UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Determination Regarding Good Neighbor Obligations for the 2008 Ozone National Ambient Air Quality Standard; Proposed Rule 83 Fed. Reg. 31,915 (July 10, 2018)	Docket ID No. EPA–HQ–OAR–2018–0225

COMMENTS OF EARTHJUSTICE, SIERRA CLUB, APPALACHIAN MOUNTAIN CLUB, ENVIRONMENTAL DEFENSE FUND, CHESAPEAKE BAY FOUNDATION, ENVIRONMENTAL LAW AND POLICY CENTER, CLEAN AIR TASK FORCE, DOWNWINDERS AT RISK, NAACP, AND TEXAS ENVIRONMENTAL JUSTICE ADVOCACY SERVICES ON EPA'S PROPOSED BAD NEIGHBOR RULE

Earthjustice, Sierra Club, Appalachian Mountain Club, Environmental Defense Fund, Chesapeake Bay Foundation, Environmental Law and Policy Center, Clean Air Task Force, Downwinders at Risk, NAACP, and Texas Environmental Justice Advocacy Services submit these comments on EPA's proposed decision not to require any further reductions in the air pollution that travels across state lines and prevents several Eastern states from attaining or maintaining the ozone air quality standard that EPA adopted in 2008. *See* Determination Regarding Good Neighbor Obligations for the 2008 Ozone National Ambient Air Quality Standard, 83 Fed. Reg. 31,915 (July 10, 2018). Because EPA's proposal runs directly counter to the text and purpose of the Clean Air Act's Good Neighbor Provision, 42 U.S.C. 7410(a)(2)(D)(i)(I), these comments refer to the proposed rule as the Bad Neighbor Rule.

If finalized, the Bad Neighbor Rule would illegally authorize continued cross-state air pollution and expose millions of people in downwind states—people who disproportionately are members of racial and ethnic minority groups—to increased risk of serious health problems, including asthma attacks, lung damage, and premature mortality. As detailed in these comments, EPA's proposal cannot be reconciled with the Clean Air Act's requirement that EPA prohibit interstate pollution that significantly contributes to nonattainment of air quality standards or interferes with maintenance of air quality standards, *see* 42 U.S.C. 7410(a)(2)(D)(i)(I), and is otherwise unlawful and arbitrary.

I.   **INTERSTATE TRANSPORT POLLUTION CONTRIBUTES SIGNIFICANTLY TO ONGOING DIFFICULTY ATTAINING AND MAINTAINING THE 2008 OZONE STANDARD IN COVERED EASTERN STATES.**

A.   Interstate transport contributes to Eastern states' ongoing difficulties in attaining and maintaining the 2008 ozone standard.

1. EPA Predicted in the 2016 Transport Rule that many Eastern states would fail to attain and maintain the 2008 ozone standard in 2017 due in significant part to interstate pollution.

EPA issued the 2016 Transport Rule, 81 Fed. Reg. 74,504 (Oct. 26, 2016), also called the CSAPR Update, to partially address interstate pollution that significantly contributes to nonattainment or interferes with maintenance of the 2008 ozone standard in time for the 2018 attainment deadline faced by many affected downwind states. EPA recognized, and its calculations demonstrated, that the 2016 rule would achieve only small reductions in this interstate pollution and that significant interstate pollution and associated attainment and maintenance difficulties would remain.[1]

Nonattainment and maintenance areas under the 2008 ozone standard include 14 counties in 9 Eastern US states, including Texas. Specific receptor sites, where monitors are located, were identified by EPA, as shown in Figure 1.

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[1] EPA, Regulatory Impact Analysis of the Cross-State Air Pollution Rule (CSAPR) Update for the 2008 National Ambient Air Quality Standards for Ground-Level Ozone, EPA-452/R-16-004, EPA-HQ-OAR-2015-0500-0580 at 3-10 (Sep. 2016), *available at* https://www3.epa.gov/ttnecas1/docs/ria/transport_ria_final-csapr-update_2016-09.pdf [hereinafter "2016 Regulatory Impact Analysis"]; 81 Fed. Reg. at 74,536/2.

Figure 1. Nonattainment and maintenance receptor sites identified by EPA in the 2016 Transport Rule
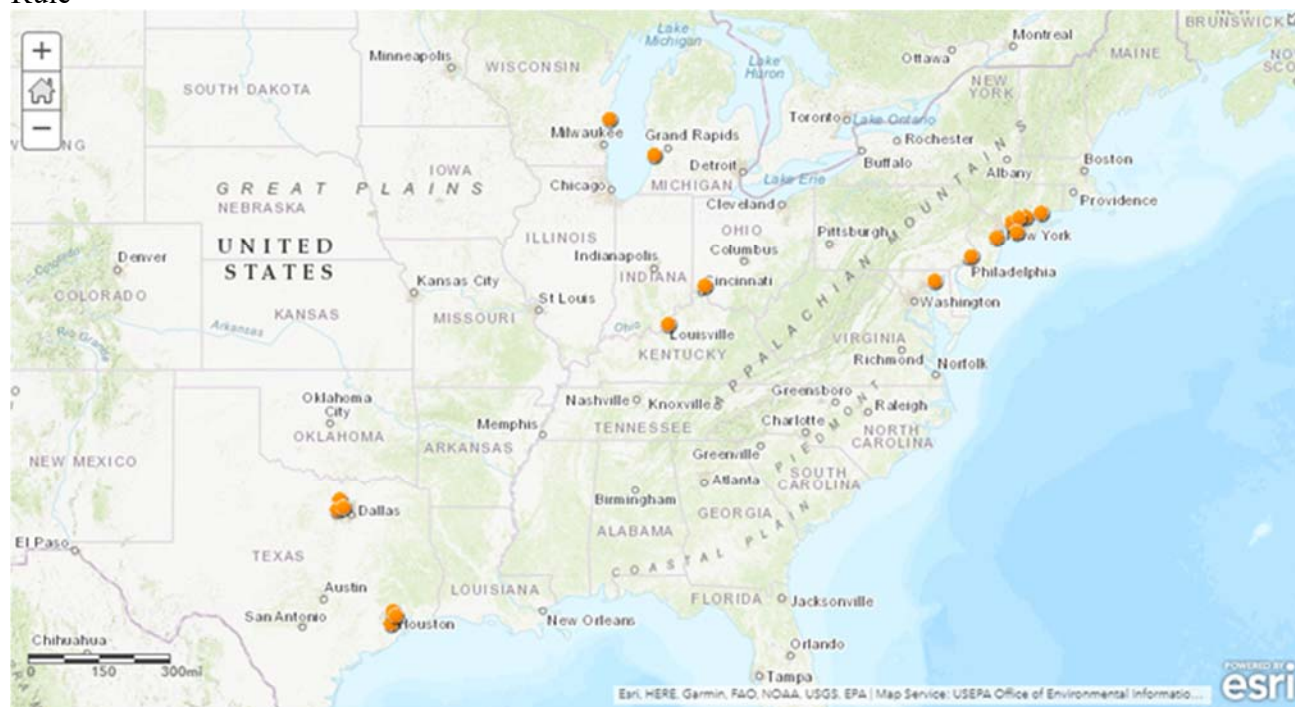
Source:
https://gispub.epa.gov/arcgis/rest/services/OAR_OAQPS/NAA2008Ozone8hour/MapServer

The modeling in the 2016 rule focused on projecting ambient ozone levels—expressed as design values[2]—for 2017 and estimating each upwind state's contribution to those concentrations. EPA estimated both an average and maximum design value for each receptor site to represent nonattainment and maintenance problems, respectively. The basis of these projections was centered around 2011, the year with the most recent and comprehensive emission inventory,[3] and included a 5-year window of 2009-2013 ozone design values that were then modeled forward. Air quality in future years was simulated using the Comprehensive Air Quality Model with Extensions (CAMx version 6.20) (attached as Exhibit A).[4] These data are shown in Table 1 for each receptor site EPA identified in the 2016 rule. Based on this modeling EPA admitted that the emission reduction requirements made under the CSAPR Update would leave some locations exceeding the 2008 standard in 2018. EPA modeling projected that 10 receptor sites in 8 counties would still be in nonattainment with average 2017 design values

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[2] Ozone NAAQS design values are calculated as the 3 year rolling average of the 4th highest daily 8 hour average ozone concentrations

[3] See: http://www.marama.org/technical-center/emissions-inventory/2011-gamma-inventory-and-projections

[4] https://www.epa.gov/sites/production/files/2017-05/documents/aq_modeling_tsd_final_csapr_update.pdf

above the standard. EPA modeling indicated that all identified counties would have difficulty with maintenance reflected by the maximum 2017 design values.

