections of the [Clean Air Act] an authorization to consider costs that has elsewhere, and so often, been expressly granted." *Whitman v. Am. Trucking Associations*, 531 U.S. at 467. Thus, EPA may not invoke cost as a basis for refusing to prohibit pollution that interferes with maintenance at the maintenance-only receptors EPA has identified.

EPA's claim of "impossibility" also does not justify its proposed refusal to require the additional reductions in interstate pollution needed for attainment and maintenance of the standard. The doctrine of impossibility exists because "it is not appropriate for a court—contemplating the equities—to order a party to jump higher, run faster, or lift more than she is physically capable." *Am. Hosp. Ass'n v. Price*, 867 F.3d 160, 168 (D.C. Cir. 2017). But EPA has not shown impossibility here. The Agency bears a "heavy burden to demonstrate the existence of an impossibility;" "difficulty or inconvenience" is insufficient. *Id.* EPA must further show that the circumstances here are extraordinary; otherwise "officials may seize on a remedy made available for extreme illness and promote it into the daily bread of convenience." *Id.* (quoting *NRDC v. Train*, 510 F.2d 692, 713 (D.C. Cir. 1974). In addition, as EPA properly recognizes, any non-compliance with EPA's legal obligations must be limited to the non-compliance that is strictly necessary. Thus, if it were lawful for EPA to delay any emission reductions beyond the 2021 deadline, EPA would still have to require the reductions at the time that they become possible.

EPA's own analysis in the proposed rule abundantly supports the conclusion that greater reductions in interstate air pollution are possible now. First, greater emission reductions are available by the statutory attainment deadline through optimization of SCR operation at EGUs. EPA correctly concludes that SCR operation can be optimized in time for the start of the 2021 ozone season. 85 Fed. Reg. at 68,991. But these units can achieve greater pollution reductions than EPA has required. EPA calculates its budgets based on a rate of 0.8 lb/mmBTU, but units with installed SCR routinely achieve ozone season NOx emission rates below 0.68 lb/mmBTU.[63] The potential of low NOx emission rates at SCR-equipped units is even more apparent when looking at 30-day averages historically achieved. As of 2013, for example, over 150 different SCR-equipped coal-fired units achieved 30-day averages lower than 0.065 lbs/MMbtu, many quite significantly so. *See* U.S. SCR-Equipped Coal Lowest 30-Day Average NOx Rate, attached

---

[63] See tables compiling EPA emissions data for EGUs with installed SCR, in Pennsylvania and across the Eastern region. Environmental Comments on Proposed Ozone RACT Rulemaking (June 30, 2014), attached as Exhibit 27 at 9 Tbl. 1 (Pennsylvania); Table attached as Exhibit 28.

as Exhibit 24 SCR controls are, in fact, designed to achieve better than 90% reductions in NOx emissions, allowing plants to emit NOx at very, very low rates on short-term averaging periods.[64] For a five-month averaging period, like that addressed for ozone season in this rule, achieving those rates is even easier. While it may be true that many units equipped with SCR nonetheless fail to achieve such a level of emissions reduction, this reflects operational choices by the facilities themselves. As EPA knows, while much of the coal fleet has SCR installed, many of those controls are poorly or irregularly operated. Research has shown that when NOx emission credits are cheap and plentiful, SCR-equipped units achieve markedly worse NOx emission rates.[65] Thus, the historical achievements of the SCR-equipped fleet tend to understate the ability of those units to reduce NOx emissions. The ability of units equipped with SCR to achieve emission rates commensurate with best past performance is detailed in the Response to Clean Air Act Section 126(b) Petitions from Delaware and Maryland, Docket ID No. EPA-HQ-OAR-2018-0295 filed by the Sierra Club, Chesapeake Bay Foundation, Chesapeake Climate Action Network, and Environmental Integrity Project on July 23, 2018 and the accompanying Technical Note Responding to EPA Claims Regarding SCR NOx Performance Degradation by Dr. Ranajit Sahu, which are attached to these comments as Exhibits 25 and 26. These comments and Technical Note are incorporated by reference as if fully stated herein and reiterated with respect to the Revised CSAPR Update.

EPA asserts that a higher rate is needed to accommodate routine maintenance schedules, and that lower rates may reflect new layers of catalyst. But these approaches are nonetheless available methods of achieving reductions. EGUs could improve their maintenance schedules and replace their catalyst, and thereby achieve needed pollution reductions. For EPA to finalize a rule that did not require this, or even rationally consider these additional available pollution reductions, would be unlawful and arbitrary.

Second, EPA could impose daily limits on EGUs. Such daily limits can be calibrated, as in the OTC's proposal for Pennsylvania, to require consistent and optimal use of already

---

[64] *See, e.g.*, June 20, 2000 Correspondence from DEP to Linda A. Boyer, PPL Electric Utilities Corporation Re: Plan Approval Application #OP-47-0001D, at 2 (noting that operation of SCR controls at a coal-fired EGU "will control the nitrogen oxides emissions from Unit #1 and, when operating, will reduce the nitrogen oxides emissions by up to 90% from the level which currently exists," thereby achieving "nitrogen oxides emission rate[s] . . . as low as .04 pounds per million BTU of heat input"), attached as Exhibit 29.

[65] *See, e.g.*, Thomas F. McNevin, *Recent increases in nitrogen oxide (NOx) emissions from coal-fired electric generating units equipped with selective catalytic reduction*, 66 J. Air Waste Manag. Assoc.1, 66-75 (documenting that "in recent years . . . the degree of usage of installed SCR technology has been dropping significantly at individual plants" resulting in higher NOx emission rates). EPA acknowledges as much: "Recent power sector data reveal that some SCR and SNCR controls are being underused. In some cases, controls are not fully operating . . . [i]n other cases, controls have been idled for years." 80 Fed. Reg. 75,705, 75,731 (Dec. 3, 2015).

installed pollution controls, and thereby achieve large reductions in emissions, including on high ozone days. Failure to consider this pollution reduction measure—which again, only requires sources to make full use of already-installed controls—is arbitrary.

Third, EPA admits that greater reductions are available quickly through turning on and optimizing SNCR controls at EGUs, 85 Fed. Reg. at 68,992/1. These controls can be reactivated quickly, within a few weeks, and can produce substantial additional emissions reductions. EPA claims that these reductions are not maximally cost-effective compared to other reductions but, as explained below, that claim provides no lawful basis for rejecting them. The claim also does not establish that turning on idled SNCR is impossible, and EPA cannot rationally claim that it does. Fourth, EPA itself calculates that substantial additional reductions are available in two years through installation of controls on high-emitting non-EGU sources, as further described in Section VII below.

Finally, EPA cannot justify delaying reductions in pollution until 2022, one year after the applicable deadline. EPA claims that more time is needed for the installation of low-NOx burners, but EPA itself judges that installation of state of the art low-NOx burners can be achieved in as little as one month. 85 Fed. Reg. at 68.969, Given the court-ordered deadline for finalization of this rule—March 15, 2021—many, if not all, of the 27 EGUs expected to install low-NOx burners can do so before the start of the 2021 ozone season. Further, any EGU that is unable to complete the installation by the start of the ozone season can, under EPA's current proposal, purchase emission credits. EPA proposes to carry over a large number of credits from the prior trading regime into the new one, and EPA does not deny that these credits would be sufficient, or rationally explain such a claim. Because these and other measures detailed in these comments and the record are available for the 2021 ozone season or soon thereafter, during the timeframe of the rule, EPA has not carried its heavy burden to show that compliance with the Clean Air Act is impossible.

VI. EPA MUST REQUIRE GREATER POLLUTION REDUCTIONS FROM ELECTRIC GENERATING UNITS.

A. EPA must consider the potential to reduce NO_x emissions from EGUs through higher levels of cost-effective generation-shifting.