Table 1. EPA-identified problem receptor sites for 5-year base period and modeled design values.

Monitor ID (AQS Code)	State	County	Attainment Status	Avg. DV 2009-2013*	Max. DV 2009-2013*	Avg. DV 2017*	Max. DV 2017*
090019003	CT	Fairfield	nonattainment	83.7	87	76.5	79.5
090099002	CT	New Haven	nonattainment	85.7	89	76.2	79.2
480391004	TX	Brazoria	nonattainment	88	89	79.9	80.8
484392003	TX	Tarrant	nonattainment	87.3	90	77.3	79.7
484393009	TX	Tarrant	nonattainment	86	86	76.4	76.4
551170006	WI	Sheboygan	nonattainment	84.3	87	76.2	78.7
090010017	CT	Fairfield	maintenance	80.3	83	74.1	76.6
090013007	CT	Fairfield	maintenance	84.3	89	75.5	79.7
211110067	KY	Jefferson	maintenance	85	85	76.9	76.9
240251001	MD	Harford	maintenance	90	93	78.8	81.4
260050003	MI	Allegan	maintenance	82.7	86	74.7	77.7
360850067	NY	Richmond	maintenance	81.3	83	75.8	77.4
361030002	NY	Suffolk	maintenance	83.3	85	76.8	78.4
390610006	OH	Hamilton	maintenance	82	85	74.6	77.4
421010024	PA	Philadelphia	maintenance	83.3	87	73.6	76.9
481210034	TX	Denton	maintenance	84.3	87	75	77.4
482010024	TX	Harris	maintenance	80.3	83	75.4	77.9
482011034	TX	Harris	maintenance	81	82	75.7	76.6
482011039	TX	Harris	maintenance	82	84	76.9	78.8

*Data from https://www.epa.gov/sites/production/files/2017-05/documents/aq_modeling_tsd_final_csapr_update.pdf- Table 3-1 and Table 3-2

EPA has not revised these projections for 2017, including in the Bad Neighbor Rule proposal.

2. Recently released ozone data confirm that nonattainment and maintenance problems persist after implementation of the partial remedy in the 2016 Transport Rule.

Recent data confirm that ozone nonattainment remains a serious issue, both nationwide and in the Eastern region. Nationwide, 227 counties, which are home to more than 123 million people, still fail to attain the 2008 ozone standard, thus failing to protect human health with an adequate margin of safety. EPA, 8-Hour Ozone (2008) Nonattainment Area Summary with History, available at https://www3.epa.gov/airquality/greenbook/hnsum2.html (last updated August 23, 2018) ("EPA Greenbook"). Further, it is important to bear in mind that these nonattainment values are for the 2008 ozone standard, which is itself insufficiently protective, as EPA recognized when it adopted a more protective standard in 2015.

In addition, the most recently EPA-validated air quality data demonstrates that the severity of downwind ozone nonattainment in the East is worse than EPA predicted in 2016 in many downwind locations. The projections EPA developed for the 2016 rule, which themselves indicated persistent nonattainment and maintenance difficulties, actually underestimated the degree of exceedances at a number of receptor sites. The latest EPA-validated data for the 2015-2017 design values shows that 11 sites across 9 counties in CSAPR states exceeded the 2008 standard. *See* Table 2 and Figure 2. A comparison of the 2016 Transport Rule modeled average 2017 design values to the actual 2017 design values shows that while 5 of the sites expected to exceed the standard fell below it, 6 not predicted to exceed did. Of most concern is the level of underestimation at some receptor sites, by as much as 8 ppb. This indicates that the CSAPR modeling methodology needs improvement to properly predict exceedances. In addition, many downwind areas not predicted by EPA to experience attainment or maintenance difficulties in fact have experienced ozone levels above the standard. *See* Table 2a. Before EPA can rely again on its interstate ozone modeling methodology, EPA must address the demonstrated tendency of its methodology to under-predict real-world ozone levels in many downwind locations. *See Nat'l Ass'n of Clean Water Agencies v. EPA*, 734 F.3d 1115, 1145 (D.C. Cir. 2013) (incorrect results demonstrate "flaws in the formula" and require EPA to explain "why its formulas would produce an accurate result").

Modeled maximum design values for 2017, used to assess maintenance problems, could not be directly compared to actual values as, under EPA's methodology, the correct base period for comparison is 2015-2019. However, the most recent 5-year period with valid data, 2013-2017, is provided in Table 2 for reference. While 6 sites had maximum design values that did not exceed the standard, the issue of the degree of underestimation for some locations is also apparent if compared to the maximum 2017 design value.

Table 2. CSAPR receptor sites 2017 modeled and actual design values.

Monitor ID (AQS Code)	State	County	Attainment Status	Avg. DV 2017*	Max. DV 2017*	Actual DV 2015-2017**	Max. for 2013-2017 period**
090019003	CT	Fairfield	nonattainment	76.5	79.5	83	84
090099002	CT	New Haven	nonattainment	76.2	79.2	82	82
480391004	TX	Brazoria	nonattainment	79.9	80.8	77	80
484392003	TX	Tarrant	nonattainment	77.3	79.7	73	76
484393009	TX	Tarrant	nonattainment	76.4	76.4	75	78
551170006	WI	Sheboygan	nonattainment	76.2	78.7	80	80
090010017	CT	Fairfield	maintenance	74.1	76.6	79	81
090013007	CT	Fairfield	maintenance	75.5	79.7	83	83
211110067	KY	Jefferson	maintenance	76.9	76.9	74	74[a]
240251001	MD	Harford	maintenance	78.8	81.4	75	75
260050003	MI	Allegan	maintenance	74.7	77.7	73	75
360850067	NY	Richmond	maintenance	75.8	77.4	76	76
361030002	NY	Suffolk	maintenance	76.8	78.4	76	76
390610006	OH	Hamilton	maintenance	74.6	77.4	73	73
421010024	PA	Philadelphia	maintenance	73.6	76.9	78	78
481210034	TX	Denton	maintenance	75	77.4	79	83
482010024	TX	Harris	maintenance	75.4	77.9	81	81
482011034	TX	Harris	maintenance	75.7	76.6	75	75
482011039	TX	Harris	maintenance	76.9	78.8	68	69

*Data from https://www.epa.gov/sites/production/files/2017-05/documents/aq_modeling_tsd_final_csapr_update.pdf- Table 3-1 and Table 3-2
**Data from EPA AirTrends web site. There are two other receptors in CT that exceed the 2015-17 DV not shown.

[a]This monitor has no 2013-2015 DV

Table 2a. Other receptor sites with measured 2015-2017 design values that exceed the 2008 ozone standard.

Monitor ID (AQS Code)	State	County	Avg. DV 2017*	Max. DV 2017*	Actual DV 2015-2017**	Max. for 2013-2017 period**
090011123	CT	Fairfield	71.6	73.1	77	78
090070007	CT	Middlesex	69.5	70.9	79	80
090090027	CT	New Haven	66.8	70.1	77	77
090110124	CT	New London	70.8	74.1	76	76
340070002	NJ	Camden	NA	NA	77	77
361030004	NY	Suffolk	70.6	72.5	76	76
420170012	PA	Bucks	70.3	72.7	80	80
421010048	PA	Philadelphia	NA	NA	76	76 (only 2014-2017)
481671034	TX	Galveston	71.9	74.4	77	77
482010047	TX	Harris	71.5	72.2	76	78
482010055	TX	Harris	73.5	75.0	77	77
482010066	TX	Harris	69.3	71.1	76	76
550590019	WI	Kenosha	66.3	68.7	78	78

NA= Not available

Figure 2. Eastern US 2015-2017 design values at monitors that exceed the 2008 ozone standard of 75 ppb.
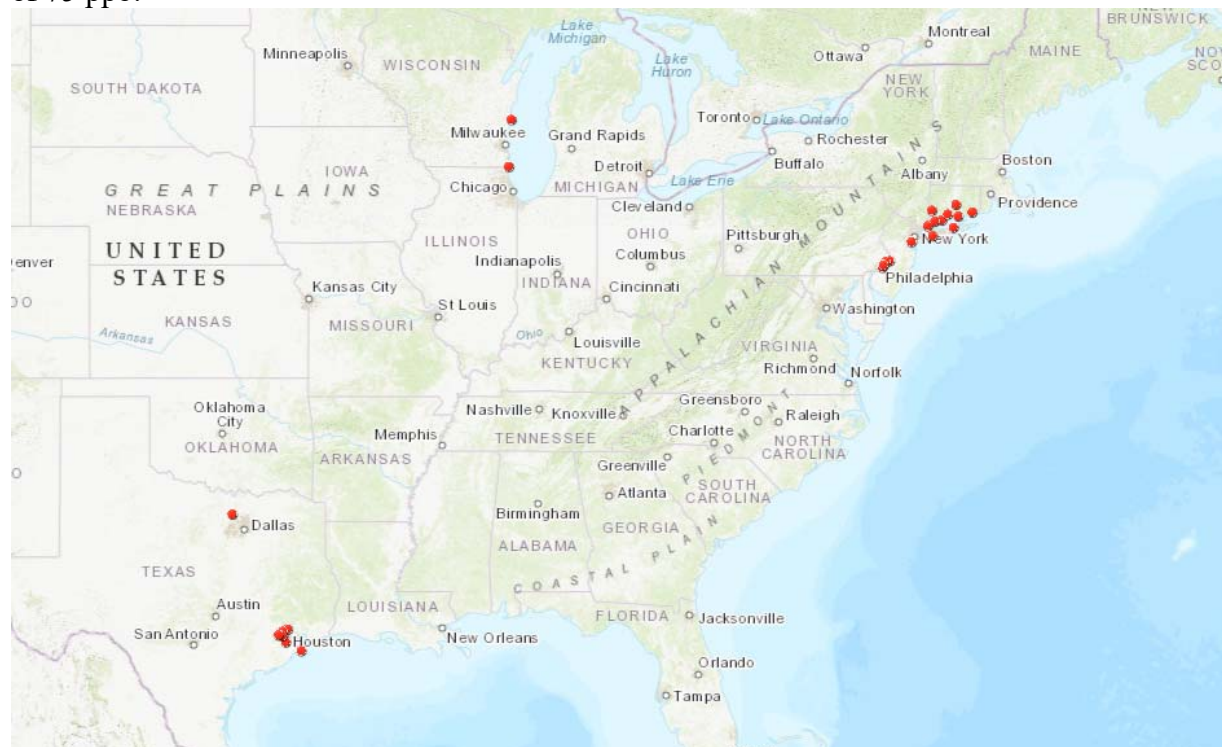
Source:
https://gispub.epa.gov/arcgis/rest/services/OAR_OAQPS/DesignValueServicesOAQPS/MapServer

3. Modeling for future years (pre-2023)

EPA's proposed Bad Neighbor Rule, a.k.a. the CSAPR Closeout, relies on future modeled design values for the year 2023—a year which significantly post-dates the attainment deadlines for the relevant downwind areas. EPA proposes to employ the same modeling methods in the Bad Neighbor Rule as in the 2016 Transport Rule, with additional parametrization that considers whether open water exceeded 50% within a single grid.[5] Based on the data provided in the Technical Support Document for the Bad Neighbor Rule,[6] which was the most recent data available at the time of proposal, there are 18 receptor sites that exceed the 2008 standard based

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[5] EPA conducted alternative modeling of design values where they "eliminated from the RRF calculations the modeling data in those grid cells that are dominated by water (i.e., more than 50 percent of the area in the grid cell is water) and that do not contain a monitoring site (i.e., if a grid cell is more than 50 percent water but contains an air quality monitor, that cell would remain in the calculation)." Air Quality Modeling Technical Support Document for the Updated 2023 Projected Ozone Design Values, EPA-HQ-OAR-2018-0225-0040 at 7.

[6] Air Quality Modeling Technical Support Document for the Updated 2023 Projected Ozone Design Values, EPA-HQ-OAR-2018-0225-0040,

on the 2014-2016 design values. EPA claims that its modeling shows no monitors outside of California will exceed the 2008 ozone standard in 2023, Table 3. EPA has not conducted modeling for the years between 2018 and 2023, however, and modeling conducted by the Ozone Transport Commission ("OTC"), using EPA-approved methods, shows that ozone levels at a number of receptor sites in Ozone Transport Region ("OTR") states will exceed the 2008 standard in 2020, the last year that would be used to show compliance in advance of attainment deadlines in 2021. See Table 4 and Figure 3. In light of these projections—conducted by an association of states using EPA-approved methods—it would be arbitrary for EPA to dismiss the likelihood of continued attainment and maintenance difficulties or to fail to conduct comprehensive modeling for the years before 2023.

As explained further in later sections of these comments, projected nonattainment in 2020—like current nonattainment in 2018—confirms that EPA has failed in its statutory obligation to prohibit interstate pollution that significantly contributes to nonattainment or interferes with maintenance of the 2008 ozone standard. Further, this projected nonattainment strongly suggests that other areas—including areas of Texas that currently fail to attain the standard—are likely to experience attainment problems between 2018 and 2023. It also strongly indicates that additional areas are likely to experience maintenance problems, because EPA's method for identifying areas with maintenance problems for purposes of the Good Neighbor provision is broader than its approach to identifying attainment problems and consistently results in the identification of maintenance-only areas.

Table 5 shows the receptor sites identified by OTC as exceeding the standard in 2020 and the largest contributing states, above 1%, based on the modeling assessment for the 2016 Transport Rule, which EPA has not purported to revise. EPA should update the contribution assessment for 2018 to 2022 to evaluate if these states remain the largest contributors to sites that will continue to experience attainment and maintenance difficulties.

Table 3. Modeled 2023 design values for monitoring sites in covered states with a 2014-2016 design value (the most recent design value period reported in the Bad Neighbor Rule proposal) that exceeded the 2008 ozone standard. *See* EPA-HQ-OAR-2018-0225-0040 at Appendix B.