1. EPA should extend its longstanding practice to incorporate emission reductions from generation-shifting when setting emission budgets.

In addition to the available reductions already described, additional highly cost-effective pollution reductions are available from EGUs through shifting generation to cleaner sources. Since the inception of CSAPR, EPA has recognized the substantial pollution reductions available through shifting generation from higher-emitting sources to lower-emitting sources, and incorporated such reductions into the calculation of state budgets. In the Revised CSAPR Update, EPA must again require pollution reductions that reflect what is achievable through deployment of this available, cost-effective pollution-reduction measure. By combining this approach with restrictions on the use of traded emissions credits and greater use of daily pollution limits, as described above, EPA can both efficiently secure overall pollution reductions and make the CSAPR program more equitable.

In CSAPR, EPA found generation-shifting to be a method of control that was "available" and would be "used as [a] compliance strateg[y]" to meet the 2012 and 2013 SO_2 budgets. 76 Fed. Reg. at 48,279-80. The agency therefore included the emission reductions from generation-shifting resulting from an SO_2 price of $500 per ton abated in its budget calculations. *Id.*; *see id.* at 48,260 (noting that state budgets result from modeling "all emission reductions available" at the cost threshold).

In the 2016 CSAPR Update, EPA similarly noted that "sources would likely use shifting generation measures to comply with standards whenever doing so is less expensive than end-of-stack controls, even if EPA considered only end-of-stack controls in determining those standards." 81 Fed. Reg. at 74,544. EPA rejected comments seeking the flexibility to comply through readily available redispatch to lower-emitting sources *without* commensurately lower budgets, expressly relying on generation-shifting to set budgets. *Id.* at 74,546. Although the agency acknowledged that generation-shifting occurs on a "continuum" of control costs, it only quantified NO_x reduction potential from generation-shifting at the same costs as on add-on controls, resulting in "modest" generation-shifting compared to the actual levels of generation-shifting observed from year to year. *Id.* at 74,545.[66]

In the Proposed Revised CSAPR Update, EPA observes that generation-shifting "occurs in response to economic factors" such as pollution-control requirements and that "this generation-shifting occurs incrementally on a continuum." 85 Fed. Reg. at 68,992. EPA now asserts, as in prior rulemakings, that it is reasonable to quantify the emission-reduction potential of generation-shifting solely at the same cost levels associated with "full implementation of particular types of emission controls" simply because the agency has identified those cost levels. *Id.* at 68,992-93.[67] Nonetheless, EPA requests comment on "the extent to which generation shifting towards lower-emitting resources should be incorporated into the overall EGU emission reductions reflected in the state emission budgets (Comment C–4)." *Id.* at 68,993. For the reasons discussed below, EPA must evaluate the emission-reduction potential of generation-shifting at several points along the cost continuum—including at costs higher than its selected

[66] EPA, EGU NO_x Mitigation Strategies Final Rule TSD at 12-13, Tbls.2, 4 (Aug. 2016), https://www.epa.gov/sites/production/files/2017-05/documents/egu_nox_mitigation_strategies_final_rule_tsd.pdf, EPA-HQ-OAR-2015-0500-0554 (showing a maximum increase in generation from combined-cycle gas plants of 4.5% and decrease in generation from coal plants of 1.4%, compared to average year-to-year variation of 52% at combined-cycle gas plants and 5% at coal plants in the same balancing regions).

[67] *See Id.* at 11-12 ("Because we have identified discrete cost thresholds resulting from the full implementation of particular types of emission controls, it is reasonable to simultaneously quantify the reduction potential from generation shifting strategy at each cost level.").

threshold—and incorporate all cost-effective emission reductions into state budgets. In that way, EPA can correct some of the deficiencies of its proposal in a final rule.

2. The Proposal's approach to generation shifting would not meet EPA's statutory obligations.

In the Proposed Revised CSAPR Update, EPA has already included some generation-shifting as an emission-reduction measure that would supplement emission reductions achieved through the controls reflecting its chosen cost threshold. The agency however, does not appear to intend for generation-shifting to achieve additional emission reductions; rather, the incorporation of certain generation-shifting reductions is intended to lower state NO_x budgets so that regulated sources have an incentive to deploy the selected emission controls. *Id.* ("Including these reductions is important, ensuring that other cost-effective reductions (*e.g.*, fully operating controls) at each cost level can be expected to occur."). Thus, in its modeling, EPA has included a 'NO_x price' at the same level as its $1,600 cost threshold, resulting in generation-shifting that removes from the system less-expensive emission-reduction opportunities that uncontrolled sources would otherwise rely on to comply. *See id.* at 68,997, note to table. This truncated use of generation shifting does not suffice.

The statutory command is to eliminate significant contribution to downwind nonattainment or maintenance problems, 42 U.S.C. § 7410(a)(2)(D)(i)(I), not to create a strong enough incentive that sources will likely install certain control technology. Because generation shifting is an independent measure the EGUs have widely deployed to reduce NO_x emissions, EPA has no basis for evaluating only the emission reductions that result from a NO_x price that matches—but goes no further than—its cost threshold.

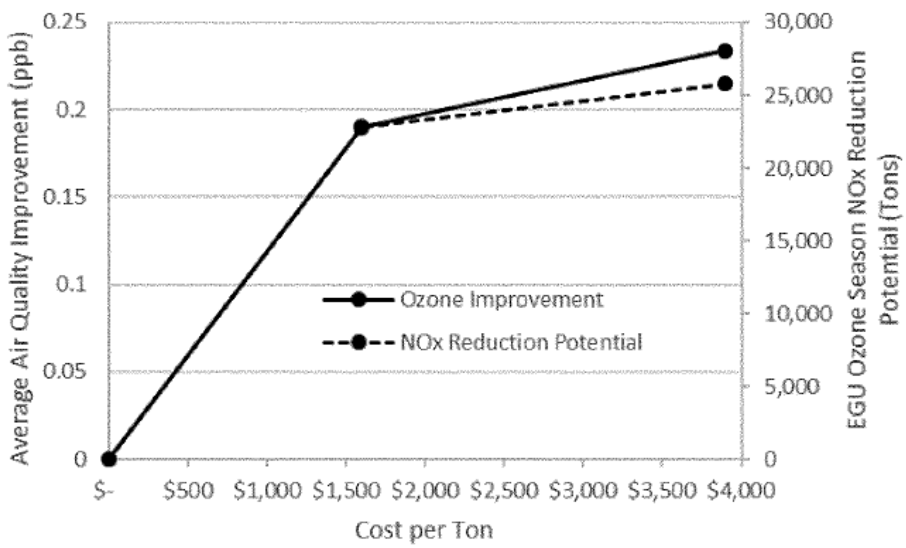
The fact that sources might choose to comply with a rule of a certain stringency through generation shifting does not mean that the agency should end its analysis at a slightly higher level of stringency that would effectively remove this compliance alternative. Instead, EPA should evaluate the full emission-reduction potential of generation shifting, at various levels of cost-effectiveness—just as EPA has done with the other control techniques it examined. *See* 85 Fed. Reg. at 69,002, fig.1.

Indeed, in this rulemaking EPA has confirmed that generation shifting is a viable, standalone control measure by assessing its potential under a "less stringent" regulatory alternative. *See id.* at 69,027 ("The less stringent alternative uses emission budgets that were developed using uniform control stringency represented by $500 per ton of NO_X (2016$)."); EPA, Regulatory Impact Analysis for the Proposed Revised Cross-State Air Pollution Rule (CSAPR) Update for the 2008 Ozone NAAQS, at 4-11, Tbl. 4-2 (Oct. 2020) (listing the sole NO_x control implemented under the less stringent alternative as "Shift generation to minimize cost"). It is arbitrary for EPA to acknowledge that generation shifting is available as a less-stringent control technique without also considering the technique's potential to inform more-stringent alternatives, at several levels of cost and emission reductions.