Monitor ID (AQS Code)	State	County	2023en "3x3" Avg	2023en "3x3" Max	2023en "No Water" Avg	2023en "No Water" Max	Actual 2014-2016 DV	Actual 2015-2017 DV
090010017	CT	Fairfield	69.8	72.1	68.9	71.2	80	79
090011123	CT	Fairfield	66.4	67.8	66.4	67.8	78	77
090013007	CT	Fairfield	71.2	75.2	71.0	75.0	81	83
090019003	CT	Fairfield	72.7	75.6	73.0	75.9	83	83
090070007	CT	Middlesex	64.7	66.1	64.7	66.1	79	79

090090027	CT	New Haven	62.3	65.4	61.9	65.0	76	77
090099002	CT	New Haven	71.2	73.9	69.9	72.6	76	82
240150003	MD	Cecil	64.5	66.8	64.5	66.8	74	74
360850067	NY	Richmond	71.9	73.4	67.1	68.5	76	76
420170012	PA	Bucks	64.6	66.8	64.6	66.8	77	80
421010024	PA	Philadelphia	67.3	70.3	67.3	70.3	77	78
481210034	TX	Denton	69.7	72.0	69.7	72.0	80	79
481211032	TX	Denton	67.7	68.8	67.7	68.8	76	74
481671034	TX	Galveston	67.5	69.9	67.3	69.6	76	77
482010024	TX	Harris	70.4	72.8	70.4	72.8	79	81
482010066	TX	Harris	64.7	66.4	64.7	66.4	76	76
550590019	WI	Kenosha	58.7	60.9	64.8	67.2	77	78
551170006	WI	Sheboygan	70.8	73.1	72.8	75.1	79	80

Data from EPA-HQ-OAR-2018-0225-0040 at Appendix B

Table 4. OTR receptor sites with OTC modeling results for 2020 and 2023. EPA 2023 data are also shown for comparison.

Monitor ID (AQS Code)	State	County	2015-2017 DV	2017 Beta2 CMAQ	2020 Gamma CMAQ	2023 Gamma CMAQ	2023 Beta2 CAMx	2023 EPA 'en' CAMx
090019003	CT	Fairfield	83	83	83.4	81.1	71.9	72.7
360850067	NY	Richmond	76	78	79.5	76.9	71.1	71.9
240251001	MD	Harford	75	81	77.6	74.1	71.8	71.4
090010017	CT	Fairfield	79	77	76.2	72.3	69.5	69.8
090013007	CT	Fairfield	83	77	76.8	73.7	70.6	71.2
361030002	NY	Suffolk	76	77	75.2	71.4	72	72.5
090099002	CT	New Haven	82	77	73.9	69.7	69.9	71.2
360810124	NY	Queens	74	74	72	68.8	69.4	70.1

361192004	NY	Westchester	73	73	72.7	69.5	68.1	68.1
340150002	NJ	Gloucester	74	74	72.4	69.1	67.5	68.2
090011123	CT	Fairfield	77	74	71.1	68.0	66.3	66.4
090110124	CT	New London	76	73	70.3	66.2	65.2	66.4

Data from OTC Modeling Committee.

Table 5. Significant contributor states to OTC receptor sites exceeding the 2008 ozone standard in 2020. Contributor states based on original 2016 Transport Rule modeling results.

AQS Code	State	County	Contributor states and amount (%)
090019003	CT	Fairfield	NY (17.22), NJ (9.52), PA (9.28), MD (2.12), VA (1.92), OH (1.83), WV (1.04)
090010017	CT	Fairfield	NY (18.81), NJ (9.38), PA (7.78), MD (1.61), VA (1.72), OH (1.42)
090013007	CT	Fairfield	NY (16.82),PA (8.77), NJ (8.14), MD (2.11), OH (1.83), VA (1.77)
361030002	NY	Suffolk	NJ (11.07), PA (8.77), OH (2.34),VA (1.53),MD (1.42),MI (1.27),IN ()
360850067	NY	Richmond	PA (14.01), NJ (11.90), OH (2.41), MD (2.49),VA (2.31), WV (1.92),KY (1.03)
240251001	MD	Harford	VA (5.21),PA (4.66),OH (3.59),WV (3.31),KY (2.18),IN (2.13)

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

These persistent high levels of ozone in downwind states will cause serious harm to human health. Ozone, also called smog, forms when volatile organic compounds ("VOCs") react with nitrogen oxides ("NOx") in the presence of heat and sunlight. *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)). Exposure to NOx, as well as ground-level ozone, can cause a range of acute and chronic health effects. *See* 81 Fed. Reg. at 74,574 tbl.VIII.4. Ozone impairs lung function, aggravates asthma, and has been linked to increases in school absences, emergency room visits, and hospital admissions. Studies have shown that exposure to ozone increases the risk of heart attacks and other cardiovascular conditions and increases the risk of low birth weight in babies. *See* 81 Fed. Reg. at 74,574 tbl.VIII.4. Exposure to ozone has also been correlated with increased risk of death for those suffering from cardiopulmonary conditions. Ground-level ozone is particularly harmful for the most vulnerable members of society, including those with existing lung diseases, children, the elderly, and low-income families, as well as people who work or are active outdoors. 80 Fed. Reg. 65, 292, 65,304 (Oct. 26, 2015); EPA, Integrated Science Assessment of Ozone and Related Photochemical Oxidants (Final Report), DC, EPA/600/R-10/076F, 2013, available at https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=247492.

Further, EPA recognized in 2015 that ozone is harmful to health even at levels <u>below</u> the level of the 2008 ozone standard of 75 ppm. 80 Fed. Reg. 65,292, 65,294 (October 26, 2015) EPA lowered the national ambient air quality standard to 70 ppm and reviewed evidence that ozone is harmful at even lower levels, confirming that the health risks of exposure at levels above 75 ppm are grave. *Id.*

C. Impacts to the Chesapeake Bay and the Bay TMDL.

In addition to harming human health, ground-level ozone and its precursor pollutants are damaging to ecosystems, including the Chesapeake Bay watershed. "In terms of forest productivity and ecosystem diversity, ozone may be the pollutant with the greatest potential for region-scale forest impacts."[7] EPA's Regulatory Impact Analysis for the 2016 Transport Rule discussed the welfare co-benefits of reducing precursor NOx emissions, including a decrease in acidic deposition, visibility impairment, and nutrient enrichment.[8] 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.

> 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.[9]

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 ("Bay TMDL").[10] 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.[11] These overall pollutant loads were then allocated to each of the seven Bay

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[7] 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 (2015), *available at* https://www3.epa.gov/ttnecas1/docs/20151001ria.pdf.

[8] 2016 Regulatory Impact Analysis at 5-42.

[9] *Id.*

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

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

jurisdictions. Each jurisdiction is responsible for reducing its amount of pollutant contribution to meet the TMDL goals.[12]

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.[13] 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 allocated responsibility for reductions to meet this cap to EPA.[14] Accordingly, EPA committed to reducing atmospheric nitrogen deposition to the Bay by 3.7 million pounds annually between 2009 and 2025.[15] EPA ensured it would achieve the 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").[16] 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.[17]

EPA's stated purpose for the 2016 Transport Rule "was to protect public health and welfare by reducing interstate pollution transport."[18] *See* 42 U.S.C. 7602(h) (welfare effects include *inter alia* effects on "water," "vegetation," "animals," and "wildlife"). However, in the proposed Bad Neighbor Rule, EPA does not consider and would unlawfully allow the significant adverse impacts to ecosystems, that would accrue from relieving all states of any further obligations to reduce NOx transport pursuant to the 2008 ozone NAAQS.

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.[19] Fifty percent of the atmospheric deposition of nitrogen to the Bay watershed comes from areas outside of the Bay watershed.[20] Thus, the Bay TMDL depends upon the nationwide implementation of the Clean Air Act, including enforcement of the Good Neighbor provision to

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[12] *Id*.

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

[14] *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.").

[15] 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.

[16] Bay TMDL, *supra* note 10, at Section 6, 6-28.

[17] *Id.*

[18] 83 Fed. Reg. at 31,921/1.

[19] Bay TMDL, *supra* note 10, at Section 4, 4-34.

[20] *Id.*

reduce interstate transport of NOx and ensure that nitrogen reductions from atmospheric deposition continue and are maintained.

EPA is the federal partner to the Bay TMDL and signatory to the Chesapeake Bay Watershed Agreement, an interstate compact between the Agency and watershed states.[21] Pursuant to section 117(g) of the federal Clean Water Act, EPA must "ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement" to, among other things, achieve the nutrient reductions and water quality goals of the Bay Agreement.[22] The 2014 Bay Agreement provides that EPA, the Bay states, and the District of Columbia will achieve the Bay TMDL water quality goals, including air deposition reduction goals.[23] Thus, by proposing to undermine a key Clean Air Act regulation relied upon in the Bay TMDL, EPA is violating not only Section 117(g) of the Clean Water Act, but also its obligations under the 2014 Chesapeake Bay Agreement. EPA, in revising any Bay TMDL related air rule, must consider impacts to the Chesapeake Bay and the Bay TMDL and honor its legal obligations as it reviews and finalizes the proposed Bad Neighbor Rule.

II.   THE RULE UNLAWFULLY FAILS TO PROHIBIT INTERSTATE POLLUTION THAT THE CLEAN AIR ACT REQUIRES EPA TO PROHIBIT.

EPA's proposal to determine that the Clean Air Act is satisfied without any further reductions in interstate air pollution is contrary to the Act. EPA's obligation under the Good Neighbor provision is 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). Yet EPA proposes <u>not</u> to prohibit pollution that meets this test, in violation of the Act and of the requirement of reasoned, non-arbitrary agency decisionmaking.

Sources in covered upwind states currently emit pollution that significantly contributes to nonattainment and interferes with maintenance in downwind states, and will continue to do so under EPA's proposal. As detailed above, EPA's 2017 projections for the 2016 Transport Rule showed that interstate ozone pollution contributes significantly to downwind states' failure to attain and maintain the 2008 ozone standard. 81 Fed. Reg. at 74,533 tbl.V.D.1; *id*. at 74,537 tbl.V.E-1. EPA conceded that the 2016 Transport Rule would achieve only very small reductions in the pollution those areas receive, and that air quality problems were expected to persist. 2016 Regulatory Impact Analysis at 3-10; 81 Fed. Reg. at 74,536/2. The 2015-2017 measured design

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[21] *See* Chesapeake Bay Watershed Agreement (2014), *available at* 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); *see also*, Executive Order 13508 – Chesapeake Bay Protection and Restoration, 74 Fed. Reg. 23,099 (May 15, 2009).
[22] 33 U.S.C. § 1267(g).
[23] *See* Chesapeake Bay Watershed Agreement, *supra* note 21, at 7.

values confirm EPA's projection that these areas would continue to suffer poor air quality in violation of the 2008 standard. EPA does not deny, in the Bad Neighbor Rule or elsewhere, that these significant contributions to downwind air quality problems will continue, let alone support such denial with substantial evidence. Rather, the agency claims only that all Eastern states will be in compliance with the 2008 ozone standard in 2023.

EPA's claims about air quality in 2023 do not excuse the agency's failure to prohibit interstate air pollution that is significantly contributing to nonattainment of and interfering with maintenance of the 2008 ozone standard. The Clean Air Act's Good Neighbor provision provides, without exception, that implementation plans shall "prohibit[] any source or 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" a national ambient air quality standard. 42 U.S.C. § 7410(a)(2)(D). Because the air pollution being emitted by sources in covered upwind states between now and 2023 does and will contribute significantly to nonattainment and interfere with maintenance between now and 2023, EPA's claims about 2023 are insufficient to reconcile the rule with the Clean Air Act.

EPA's claim that Congress's use of the term "will" excuses the failure to prohibit this pollution is inconsistent with the plain language of the provision. Congress specified that implementation plans must prohibit "any" pollution from "any" source that will contribute significantly to nonattainment and interfere with maintenance, and this includes pollution that will do so between now and 2023. The mere fact that other pollution emitted at some other time allegedly will not contribute significantly to nonattainment and interfere with maintenance does not excuse EPA's failure to prohibit the pollution that will do so.

III.   THE RULE FAILS TO PROHIBIT INTERSTATE POLLUTION BY THE DEADLINES FOR ATTAINMENT SPECIFIED IN THE CLEAN AIR ACT.

EPA's claim of authority not to prohibit pollution that contributes significantly to nonattainment and interferes with maintenance between now and 2023 is also inconsistent with the Clean Air Act's attainment deadlines—deadlines which are not only "central to the … regulatory scheme," *Sierra Club v. EPA*, 294 F.3d 155, 161 (D.C. Cir. 2002) (quoting *Union Elec. Co. v. EPA*, 427 U.S. 246, 258 (1976)), but constitute the very "heart" of the Act. *Train v. NRDC*, 421 U.S. 60, 66-67 (1975). EPA's implementation of the Good Neighbor provision must be consistent with the other provisions of Title I of the Clean Air Act, including the deadlines for attainment specified in section 7511(a). *North Carolina v. EPA*, 531 F.3d 896, 911-13 (D.C. Cir. 2008); 42 U.S.C. §§ 7410(a)(2)(D)), 7511(a). As EPA concedes, the downwind areas in covered states that receive major amounts of interstate air pollution are subject to attainment deadlines in July 2015, 2016, or 2018. As EPA also recognizes, downwind nonattainment areas classified as moderate that fail to attain the standard by their 2018 deadline will be reclassified to serious, and

face a new attainment deadline in July 2021.[24] Thus many of the downwind areas at issue must attain the 2008 NAAQS this year or, failing that, in 2021. Under the plain language of the Clean Air Act, EPA's Good Neighbor plan must be "consistent" with these attainment deadlines. EPA's proposal to allow continued interstate pollution between now and 2023, however, is plainly not consistent with attainment deadlines of 2015, 2016, 2018, or 2021, and therefore violates the Clean Air Act.