3. EPA must consider generation shifting as an available, cost-effective control for NO_x emissions, both in the near term and the long term.

As noted above, the Proposed Revised CSAPR Update presents generation shifting as an independent, viable regulatory alternative—but only the generation shifting available at a very low cost. To be consistent with its approach to other potential controls, EPA must include various levels of generation shifting, reflecting different 'NO_x prices' on its curve plotting emission reductions against the cost-effectiveness of controls. *See* 85 Fed. Reg. at 69,002, fig.1, reproduced below.

Figure 1 to section VII.D.1 - EGU Ozone Season NO_X Reduction Potential in 12 Linked States and Corresponding Total Reductions in Downwind Ozone Concentration at Nonattainment and Maintenance Receptors for each Cost Threshold Level Evaluated (2021/2022)*



*Note – this figure reflects full implementation of $1600 per ton (SCR optimization + state-of-the-art combustion control upgrade)

EPA has identified the "knee in the curve" at $1,600/ton of NO_x reduced, where "the ratio of emission reductions to marginal cost and the ratio of ozone improvements to marginal cost are maximized relative to the other emission budget levels evaluated." *Id.* It is possible, however, that levels of generation shifting that would result from a NO_x price greater than $1,600/ton would secure such substantial emission reductions that it would produce steeper segments on the graph, to the right of the leftmost segment presented. If so, EPA must select this level of control in quantifying states' responsibilities to eliminate significant contributions, or explain why it has departed from its established rationale. EPA's failure to evaluate and consider higher levels of generation shifting as part of this exercise is in explained conflict with its own methodology, and therefore arbitrary. It is also inconsistent with the statutory obligation to mandate sufficient pollution reductions to resolve downwind attainment and maintenance problems by the applicable deadline, or as quickly as possible thereafter.

In declining to perform any such analysis, EPA has not supported its assertion that "[a]nalyzing costs between these cost thresholds is not expected to reveal significant incremental emission reduction potential that isn't already anticipated at the analyzed cost thresholds." *Id.* at 68,995. EPA appears to assume—without explanation or evidentiary support—that no control measures are available with intermediate costs-per-ton. *See id.* ("EPA-selected cost thresholds represent the points at which specific control technologies become widely available and thereby where the most significant incremental emission reduction potential is expected."). It has not assessed the potential of generation-shifting, reflecting an intermediate NO_x price, to achieve significant incremental emission reductions. Some explanation is required before EPA may disregard higher levels of available generation shifting in determining states' obligations.

Moreover, EPA also must complete this analysis for future years with reasonable assumptions as to declines in costs for renewable energy resources. With the greater emission reductions that would result from a given NO_x price in the Integrated Planning Model (IPM) in later model years, as renewable energy costs decline and generation shifting therefore becomes more attractive as a compliance measure (vs. paying for a ton of NO_x emissions), it is possible that a higher level of generation-shifting would overtake another control technique and become the "knee in the curve."[68] Nonetheless, EPA must assure itself that a higher level of generation shifting would not alter the knee in the curve—in other words, achieve greater NOx reductions together with all controls available at or below the given cost threshold when compared with the increase in cost per ton—for any ozone season in which good neighbor obligations under the 2008 NAAQS remain.

Aside from its historical approach to determining states' significant contributions to downwind nonattainment or maintenance problems, EPA should also consider whether a rule premised on greater levels of feasible generation shifting would better serve the good neighbor provision's purpose. EPA could select, as a control measure informing state budgets, generation shifting reflecting clean resources already on the grid and feasible deployment of renewable energy, as confirmed by power-sector modeling. For example, ICF conducted modeling for Environmental Defense Fund's comments on EPA's 2018 Affordable Clean Energy Rule (ACE)

---

[68] EPA apparently recognizes that control costs may decrease over time, thereby bringing a previously excluded control technique into the budget calculations. *See* 85 Fed. Reg. at 68,998 (suggesting that SCR retrofits—currently the technology with the highest cost per ton that the agency considered—could become necessary in future cross-state programs, which, under the current approach to implementing the good neighbor provision—and assuming that SCR retrofits do not become markedly more effective at reducing NO_x—would only be the case if SCR controls became less costly and thereby moved the knee in the curve).

proposal, attached as Exhibit 30. That conservative analysis of the potential for fossil-fuel-fired EGUs to shift to cleaner generation resources considered state-by-state CO_2 emissions caps based on generation shifting to cleaner fossil generation already on the grid, as well as shifting to renewable resources added at average historical levels, with emissions trading across existing fossil-fuel-fired EGUs. It showed national NO_x emission reductions in 2025 almost an order of magnitude greater than the national NO_x emission reductions that would be achieved in 2025 by the Proposal: 211,000 short tons of NO_x reduced nationally in 2025 through a generation-shifting approach vs. 27,000 short tons of NO_x reduced nationally in 2025 by the Revised CSAPR Update proposal.[69] If attainment or maintenance problems remain even with much higher levels of generation-shifting, EPA must evaluate whether a cost-reasonable, feasible, generation-shifting approach that drives the greatest NOx emission reductions better serves the good neighbor provision. As discussed below, it is highly likely that large-scale generation shifting on the regional electricity grid, by units in states that are linked to problem receptors, can achieve significant NOx reductions and improve ozone levels at downwind receptors with nonattainment or maintenance issues. EPA therefore must incorporate greater reductions from generation shifting into the state budgets. As noted, EPA must also protect the communities that could potentially be harmed by any localized increases in NOx emissions or ozone pollution that are projected to result from generation-shifting, through the adoption of restrictions on the trading of emission credits, facility-specific daily limits, or other measures.

---

[69] *See* Comments of Environmental Defense Fund on EPA's Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program, 83 Fed. Reg. 44,746, at 9 n.64, Docket No. EPA-HQ-OAR-2017-0355-24419 (Aug. 31, 2018) (describing conservative estimates of replacement generation); *see also id.* at 11, Tbl.2 (describing Policy Case 4: "Combined emission limit on existing fossil steam and [natural gas combined cycle] EGU fleet at the state level. No trading between sources in different states and no banking."). *Compare* "EDF18 – BAU," "Emissions Summary" worksheet (showing 947,000 tons of NO_x emissions from fossil-fuel-fired EGUs in 2025 under business as usual), attached as Exhibit 31, *and* "EDF18 – PC4 Alt Standards," "Emissions Summary" worksheet (showing 736,000 tons of NO_x emissions from fossil-fuel-fired EGUs in 2025 under Policy Case 4), attached as Exhibit 32, *with* EPA, Regulatory Impact Analysis for the Proposed Revised Cross-State Air Pollution Rule (CSAPR) Update for the 2008 Ozone NAAQS, at 4-17, Table 4-5 (Oct. 2020) (showing 27,000 tons of NO_x reductions from the Revised CSAPR Update proposal nationwide in 2025), EPA-HQ-OAR-2020-0272-0058. It should be noted that the NO_x reductions estimated in the modeling exercise for the ACE proposal would be achieved through nationwide measures, not measures limited to the states (Group 3) at issue in the present rulemaking.

4. EPA must calculate state budgets based on the assumption that EGUs may shift generation outside state borders.

Whether EPA evaluates higher levels of generation shifting, as discussed above, or arbitrarily adheres to its current approach, the agency must account for generation shifting across the interconnected grid when setting state budgets. As EPA acknowledged in the CSAPR Update, "[p]ower generators produce a relatively fungible product, electricity, and they operate *within an interconnected electricity grid* in which electricity generally cannot be stored in large volumes, so generation and use must be balanced in real time." 81 Fed. Reg. at 74,544 (emphasis added). Generation shifting that occurs in IPM (and in real life) will often involve lower- and zero-emitting sources in states other than the state in which the EGU reducing utilization is located because of the interconnected nature of the grid. This is simply the reality of the structure of the grid, and EPA's analysis of generation shifting must reflect it.