EPA's claim that it need only "consider" the applicable attainment deadlines, rather than comply with them, is unlawful, unreasonable, and arbitrary. Sections 7410(a)(2)(D) and 7511(a) plainly require EPA to implement the Good Neighbor provision consistent with applicable attainment deadlines, and the D.C. Circuit held in *North Carolina* that this requirement is unambiguous. *North Carolina*, 531 F.3d at 912. Further, even if there were "any ambiguity" in the language of § 7410(a)(2)(D), "an examination of the relevant language in the context of the whole [Clean Air Act] dispels any doubts as to its meaning," *id.*, and § 7410(a)(2)(D) unambiguously "requires EPA to consider all provisions in Title I … and to formulate a rule that is consistent with them." *Id.* (emphasis added). Nor is there any ambiguity in § 7511(a)(1) as to whether attainment is required by fixed deadlines. That section provides, "the primary standard attainment date for ozone shall be as expeditiously as practicable but not later than the date provided in table 1," 42 U.S.C. § 7511(a)(1) (emphasis added), and Table 1 then lists the "primary standard attainment date[s]" as 3, 6, 9, 15, or 20 years from the date of designation. *Id.* These dates, therefore, constitute deadlines for attainment, with which EPA must comply. *Sierra Club*, 294 F.3d at 161 ("[Section] 7511(a)(1)[] as written sets a deadline without an exception"); *Train*, 421 U.S. at 64-65 (Congress "required" attainment of air quality standards "within a specified period of time"). Further, EPA recognizes that it is bound by the requirement to eliminate significant contributions "as expeditiously as practicable." EPA Brief at 25-27, Wisconsin v. EPA, No. 16-1406 (D.C. Cir. Apr. 9, 2018) (attached as Exhibit B). That EPA agrees it is bound by the first part of the relevant sentence in § 7511(a)(1) confirms that EPA is also bound by the attainment deadlines. By its use of the words "but not later than," Congress established the attainment deadlines as an express limit on EPA's discretion to secure reductions "as expeditiously as practicable." In the face of this clear language, EPA's claim of authority to fully implement the Good Neighbor provision "as expeditiously as practicable" and later than the deadlines is an exercise in rewriting the statute, not interpreting it. *See Util. Air Regulatory Grp. v. EPA*, 134 S. Ct. 2427, 2446 (2014) ("[EPA] may not rewrite clear statutory terms.").

Congress's use of the term "will" does not excuse EPA from compliance with the attainment deadlines. Even if there were any ambiguity in the word "will," there is none in the requirement to comply with the attainment deadlines. The Act expressly requires EPA to apply the Good Neighbor provision consistent with the other provisions of the Act, and the word "will" does nothing to change that. Further, EPA must read all provisions of a statute together, and the

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[24] No areas (outside of California) are currently designated serious or severe, meaning that no areas (outside of California) will face a 2027 deadline unless they fail to attain by both the current 2018 deadline and then again by the 2021 deadline. *See* 83 Fed. Reg. at 31,926.

word "will" must be interpreted consistently with other provisions of the statute, including the attainment deadlines.

As noted, all of the states burdened by the interstate pollution addressed by this rule are currently subject to attainment deadlines in 2015, 2016, or 2018. While it is likely that some states—with moderate nonattainment areas—will be determined to have failed to attain in 2018 and become subject to more stringent requirements and a new deadline of July 2021, no relevant states are subject to a deadline of 2027. Nor will any be subject to a 2027 deadline in the future, unless they fail yet again to attain the 2008 ozone standard by the Act's mandatory deadline in 2021. Because no states (other than California) face a 2027 deadline, EPA's decision to consider the 2027 attainment deadline is not only illegal, but unexplained and arbitrary. Further, EPA's focus on 2027, to the extent it has any explanation at all, is entirely circular: EPA's consideration of 2027 is based on an assumption that states will fail to attain in 2021, but it will also—because EPA uses its consideration of 2021 and 2027 to justify forgoing pollution reductions until 2023 and beyond—cause or contribute to these states' failure to attain in 2021. This exercise in bootstrapping is unlawful and arbitrary.

EPA's own delay in implementing the 2008 ozone standard does not excuse its failure to prohibit interstate ozone pollution by the attainment deadlines Congress established. Indeed, EPA's implementation of the 2008 ozone standard has been a saga of repeated and avoidable delay. EPA adopted the 2008 ozone NAAQS of 75 parts per billion on March 12, 2008, triggering EPA's obligation to promulgate nonattainment designations by March 12, 2010. 73 Fed. Reg. 16,436, 16,503, 16,511 (Mar. 27, 2008); *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. 30,088, 30,090-91 (May 21, 2012); *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. 30,160, 30,163 (May 21, 2012).[25]

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. 30,160. Conservation groups filed suit once more, and the D.C. Circuit Court rejected the delay of attainment deadlines as "untethered to Congress' 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).[26] 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.

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[25] Several areas were subsequently reclassified. *See* 81 Fed. Reg. 90,207 (Dec. 14, 2016).
[26] 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).

§ 7410(a) by the statutory deadline of March 12, 2011. 81 Fed. Reg. at 74,512/1. These findings, in turn, triggered EPA's obligation to issue a FIP within two years. 42 U.S.C. § 7410(c)(1).

Rather than discharging its statutory obligation to prohibit interstate air pollution as required by the Good Neighbor provision, however, EPA's 2016 rule required only small reductions in pollution for the 2017 ozone season and subsequent seasons, while allowing significant contributions to downwind nonattainment and maintenance difficulties to continue. 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.

Over and over, EPA could have acted expeditiously to implement the 2008 ozone standard and its corresponding Good Neighbor requirements, but did not. The Clean Air Act authorizes EPA to establish a shorter deadline for submission of state plans, 42 U.S.C. § 7410(a)(1). It directs EPA to promulgate a federal plan "at any time within 2 years" after finding a state has missed the deadline. *Id.* § 7410(c)(1); *see also id.* § 7410(k)(1)-(2) (likewise imposing only outside time limits for the finding). *EPA v. EME Homer City Generation, L.P.*, 134 S. Ct. 1584, 1601 (2014) ("EPA is not obliged to wait two years or postpone its action even a single day."). Nor was EPA was required to await the conclusion of the *Homer City* litigation to issue the 2016 Transport Rule, or to tarry approximately two years and six months between the Supreme Court's decision, on April 29, 2014, and issuance of a final rule. EPA's failure to move more expeditiously in its implementation of the 2008 ozone standard is another reason why its current proposal is fundamentally flawed, and cannot excuse its noncompliance with the Clean Air Act's firm deadlines at this juncture.

EPA's other justifications for selecting 2023 as the appropriate "analytic year" likewise cannot override the Clean Air Act's attainment deadlines, and otherwise lack merit. In *EME Homer*, the Supreme Court made clear that, while EPA should strive to avoid over-control, "the Agency also has a statutory obligation to avoid 'under-control.'" 134 S. Ct. at 1609. In any event, should over-control become an issue at some future time, such as in 2023, EPA can address that issue when it arises. The specter of <u>future</u> over-control to justify <u>current</u> under-control is unlawful and arbitrary and capricious.

Nor can EPA's claims about feasibility justify delaying action or even analysis until 2023. In *North Carolina*, the D.C. Circuit rejected compliance deadlines in CAIR that cited "feasibility restraints such as the difficulty of securing project financing and the limited amount of specialized boilermaker labor to install controls" but were not "consistent with . . . compliance deadlines for downwind states." 531 F.3d at 911-12. The Clean Air Act's attainment deadlines "leave[ ] no room for claims of technological or economic infeasibility." *Sierra Club*, 294 F.3d at 161 (citation omitted); *accord Union Elec.*, 427 U.S. at 258 (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."), 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, pp. 2-3 (1970)).

Though control feasibility has played a role in the past regional ozone rules, it cannot override the obligation to prohibit pollution that prevents attainment and maintenance of the standards, or displace the attainment deadlines. When EPA has considered feasibility in analyzing ozone related Good Neighbor obligations since the *North Carolina* decision, it has not been in the context of selecting an analytic year, but in apportioning the necessary emissions reductions. *E.g.*, 2016 Transport Rule, 81 Fed. Reg. at 74,508. In the original CSAPR, feasibility of installing SO2 controls did contribute to selecting two analytic years, but that rule linked both to attainment deadlines and included analysis of the upcoming year.[27] Moreover, whatever flexibility may apply to PM$_{2.5}$ attainment, "[o]zone nonattainment areas must attain permissible levels of ozone 'as expeditiously as practicable,' but no later than the date assigned by EPA in the ozone implementation rule." *Id.* (quoting 40 C.F.R. § 51.903, which requires compliance on the timetable of three, six, nine, fifteen, and twenty years after designation, strictly applied in *NRDC*, 777 F.3d at 460, described above).

Finally, a subset of EPA's arguments urging that feasibility justifies only considering the need for controls in 2023, despite earlier statutory deadlines, focuses on the need for additional information gathering and planning by EPA and coordination between EPA and states. These considerations cannot override an "unambiguous statutory command," *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 644 (D.C. Cir. 2016), like the requirement to prohibit interstate pollution consistent with the Act's attainment deadlines. In addition, "[t]he courts . . . have rejected agency claims that additional time is needed simply to improve the quality or soundness of the regulations to be enacted." *Sierra Club v. Johnson*, 444 F. Supp. 2d 46, 53 (D.D.C. 2006) (explaining that statutory deadlines in the Clean Air Act indicate that Congress intended agencies to prioritize timeliness over perfection). Further, it is arbitrary for EPA to rely on a need for further information-gathering and planning when the agency has had ample time to do this work already. *US Sugar*, 830 F.3d at 644 ("The Agency was obligated to collect the data it needed, and Congress gave it the authority to do so."). Indeed, EPA invokes an alleged need to gather more information on emission reductions available from sources other than power plants, but EPA cited the need for this information in the 2016 Transport Rule as a reason to defer a full remedy, and stated then that it was "still in the process" of developing that information. 81 Fed. Reg. 74,522/2. In fact, EPA has been invoking the alleged need for this information as a reason to delay action on interstate ozone pollution for more than a decade. *See* 76 Fed. Reg. 48,208; 70 Fed. Reg. 25,162 (May 12, 2005); 69 Fed. Reg. 4610 (Jan. 30, 2004). It is unlawful and arbitrary for EPA to rely on a need for information that it has failed to collect or analyze despite its own longstanding recognition that the information is needed.

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[27] *See* 76 Fed. Reg. 48,208, 48,277 (August 8, 2011) ("CSAPR").

IV.   THE PROPOSED RULE FAILS TO ELIMINATE SIGNIFICANT CONTRIBUTIONS TO DOWNWIND NONATTAINMENT AND MAINTENANCE PROBLEMS AS EXPEDITIOUSLY AS PRACTICABLE.

EPA's proposal to license continued interstate pollution between now and 2023 is also inconsistent with the agency's conceded obligation to ensure attainment of the 2008 ozone NAAQS as "expeditiously as practicable." 42 U.S.C. §§ 7410(a)(2)(D), 7511(a); EPA Brief at 25-27, Wisconsin v. EPA, No. 16-1406 (D.C. Cir. Apr. 9, 2018). EPA attempts to justify its proposal by claiming authority to select an "analytic year" of 2023 and to ignore interstate pollution before that date, but this approach is contrary to the "expeditiously as practicable" requirement and arbitrary in several respects.

A.   Significant Emission Reductions Are Practicable Before 2023

Contrary to EPA's claims, several categories of significant NOx emissions reductions are practicable well before 2023. Accordingly, EPA's reliance on fleet-wide installation of selective catalytic reduction ("SCR") for selection of its 2023 planning horizon is unlawful and arbitrary and capricious. Both CSAPR and the CSAPR Update were implemented on short timescales, with immediate reductions required in both cases in under one year, and with post-combustion controls being required within three years under CSAPR.[28] Indeed, as EPA has previously recognized, SCR controls could be installed in three or fewer years. Further emission reductions are available even sooner through consistent use of existing controls, easily accomplishable optimization of those same controls, and redispatch from higher-NOx emission sources to lower-NOx or zero-NOx emission sources (such as wind and solar). Finally, EPA could ensure rapid emission reductions by simply undoing its mistake in carrying forward vast quantities of banked emission credits from CSAPR for the 1997 ozone NAAQS to the CSAPR Update addressing the 2008 ozone NAAQS. Finally, EPA could ensure rapid emissions reductions by simply undoing its mistake in carrying forward vast quantities of banked emission credits from CSAPR for the 1997 ozone NAAQS to the CSAPR Update addressing the 2008 ozone NAAQS.

As a result, EPA's illegal proposal to postpone addressing ozone transport until 2023 is wholly inconsistent with the reality of NOx emissions reductions that are practicable much sooner.

1.   *Significant Reductions Are Available through Utilizing Existing Controls*

Under the 2016 Transport Rule, EPA assumes emission rates for SCR-equipped coal units significantly higher than what is actually achievable by those units—indeed, with what has historically been achieved by many units. That delta is a vast pool of emissions reductions that are readily available on an immediate basis, well-before 2023. In fact, with a five-month

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[28] CSAPR Update, 81 Fed Reg. at 74,507/3; CSAPR, 76 Fed. Reg. at 48,278/3.

averaging period, SCR-equipped coal-fired power units can practically achieve average emission rates of 0.065 lbs/MMbtu or lower, as Table 6 below demonstrates.

Table 6. SCR-Equipped Plants Achieving 0.065 lbs/MMbtu or Better in Ozone Season 2015[29]

State	Facility Name	Unit ID	2015 Ozone Season Avg. NOx Rate (lb/MMBtu)	Fuel Type (Primary)
KY	Robert Reid	R1	0.0150	Coal
MI	Eckert Station	3	0.0302	Coal
PA	Gilberton Power Company	32	0.0339	Coal Refuse
PA	Gilberton Power Company	31	0.0343	Coal Refuse
MI	J H Campbell	2	0.0366	Coal
WI	Manitowoc	9	0.0368	Petroleum Coke
WI	Edgewater (4050)	5	0.0392	Coal
MD	Morgantown	2	0.0397	Coal
TX	Sandy Creek Energy Station	S01	0.0397	Coal
LA	Brame Energy Center	1-Mar	0.0406	Petroleum Coke
KY	Trimble County	2	0.0407	Coal
TX	W A Parish	WAP7	0.0407	Coal
MI	J H Campbell	3	0.0414	Coal
WY	Dry Fork Station	1	0.0419	Coal
MD	Morgantown	1	0.0425	Coal
WY	Wygen III	1	0.0437	Coal
VA	Chesterfield Power Station	6	0.0442	Coal
MI	Dan E Karn	2	0.0443	Coal
VA	Chesterfield Power Station	5	0.0452	Coal
LA	Brame Energy Center	2-Mar	0.0453	Petroleum Coke
TX	J K Spruce	**2	0.0456	Coal
AL	Barry	1	0.0465	Coal, Pipeline Natural Gas
NV	TS Power Plant	1	0.0479	Coal
FL	Northside	2A	0.0480	Coal
MO	Iatan	2	0.0480	Coal
AR	John W. Turk Jr. Power Plant	SN-01	0.0487	Coal
TX	W A Parish	WAP8	0.0487	Coal
MI	Dan E Karn	1	0.0488	Coal

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[29] Data taken from EPA's Air Markets Program Data, *available at* http://ampd.epa.gov/ampd/.