Historically, EPA has restricted a source's opportunities to shift generation to other sources outside the same state not because of any real-world geographic limitations, but to approximate "small amounts" of generation-shifting that could occur by the next ozone season. *See id.* It is not clear why generation shifting, which happens in "real time," *id.*, should be time-constrained given available clean resources on the grid. Nor is it apparent why, if there is a time constraint, a geographic limitation to in-state generation shifting would reflect that constraint. True to form, in the Proposal, EPA does not explain why it has modeled a "conservatively small amount of generation-shifting" other than to note that the constraint to in-state generation-shifting is a "proxy for limiting the amount of generation shifting that is feasible for the near-term ozone seasons." 85 Fed. Reg. at 68,993. EPA's own modeling dispels any feasibility concerns, however: "While the EPA conservatively limited generation shifting in developing the budgets, through use of state-level generation constraints, the EPA believes that generation shifting may occur broadly among states as a compliance mechanism and so removed that constraint for the IPM Final Cases reflecting program implementation."[70] Unless EPA demonstrates that cleaner generation resources are unavailable in the near term (and the long term), it cannot reasonably make such an arbitrary assumption. Nor can it maintain the arbitrary assumption that the amount of generation-shifting available in the near-term is somehow related to state borders. Instead, EPA must evaluate the full measure of generation-shifting potential on the grid and incorporate those available reductions into the state budgets. In addition, even if some fraction of this emission reduction potential were unavailable in the very short term (by the start of the 2021 ozone season), there still would be no basis for EPA to claim that a full measure of generation shifting is not available in future ozone seasons. In light of the statutory attainment deadline in July 2021, EPA must require these reductions for the 2021 ozone season, or as soon as possible thereafter. *See supra* part V (impossibility discussion).

---

[70] EPA, Ozone Transport Policy Analysis Proposed Rule Technical Support Document (TSD) at 9 (Oct. 2020), https://www.epa.gov/sites/production/files/2020-10/documents/ozone_transport_policy_analysis_proposed_rule_tsd_.pdf, EPA-HQ-OAR-2020-0272-0065.

Tightening state budgets through the incorporation of the full measure of pollution reductions available through generation shifting will benefit millions of people exposed to unhealthy levels of ozone pollution. Further, unlike interstate trading of emissions credits, the recognition and incorporation of these available reductions will not increase pollution locally. In fact, EPA can (and should) impose daily pollution limits and limitations on the interstate trading of emission credits to protect overburdened communities and ensure that downwind air quality improvements are actually achieved in the areas where they are most needed.

B. EPA must take into account economic retirements of EGUs and the resulting NO_x emission reductions when both calculating and updating state budgets.

1. EPA must fully account for scheduled retirements when it calculates state budgets.

In the Proposed Revised CSAPR Update, EPA has appropriately accounted for emission reductions from scheduled EGU retirements and removed these emissions from state budgets in 2021 and future years. *See* 85 Fed. Reg. at 69,007-08. We strongly support EPA's proposal in this respect. Yet EPA's estimated emission reductions from scheduled retirements, at 8,744 tons of NO_x, are too low.[71] Scheduled retirements in Group 3 states will likely reduce thousands more short tons of NO_x by the 2022 ozone season. For instance:

- In Michigan, EPA projects only 162 tons of NO_x reductions from retirements by the 2022 ozone season.[72] These reductions appear to result entirely from the retirement of J B Sims Unit 3, which was scheduled to retire in June 2020, and of Eckert Station Units 4, 5, and 6, which are schedule to retire in December 2020.[73] Yet, by May 2022, more EGUs in Michigan will have retired: River Rouge Unit 3, resulting in an additional 455 tons of post-May ozone season NO_x reductions; St. Clair Units 2, 3, 6, and 7, resulting in 1,620

---

[71] *See* EPA, Ozone Transport Policy Analysis Proposed Rule TSD, app. A at worksheet "State 2022," columns B, D (showing baseline NO_x emission reductions of 3,529 tons in Kentucky, 162 tons in Michigan, 2,219 tons in Illinois, 473 tons in Ohio, 1,211 tons in Indiana, 523 tons in Pennsylvania, 493 tons in Virginia, 37 tons in New York, and 97 tons in Maryland, summing to 8,744 tons NO_x).

[72] *See id.*

[73] *See* "Planned Retirements by 2022 OS – Group 3," attached as Exhibit 33; "Air Markets Program Data Query_2019 CSAPR OS Emissions by Month" (showing 2019 ozone season emissions of 40 tons of NO_x from the retiring units at Eckert Station and 117 tons of NO_x from the retiring unit at the J B Sims plant), attached as Exhibit 34.

tons; and Trenton Channel Unit 9, resulting in 434 tons.[74] EPA cannot ignore the more than 2,500 tons of ozone season NO_x reductions that would result from these changes to its baseline emissions in calculating Michigan's budget in 2022, simply because these units could operate for one month of the five-month ozone season.

- In Illinois, EPA projects 2,219 tons of NO_x reductions from retirements by the 2022 ozone season.[75] These reductions appear to result from the following retirements: Coffeen Units 1 and 2, which retired in November 2019 and emitted 777 tons of NO_x in the 2019 ozone season; Duck Creek Unit 1, which retired in December 2019 and emitted 466 tons of NO_x in the 2019 ozone season; Havana Unit 6, which retired in November 2019 and emitted 348 tons of NO_x in the 2019 ozone season; Hennepin Units 1 and 2, which retired in November 2019 and emitted 593 tons of NO_x in the 2019 ozone season; and Dallman Units 1 and 2, which are retiring in December 2020 and emitted 36 tons of NO_x in the 2019 ozone season.[76] Additional EGUs, however, are likely to retire during the time period covered by the Revised CSAPR Update budgets, and could do so before or during the 2022 ozone season: Marion Unit 4 is expected to retire imminently,[77] having emitted 290 tons of NO_x in the 2019 ozone season;[78] and the Edwards Power

---

[74] *See* "Planned Retirements – by 2022 OS Group 3"; "Air Markets Program Data Query_2019 CSAPR OS Emissions by Month."

[75] *See* EPA, Ozone Transport Policy Analysis Proposed Rule TSD, app. A at worksheet "State 2022," columns B, D.

[76] *See* "Planned Retirements – by 2022 OS Group 3"; "Air Markets Program Data Query_2019 CSAPR OS Emissions by Month."

[77] Molly Parker, *Southern Illinois Power Co-op plans to shutter its largest coal-fired unit this fall*, THE SOUTHERN ILLINOISAN (June 8, 2020), https://thesouthern.com/news/local/southern-illinois-power-co-op-plans-to-shutter-its-largest-coal-fired-unit-this-fall/article_7ec9c134-48db-5448-953c-4a435aeddcd5.html, attached as Exhibit 35.

[78] *See* "Air Markets Program Data Query_2019 CSAPR OS Emissions by Month."

Plant must retire by the end of 2022 under a court settlement,[79] having emitted 1,054 tons of NO_x in the 2019 ozone season.[80]

- In Illinois, EPA projects 473 tons of NO_x reductions from retirements by the 2022 ozone season.[81] These reductions appear to result from the retirement of Conesville Unit 4, which emitted 556 tons of NO_x in the 2019 ozone season and retired in June 2020.[82] Yet W.H. Sammis Units 5, 6, and 7 emitted 992 tons of NO_x in the 2019 ozone season, and FirstEnergy Solutions has announced its plans to deactivate these units by June 1, 2022.[83] Even subtracting the 118 tons emitted by these three units in May 2019,[84] EPA cannot disregard the 874 tons of additional NO_x emission reductions in the 2022 ozone season from the likely retirement of the W.H. Sammis plant.

---

[79] Vistra Energy, Illinois Edwards Coal Plant Retirement Settlement (Sept. 16, 2019), https://investor.vistracorp.com/investor-relations/news/press-release-details/2019/Environmental-Groups-Illinois-Power-Resources-Generating-LLC-Propose-Settlement-Agreement-to-Retire-Edwards-Coal-Plant-and-Fund-Community-Projects/default.aspx, attached as Exhibit 36.

[80] *See* "Air Markets Program Data Query_2019 CSAPR OS Emissions by Month."

[81] *See* EPA, Ozone Transport Policy Analysis Proposed Rule TSD, app. A at worksheet "State 2022," columns B & D.

[82] *See* "Planned Retirements – by 2022 OS Group 3"; "Air Markets Program Data Query_2019 CSAPR OS Emissions by Month."

[83] FirstEnergy Solutions Files Deactivation Notice for Oil- and Coal-fired Plants in Ohio and Pennsylvania, PR NEWSWIRE (Aug. 29, 2018), https://www.prnewswire.com/news-releases/firstenergy-solutions-files-deactivation-notice-for-oil--and-coal-fired-plants-in-ohio-and-pennsylvania-300704459.html, attached as Exhibit 37. FirstEnergy's CEO has said that the W.H. Sammis plant could continue to operate if the Ohio legislature passed a bailout for the company's nuclear plants. *See* Linda Harris, Sammis fate rests on state bailout, HERALD-STAR, (June 21, 2019), https://www.heraldstaronline.com/news/local-news/2019/06/sammis-fate-rests-on-state-bailout/, attached as Exhibit 38. The controversial bill, H.B. 6, did pass but is now under discussion in the legislature for modification or repeal. *See* Jeremy Pelzer & Andrew J. Tobias, Ohio lawmakers move to delay nuclear subsidies in scandal-ridden House Bill 6, cleveland.com (Dec. 1, 2020), https://www.cleveland.com/open/2020/12/ohio-lawmakers-move-to-delay-nuclear-subsidies-in-scandal-ridden-house-bill-6.html, attached as Exhibit 39.

[84] *See* "Air Markets Program Data Query_2019 CSAPR OS Emissions by Month."

In sum, EPA must ensure that it has examined the most up-to-date, comprehensive list of scheduled retirements and has accounted for all NO_x reductions that would likely occur by the 2022 ozone season from these retirements before it finalizes the rule.

An adjustment mechanism that would reduce state budgets to account for unexpected retirements, discussed below, does not on its own suffice. Rather, EPA must calculate the budgets based on the best information as to retirements available to EPA at the time it finalizes the rule, as is required by non-arbitrary rulemaking.

2. EPA must include a mechanism that would adjust state budgets when EGUs retire unexpectedly.

For the same reason that EPA must account for scheduled and projected retirements—namely, that failure to do so would be an arbitrary departure from EPA's stated approach of requiring all highly cost-effective reductions, and runs counter to the statutory obligation to resolve significant interstate contributions to attainment and maintenance problems by the attainment deadline—EPA must also account for unexpected retirements by decreasing state budgets. Were EPA to allow state budgets to continue to include the retired EGU's emissions, some operating EGUs would likely forgo installing or running controls and instead purchase the excess allowances at a low price. The state would therefore not eliminate its significant contribution to downwind nonattainment or maintenance issues through application of cost-effective controls.

Further, the retirements themselves should be counted among the suite of cost-effective controls—below the selected cost threshold—that the baseline fleet must deploy in order for a state to eliminate its significant contribution. All retirements represent cost-effective and cost-reasonable controls that have become newly available in later years of the program because owners and operators have deemed them economical. These steps would fall at the far left of the curve plotting reduced tons of NO_x against the cost-effectiveness of the measure. Because owners and operators will have decided to retire EGUs not as an EPA-required NO_x-reduction measure, the cost-per-ton of these actions is effectively zero.

EPA may include in the final rule a mechanism that would allow it to make ministerial adjustments to state budgets to account for unexpected retirements without reopening the rulemaking. This approach would be similar to allocations to existing units, which EPA typically carries out through notices of data availability. *See* 85 Fed. Reg. at 69,093-94 (proposed 40 C.F.R. § 97.1011(a)). Alternatively, EPA could specify in its final rule an automatic mechanism that would reduce state budgets according to a formula, as triggered by any budget unit's retirement. This approach would be similar to the mechanism whereby EPA discontinues allocations of allowances to budget units that cease operations after five years of non-operation. *See* 85 Fed. Reg. at 69,016; *see also id.* at 69,093-94 (proposed 40 C.F.R. § 97.1011(b)).

VII. COST-EFFECTIVE REDUCTIONS OF NOX EMISSIONS FROM NON-EGU SOURCES ARE AVAILABLE AND MUST BE REQUIRED BY EPA TO THE EXTENT NECESSARY TO SATISFY THE GOOD NEIGHBOR PROVISION.

Information currently available to EPA as well as the agency's own analyses show that there is significant NOx emission reduction potential from non-EGU sources, and that cost-effective options for achieving those reductions exist. Therefore, under EPA's current interpretation of the good neighbor provision, non-EGU sources must be required to implement measures to reduce NOx emissions if EGU emissions reductions are not sufficient to resolve downwind nonattainment and maintenance problems. While additional information regarding NOx emissions, reduction potential, and costs from non-EGU sources is certainly welcome, particularly as the Agency will need to implement the 2015 NAAQS in the near future, we do not believe it is necessary for the purpose of implementing the 2008 standard. While EPA's current analysis of non-EGUs is heavily skewed by questionable decisions, when combined with the Agency's previous analysis for the CSAPR Update and additional information, there is more than adequate justification for regulation of non-EGUs under the good neighbor provision.

A. EPA must require NOx emission reductions from non-EGUs if the agency cannot or chooses not to eliminate significant contributions to downwind nonattainment and maintenance through reductions from EGUs alone.

As discussed in Section V, the CAA requires a state implementation plan (SIP) or federal implementation plan (FIP) to eliminate upwind states' significant contributions to nonattainment or maintenance problems in downwind states. Therefore, if EPA finds it is impossible to eliminate significant contributions to downwind ozone air quality problems through NOx emission reductions at EGUs alone, the Agency must require reductions from non-EGU sources to the extent they are possible in order to comply with the good neighbor provision. Since the Agency does not claim—let alone establish—that reductions from non-EGUs are impossible, they must be required under the statute. Further, it would be arbitrary and capricious to fail to require reductions from these sources, especially since EPA has previously acknowledged that "non-EGU NOx emissions are becoming a larger share of overall ozone-season NOx emissions (16% in 2011 compared with 21% in 2017)."[85]

To the extent EPA cites concerns about uncertain reductions and incomplete information, those concerns do not justify excluding non-EGUs from regulation. That is precisely the excuse that the D.C. Circuit rejected in *Wisconsin.* 938 F.3d at 319. Further, EPA has been aware of any limitations and uncertainties in its data for years and failed to resolve them. And those concerns cannot form the basis for declining to seek NOx emission reductions from non-EGUs under the good neighbor provision. The statutory language does not limit the scope of the good neighbor

---

[85] Assessment of Non-EGU NOx Emission Controls, Cost of Controls, and Time for Compliance Final TSD, at 5 (Aug. 2016), EPA-HQ-OAR-2018-0225-0023 [hereinafter 2016 Non-EGU TSD].

provision to EGUs, and therefore in the absence of sufficient NOx emission reductions from EGUs, and unless EPA makes a sufficient showing of impossibility (which it has not), the Agency must require NOx emission reductions from non-EGU sources under the good neighbor provision to resolve any nonattainment and maintenance problems. EPA's proposed conclusion, that no emission reductions from non-EGU sources are necessary to eliminate significant contribution under the good neighbor provision for the 2008 ozone NAAQS, is incorrect and, for the reasons given below, arbitrary. EPA must require NO_x reductions from these sources that eliminate significant contributions to downwind nonattainment receptors or interfere with downwind maintenance.

B. EPA's analysis of NOx emissions reduction potential at non-EGUs for the Revised CSAPR Update is arbitrarily limited, but when combined with additional information it is clear that there are significant NOx emissions reductions available from non-EGUs.

In considering the available NOx emission reductions and control options for non-EGUs, EPA limited and skewed its analysis in a number of arbitrary ways. These include limiting the assessment to units that emit at least 150 tons of NOx per year, cutting back its analysis to a subset of states, and arbitrarily dividing industries and technologies into two tranches. EPA repeatedly shrinks the scope of its analysis of non-EGU sources and then proposes that there is a relatively smaller quantity of available NOx reductions and that these control strategies are estimated to have a limited impact on further improving air quality. EPA should conduct its assessment of non-EGU sources without arbitrarily skewing its analysis in ways that disfavor regulation.

1. EPA's analysis was skewed by numerous decisions likely to cause the Agency to underestimate the available NOx emissions reductions.

The first significant limitation in EPA's assessment of non-EGUs is that EPA arbitrarily limited its analysis to units that emit at least 150 tpy. EPA claims that 150 tpy is a comparable emissions threshold to an average 25 MW EGU unit, which has been used in prior interstate transport rules and is the lower limit for the current CSAPR trading program. 85 Fed. Reg. at 68,993. However, the Agency acknowledges in the 2020 non-EGU Technical Memorandum that previous interstate transport rulemakings assessed units with pre-control NOx emissions greater than or equal to 100 tpy.[86] Furthermore, in the 2016 non-EGU TSD, "[f]or the purpose of identifying a list of non-EGU NOx source groups with controls available, the EPA ran CoST for non-EGU point sources for the 37 eastern U.S. with NOx emissions of greater than 25 tons/year

---

[86] EPA, Technical Memorandum Regarding Assessing Non-EGU Emission Reduction Potential at 8 (Sept. 2020), EPA-HQ-OAR-2020-0272-0014 [hereinafter 2020 Non-EGU Technical Memorandum].

in 2017."[87] While that rule covered more states, the difference in scope of analysis due to the lower emissions threshold may also be responsible for significant discrepancies between the 2016 Non-EGU TSD and the 2020 Non-EGU Technical Memorandum.

EPA lacks statutory authority to exclude these pollution sources from the coverage of the good neighbor provision, which extends to "any source or other type of emissions activity" that significantly contributes to downwind nonattainment or interferes with downwind maintenance, and plainly contemplates regulation of relatively small contributions. 42 U.S.C. § 7410(a)(2)(D)(i). The agency's decision to exclude non-EGU sources is also in unexplained conflict with its prior consistent recognition that the interstate ozone problem is driven by the "collective impacts of relatively small contributions." 81 Fed. Reg. at 74,581. Nor does the Agency provide a rational explanation as to why previously included units that emit 100-150 tons of NOx per year should be excluded from this assessment.

Rather than trying to compare non-EGU sources to EGUs, EPA should at the very least return to the 100 tpy threshold that it has used previously for interstate transport rulemakings, and should consider lowering the threshold to either 50 or 25 tpy to provide a more comprehensive analysis. The 150 tpy threshold severely limits the scope of EPA's analysis. In its 2016 non-EGU TSD, EPA's CoST analysis identified 438 gas turbines with potential NOx emission reductions of 7,193 tons and 350 Natural Gas ICI Boilers with 6,814 tons that emitted 25-100 tpy of NOx.[88] Although that analysis applied to additional states beyond the twelve at issue in this rule, it is clear that by using a 150 ton per year threshold the Agency risks significantly underestimating the potential for NOx emissions reductions from non-EGU sources.

EPA's division of industries and technologies into two tranches was also arbitrary and unnecessary, and led to an abbreviated and incomplete analysis. EPA based this division on a supposed breakpoint for weighted average at $2,000, 85 Fed. Reg. at 68,994, which is too low and artificially limits the scope of the Agency's analysis. EPA goes into significantly more depth in its assessment of the technologies and sources in Tranche 1, while limiting its analysis of technologies and sources in Tranche 2, for which the Agency made no determination as to whether the potential emissions reductions were cost-effective.[89] This is unwarranted, as Tranche 2 contains a variety of technologies and sources with costs per ton of NOx emission reduction

---

[87] 2016 Non-EGU TSD at 9.

[88] 2016 Non-EGU TSD at 21, Attachment A.

[89] *See generally* 2020 Non-EGU Technical Memorandum.

ranging from $1,400–$9,700.[90] EPA should consider whether further disaggregation of options in Tranche 2 would reveal additional cost-effective options for NOx reductions. In addition to using $2,000 as an arbitrary break point for dividing the two tranches by weighted average, EPA further limits its analysis of Tranche 1 to only potential emissions reductions estimated to cost less than or equal to $2,000 per ton.

EPA's repeated use of this arbitrary $2,000 threshold is arbitrary and unwarranted. In the 2016 non-EGU TSD, rather than using a $2,000 threshold, EPA focused on analyzing control options available for $3,400 per ton or less, which was considered "consistent with the range [EPA] analyzed for EGUs in the proposed and final rules, and [was] also consistent with what the EPA ha[d] identified in previous transport rules as highly cost-effective, including the NOx SIP call."[91] EPA provides no explanation for why it has chosen to limit its analysis for the Revised CSAPR Update to options available at a cost of up to $2,000 per ton when it had previously examined control options with costs up to $1,400 higher that were considered highly cost effective.

If use of a threshold were permissible, then a threshold around $3,400 would be more consistent with EPA's previous practice and what it had considered highly-cost effective for previous rules. EPA provides no rational reason to depart from that previous threshold, and in doing so, the Agency risks arbitrarily and excessively limiting the scope of its analysis and underestimating the reductions that can be achieved from non-EGUs.

EPA also limited its analysis by focusing on non-EGU sources in Indiana, New York, Ohio, and Pennsylvania. 85 Fed. Reg. at 68,999. While these states may have some of the most significant sources of NOx emissions from non-EGUs, *see id.*, EPA should not arbitrarily and unnecessarily limit its analysis. To provide a more comprehensive analysis, EPA should consider at least expanding its analysis to include all of the states linked to the Westport receptor.

For New Jersey, the 2020 Non-EGU Technical Memorandum claims there are no potential NOx emissions reductions because the projected 2023 emissions inventory did not include non-EGU point sources in New Jersey with emissions greater than 150 tpy for which CoST had applicable control measures.[92] However, among facilities with Title V permits in 2018, the Phillips 66 Bayway Refinery emitted 822.84 tons of NOx, the Covanta Essex incinerator emitted 789.58 tons, and the Covanta Union incinerator emitted 636.33 tons.

---

[90] 2020 Non-EGU Technical Memorandum at 7, Table 5.

[91] 2016 Non-EGU TSD at 18.

[92] 2020 Non-EGU Technical Memorandum at 10.

Together, these emissions would easily exceed the Revised CSAPR Update's proposed 2023 NOx emissions budget of 1,253 tons for New Jersey. 85 Fed. Reg. at 69,011, Tbl. VIII.C.2-3. EPA's failure to determine what control measures can be employed by these and other very large industrial polluters is unlawful and arbitrary. *See Wisconsin*, 938 F.3d at 319 ("[A]dministrative infeasibility, like scientific uncertainty, cannot justify . . . noncompliance with the statute."). Indeed, EPA has been citing lack of information to avoid controlling non-EGU sources for more than a decade. EPA cited lack of information to justify declining to require reductions from non-power plant sources for the Clean Air Interstate Rule in 2005, claiming it was "working to improve its inventory of emissions and control cost information for non-EGU boilers and turbines." 70 Fed. Reg. 25,162, 25,214 (May 12, 2005). Eleven years later, in the 2016 Transport Rule, EPA was "still in the process." 81 Fed. Reg. at 74,522/2. EPA's failure to explain why it *still* has not obtained the information it needs is arbitrary. EPA "has offered no good reason for treating this problem with such passivity," *Pub. Citizen v. Fed. Motor Carrier Safety Admin.*, 374 F.3d 1209, 1222 (D.C. Cir. 2004), particularly because the Act grants EPA authority to collect the information it needs, 42 U.S.C. § 7414(a)(1). "Having chosen not to [collect the appropriate data], EPA cannot now rely on the resulting paucity of data[.]" *North Carolina*, 531 F.3d at 920.

EPA also skews its analysis and potentially downplays the significance of NOx emissions reductions from non-EGUs by assuming that controls on non-EGUs cannot be installed prior to 2023. This assumption is based on its unsupported claim that cost-effective controls "could likely take 2-4 years to install," 85 Fed. Reg. at 69,003, and "EPA believes that the 2023 ozone season is the earliest ozone season by which these non-EGU controls could likely be installed,"[93]85 Fed. Reg. at 68,999. EPA assumes that this is the case for the range of technologies in both tranches, 85 Fed. Reg. at 69,004, but does not provide a rational explanation or record support.[94] 85 Fed. Reg. at 69,000. Considering the variety of sources and available options for controls in the two tranches, this is hardly persuasive justification. And in fact, there is noteworthy information that contradicts this assumption, as EPA admits that in the case of SNCR applied to cement kilns the Agency has previously estimated an installation time of 42–51 weeks.[95] EPA also estimated that SNCR, LNB, and SCR could be installed at various boilers in 6 months to 58 weeks.[96] In light of this information, EPA should reconsider whether non-EGU sources can install controls prior to 2023.

---

[93] 85 Fed. Reg. at 68,999.

[94] 85 Fed. Reg. at 69,000.

[95] *Id*.

[96] 2016 Non-EGU TSD at 14–15, Tbl. 3.

2. Available information indicates that significant NOx emissions reductions can be achieved at non-EGU sources.

Despite questionable and arbitrary decisions regarding scope and timing, EPA's analysis finds significant potential for NOx emission reduction from non-EGUs in 2023. EPA's analysis found 30,537 tons of reductions from Tranche 1,[97] and 41,480 tpy from Tranche 2.[98] These would obviously be significant reductions for the purpose of this rule. Although EPA seeks to cast doubt on these reductions, available information indicates significant potential NOx reductions from non-EGUs.

Even with EPA narrowing its analysis to four states, the Agency's analysis suggests there are 6,346 tons of cost-effective reductions available from Tranche 1 in the 2023 ozone season.[99] This would still be a significant number, but EPA also sets aside 4,110 tons of reductions because they "are not or may not be true emissions reductions" due to potentially incorrect emissions data and unit shutdowns.[100] While shutdown units should not be included, EPA cannot rationally eliminate available pollution reductions because of *potentially* incorrect emissions data, and should reconsider this approach. Furthermore, as mentioned previously, EPA should consider expanding its analysis to include some of the more cost-effective options in Tranche 2, as some portion of the 41,480 tons of NOx reductions EPA has identified for Tranche 2 may be achievable through cost-effective measures and these reductions should be subtracted from state budgets even under EPA's current interpretation of the good neighbor provision.

The 2016 Non-EGU TSD contains additional NOx emissions reductions that were excluded from the 2020 Non-EGU Technical Memorandum analysis due to EPA's excessively high 150 tpy threshold. The 2016 Non-EGU TSD includes 517 sources that emit 25 to 100 tons of NO_x per year in the 11 states linked to the Westport receptor (i.e., the states subject to the Revised CSAPR Update except Louisiana).[101] EPA's CoST analysis estimated 8,997 tons of NOx emissions reductions available from those sources.[102] These are clearly significant NOx emissions reductions at non-EGU sources that, as explained above, EPA must re-examine.

---

[97] 2020 Non-EGU Technical Memorandum at 5, Tbl. 3.

[98] 2020 Non-EGU TSD at 7.

[99] 2020 Non-EGU Technical Memorandum at 23, Tbl. 13.

[100] 2020 Non-EGU Technical Memorandum at 27.

[101] 2016 Non-EGU TSD at PDF 174, Att. 5.

[102] *Id.*

C. EPA's analysis and available information show significant NOx reductions are available from non-EGUs and can be achieved through cost-effective measures.

EPA's current analysis, previous analysis for the CSAPR Update, and outside information show that there are cost-effective options for reducing NOx emissions from non-EGU sources. These include significant reductions through a variety of measures applied to cement kilns, glass manufacturing, natural gas RICE pipeline compressors, and non-EGU boilers and turbines.

1. As EPA admits, NOx emissions from cement kilns and glass manufacturing can be reduced through cost-effective controls.

Significant NOx emissions reductions from cement kilns and glass manufacturing can be achieved at particularly low cost. EPA's 2020 Non-EGU Technical Memorandum estimates that 3,711 tons of NOx emissions could be reduced from cement kilns at a cost of $1,300-$2,000 per ton.[103] Also, in its 2016 Non-EGU TSD, EPA estimated that cement kilns could utilize Biosolid Injection Technology to reduce NOx emissions at a cost of $410 per ton, and that kilns that use the wet process could implement mid-kiln firing at a cost of $73 per ton.[104] All of these options should be considered cost-effective, even if EPA's cost estimate is off by the Agency's 30 percent accuracy range.[105]

Furthermore, EPA should consider SCR as a control technology for cement plants. SCR has been used at cement kilns across the globe, and a cement plant in Joppa, Illinois, has successfully demonstrated its use in the U.S. with a reported 80 percent removal rate for NOx, while a plant in Midlothian, Texas, has obtained a permit to install SCR units on its kilns.[106] As far back as 2008, the National Association of Clean Air Agencies recommended SCR as the best

---

[103] 2020 Non-EGU Technical Memorandum at 5, Tbl. 3.

[104] 2016 Non-EGU TSD at 11-12, Tbl. 3.

[105] 2016 Non-EGU TSD at 10.

[106] Dr. Ranajit (Ron) Sahu, Comments on the Reasonably Available Control Technology (RACT) and Reasonably Available Control Measures (RACM) for the 2008 Ozone NAAQS Attainment SIP Modifications Proposed by the Texas Commission on Environmental Quality (TCEQ) for the Houston-Galveston-Brazoria (HGB) and Dallas Fort Worth (DFW) Non-Attainment Areas, attached as Exhibit 40.

demonstrated technology for controlling NOx from cement kilns, and referred to SCR as "the regulated future" for cement kilns.[107]

EPA's 2020 Non-EGU Technical Memorandum also identifies 15,570 tons of potential NOx emission reductions at a cost of $64-$4,200 per ton from SCR on glass manufacturing alone in 2023.[108] EPA claims that the $64 estimate is incorrect and likely on the order of $800,[109] but even if that is the case it should still easily be considered a cost-effective option. Even the high-end $4,200 estimate is fairly close to the $3,400 per ton that EPA has previously considered highly cost-effective,[110] and if overestimated by the 30 percent accuracy range could be less than $3,400 per ton.

2. Natural gas RICE pipeline compressors, other IC engines, incinerators, and non-EGU boilers and turbines offer significant opportunities for cost-effective reductions of NOx emissions.

In this proposal, EPA asks if emissions reductions should be sought from the IC engines at compressor stations, the largest NOx-emitting non-EGU sector affecting the 12 states in this proposal (C-20). 85 Fed. Reg. at 69,006. Because there are a number of cost-effective and efficient options for reducing emissions from this sector, we urge the Agency to seek reductions from these sources.

In EPA's 2016 Non-EGU TSD for the CSAPR Update, the Agency identified a number of highly cost-effective options for reducing NOx emissions from natural gas RICE pipeline compressors. EPA estimated that these compressors could adjust their air to fuel ratio and ignition timing to achieve emissions reductions at a cost of $249 per ton.[111] EPA also estimated that rich burn natural gas RICE pipeline compressors could use non-selective catalytic reduction to reduce NOx emissions at a cost of $517 per ton.[112] EPA also estimated that lean burn/clean burn natural gas RICE pipeline compressors could utilize low emission combustion at a cost of

---

[107] NACAA Comments on Portland Cement NSPS, at 2, http://www.4cleanair.org/sites/default/files/Documents/ATTACHMENTNOXFINALASFILED.pdf, attached as Exhibit 41.

[108] 2020 Non-EGU Technical Memorandum at 5.

[109] 2020 Non-EGU Technical Memorandum at 4 n.11.

[110] 2016 Non-EGU TSD at 18.

[111] 2016 Non-EGU TSD at 13, Tbl. 3.

[112] 2016 Non-EGU TSD at 13, Tbl. 3.

$649 per ton.[113] As EPA notes in the proposal, many of these facilities are still powered by decades-old uncontrolled IC engines, 85 Fed. Reg. at 69,006, so many of these reductions are likely still available. And even if any of these costs are off by EPA's estimated accuracy range of 30 percent they would still be highly cost-effective options. These measures provide a strong basis for EPA to require NOx reductions from natural gas RICE pipeline compressors. Indeed, EPA's failure to require these available reductions is unlawful, given EPA's still-unmet statutory obligation, and in unexplained and arbitrary conflict with EPA's stated policy of requiring cost-effective reductions.

Furthermore, according to a report by the Southwest Energy Efficiency Project sponsored by the Colorado Energy Office,[114] changes at compressor stations may also have significant benefits by improving efficiency and reducing energy cost. Electric drives cost less to install and reduce annual operating costs significantly compared to gas engine compressor drives.[115] Electric-driven natural gas compressors are also more energy-efficient and result in significantly less methane and net carbon dioxide emissions compared to gas engine compressors.[116] For an existing compressor, replacing a lean-burn natural gas engine with an electric motor drive may be cheaper than installing NOx emission controls, and gas engines require maintenance about every 5,000 hours of operation which is costly and results in down-time, while electric motor drives require little maintenance.[117] Also, "[m]ethane emissions result from leaks in the gas supply line to the engine, incomplete combustion, or during system upsets."[118] Therefore, installing an electric motor instead of a gas-fired unit "will increase operational efficiency, reduce maintenance costs, and yield significant methane savings."[119]

Other industrial IC engines also present opportunities for reducing NOx emissions. EPA estimates approximately 8,000 tons of NOx emission reductions are available in 2023 in the 12

---

[113] 2016 Non-EGU TSD at 13, Tbl. 3.

[114] Neil Kolwey, Energy Efficiency and Electrification Best Practices for Oil and Gas Production (Aug. 2020), https://www.swenergy.org/pubs/energy-efficiency-and-electrification-best-practices-for-oil-and-gas-production, attached as Exhibit 42.

[115] *Id.* at 6.

[116] *Id.*; *see also id.* at 8.

[117] *Id.* at 7.

[118] Partner Reported Opportunities (PROs) for Reducing Methane Emissions, Install Electric Compressors, https://www.epa.gov/sites/production/files/2016-06/documents/installelectriccompressors.pdf, attached as Exhibit 43.

[119] *Id.*

states identified as linked by the Revised CSAPR Update from applying low emission combustion on IC engines.[120] And in the 2016 non-EGU TSD, EPA estimated that miscellaneous natural gas RICE could reduce NOx emissions at a cost of $447 per ton by adjusting their air to fuel ratio and ignition timing.[121] EPA should also consider electrification as a way of completely eliminating NOx emissions from these IC engines and also gaining additional benefits, as "[e]lectric motors are more reliable and more efficient as stand-alone pieces of equipment than either gas engines or gas turbines. They are able to ramp up more rapidly than gas driven prime movers."[122] Electrification would also result in substantial reductions in emissions of methane and VOCs from gas-fired engines.

Although they are exempt from the Revised CSAPR Update proposal, 85 Fed. Reg. at 69,009, and excluded from the 2020 Non-EGU TSD, incinerators also present cost-effective opportunities for NOx reductions. In the 2016 Non-EGU TSD, EPA found that incinerators were one of several source groups with significant cost-effective reductions available. EPA estimated that SNCR could be installed on incinerators at an estimated annualized cost of $1,842 in 42-51 weeks.[123] Based on this information, EPA should reconsider its decision to exempt incinerators from regulation under the proposed Revised CSAPR Update.

Finally, EPA has already previously determined in the NOx SIP call that controls on large non-EGU boilers and turbines, specifically boilers and turbines with heat inputs greater than 250 million Btu or NOx emissions greater than 1 ton per ozone season day, are cost effective, and states were allowed to include them in their budgets to provide opportunities to reduce NOx emissions. *See* 85 Fed. Reg. at 69,005. EPA's 2020 Non-EGU Technical Memorandum identifies 17,341 tons of potential NOx emission reductions in 2023 from ICI boilers, with an annual cost per ton of $1,400-$9,700.[124] This wide range of costs is understandable considering the variety of ICI boilers, and EPA may want to consider further disaggregating this category. Also, in the 2016 Non-EGU TSD, EPA's CoST analysis shows low NOx burners and SCR could be installed at ICI boilers at a cost of $3,456 per ton.[125] This is

---

[120] 2020 Non-EGU Technical Memorandum at 30, Tbl. 15.

[121] 2016 Non-EGU TSD at 13, Tbl. 3.

[122] Jeffery B. Greenblatt, U.S. Dep't of Energy, Opportunities for Efficiency Improvements in the U.S. Natural Gas Transmission, Storage and Distribution System 12–13, 15, 31–32, 48 Tbl.7 (May 2015), attached as Exhibit 44.

[123] 2016 Non-EGU TSD at 19.

[124] 2020 Non-EGU Technical Memorandum at 7, Tbl. 5.

[125] 2016 Non-EGU TSD at 15, Tbl. 3.

around EPA's previous threshold for highly cost-effective options of $3,400.[126] While the 2020 Technical Memorandum and Revised CSAPR Update do not contain analysis of NOx emissions reductions available from turbines,[127] EPA did conduct an analysis in 2016, which showed significant potential for cost-effective NOx reductions. EPA's 2016 Non-EGU TSD estimated that gas turbines could install low NOx burners at a cost of $163-$800 per ton in 6-12 months,[128] which would clearly be a cost-effective option. Based on the available information, EPA should require these boilers and turbines to reduce their emissions to at least the level that can be achieved through the installation of low NOx burners. 85 Fed. Reg. at 69,005 (C-18).

VIII. CONCLUSION

This proposed rule is an important step towards redressing the serious public health problem of ground-level ozone pollution that exceeds health-based limits in the Eastern United States. But more robust action is needed to protect communities. We urge EPA to strengthen the proposed rule before finalization to require greater reductions in the interstate pollution that continues to cause or contribute to nonattainment of the 2008 ozone standard and interfere with its maintenance.

---

[126] 2016 Non-EGU TSD at 18.

[127] *See* 2020 Non-EGU Technical Memorandum at 31 (soliciting comment on this issue).

[128] 2016 non-EGU TSD at 13, Tbl. 3.