CO	Pawnee	1	0.0494	Coal
PA	Northeastern Power Company	31	0.0496	Coal
FL	Seminole (136)	2	0.0505	Coal
WI	Weston	2	0.0509	Coal
KS	Jeffrey Energy Center	1	0.0512	Coal
MO	James River	3	0.0512	Coal
MD	AES Warrior Run	1	0.0514	Coal
TX	W A Parish	WAP6	0.0516	Coal
FL	Northside	1A	0.0519	Coal
NC	Cliffside	6	0.0519	Coal
AL	Barry	2	0.0522	Coal, Pipeline Natural Gas
IL	Dallman	4	0.0532	Coal
IA	Lansing	4	0.0537	Coal
MI	Monroe	2	0.0540	Coal
PA	Kimberly-Clark Tissue Company	35	0.0540	Coal
NJ	Mercer Generating Station	2	0.0544	Coal
WI	Weston	4	0.0545	Coal
MN	Boswell Energy Center	3	0.0546	Coal
IA	Walter Scott Jr. Energy Center	4	0.0549	Coal
WI	Elm Road Generating Station	2	0.0549	Coal
MD	Herbert A Wagner	3	0.0552	Coal
IL	Archer Daniels Midland Co.	FBC9	0.0556	Coal
FL	Crystal River	5	0.0557	Coal
GA	Wansley (6052)	1	0.0558	Coal
WI	Elm Road Generating Station	1	0.0558	Coal
WY	Wygen II	1	0.0559	Coal
LA	Nelson Industrial Steam Company	2A	0.0566	Petroleum Coke
WI	Valley (WEPCO)	4	0.0567	Coal, Pipeline Natural Gas
IN	Edwardsport Generating Station	CTG2	0.0576	Coal
WI	Valley (WEPCO)	3	0.0576	Coal, Pipeline Natural Gas
KY	H L Spurlock	3	0.0577	Coal
GA	Wansley (6052)	2	0.0580	Coal
GA	Bowen	2BLR	0.0581	Coal
LA	Nelson Industrial Steam Company	1A	0.0582	Petroleum Coke
NE	Nebraska City Station	2	0.0582	Coal
IN	Merom	2SG1	0.0587	Coal
IN	Edwardsport Generating Station	CTG1	0.0590	Coal
FL	Seminole (136)	1	0.0593	Coal
GA	Bowen	4BLR	0.0596	Coal
WI	South Oak Creek	7	0.0603	Coal

VA	Chesterfield Power Station	4	0.0608	Coal
WI	South Oak Creek	8	0.0608	Coal
FL	Crystal River	4	0.0611	Coal
MO	Iatan	1	0.0613	Coal
GA	Bowen	1BLR	0.0618	Coal
AZ	Coronado Generating Station	U2B	0.0622	Coal
TX	W A Parish	WAP5	0.0622	Coal
VA	Virginia City Hybrid Energy Center	1	0.0622	Coal
MI	Monroe	1	0.0626	Coal
WI	Pleasant Prairie	1	0.0630	Coal
KY	D B Wilson	W1	0.0633	Coal
MI	Monroe	3	0.0633	Coal
GA	Scherer	1	0.0634	Coal
IN	Merom	1SG1	0.0636	Coal
VA	Virginia City Hybrid Energy Center	2	0.0636	Coal
TN	Kingston	7	0.0643	Coal
TN	Kingston	1	0.0645	Coal
TN	Kingston	4	0.0646	Coal
CO	Comanche (470)	3	0.0647	Coal
GA	Scherer	2	0.0647	Coal
MD	Brandon Shores	1	0.0647	Coal
TN	Kingston	3	0.0649	Coal
TN	Kingston	6	0.0652	Coal
SC	Cross	4	0.0653	Coal
KY	H L Spurlock	4	0.0654	Coal
TN	Kingston	8	0.0654	Coal
TN	Kingston	9	0.0654	Coal

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 hereto as Exhibit C.

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.[30]

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[30] *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 (attached hereto as Exhibit D)

For a five-month averaging period, like that addressed for ozone season in the 2016 Transport 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 is more a reflection of operational choices by the facilities themselves. As EPA is well aware, 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.[31] 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 E and F. These comments and Technical Note are incorporated by reference as if incorporated by reference as if fully stated herein and reiterated with respect to the Bad Neighbor Rule.

    2.   *Control Installation and Optimizing Existing Controls Offers Additional Rapid Reductions*

Contrary to EPA's claims, SCR controls can be installed quite rapidly. In fact, EPA has previously cited resources noting that "21 months should be a reasonable, and in some cases a conservative estimate of the total time necessary to retrofit a single utility boiler [with SCR]."[32]

This is consistent with EPA's approaches in the past two CSAPR iterations, each of which segregated controls based on feasibility. Indeed, the original CSAPR included two phases, two years apart, to allow time to implement post-combustion controls such as scrubbers—and

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(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").

[31] *See, e.g.*, Thomas F. McNevin (2016) Recent increases in nitrogen oxide (NOx) emissions from coal-fired electric generating units equipped with selective catalytic reduction, Journal of the Air & Waste Management Association, 66:1, 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).

[32] EPA, Engineering and Economic Factors Affecting the Installation of Control Technologies for Multipollutant Strategies ("EPA Assessment of Factors Affecting Installation"), EPA-600/R-02/073 at 22 (Oct. 2002), EPA-HQ-2015-0500-0073.

conducted emissions analyses for both phases. The original CSAPR rule, issued in August 2011, allowed less than three years for compliance (by January, 2014) with SO2 limits that were expected to require installation of flue gas desulfurization ("FGD") controls—a control technology generally expected to take longer than SCR to install.[33] Similarly, EPA's Integrated Planning Model assumes SO2 scrubbers can be installed in 3 years, and SCR units in 2 years. Other NOx controls like SNCR typically take even less time to implement—from 10-13 months, as EPA recognizes.[34]

Further, existing controls can be readily improved or tuned to achieve greater reductions. Catalyst cartridges in SCR systems could be cleaned or replaced, or catalyst cartridges could be added to reserve trays, or reagent mixtures and addition processes modulated in SNCR systems. Indeed, not all units that have installed SNCRs are currently optimizing use of these NOx controls. For example, Maryland in its Section 126 petition submitted to EPA on November 16, 2016, has identified several units equipped with SNCRs that are failing to optimize use of these installed controls.[35] EPA's analysis fails to account for the potential to achieve additional emission reductions through improved performance of installed NOx emission controls, including reactivation of idled SNCRs.

Finally, to the extent that EPA argues that no controls can feasibly be implemented until 2023 because extensive planning is required, it ignores that EPA and the states have had more-than-ample amounts of time to plan. The 2016 Transport Rule (as did its earlier proposal) repeatedly emphasized that the states of the CSAPR Update region were expected to have remaining obligations even after the implementation of the CSAPR Update. In other words, EPA has been acknowledging that additional NOx reductions would be required for years, and thus all parties should have already started planning for additional control installation. EPA cannot now claim that there is no time for such planning. Moreover, EPA has been on notice that it would be required to take action on outstanding transport SIP obligations under the 2008 ozone NAAQS since before June 2018, as required by court order in *Sierra Club v. Pruitt*, No. 3:15-cv-04328-JD, 2017 U.S. Dist. LEXIS 79133, at *4 (N.D. Cal. May 23, 2017).

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[33] CSAPR, 76 Fed. Reg. at 48,278/3; EPA Assessment of Factors Affecting Installation at v-vi (estimating 21 months for SCR, 27 months for FGD).
[34] 83 Fed. Reg. 17,123, 17,127/2 (Apr. 18, 2018).
[35] *See* Maryland 126 Petition at 8 (Grant Town Units 1 and 2 in West Virginia; Cambria Cogen Units 1 and 2 in Pennsylvania), available at http://news.maryland.gov/mde/wp-content/uploads/sites/6/2016/11/MD_126_Petition_Final_111616.pdf

3.   *Redispatch to Lower- or Zero-NOx Sources is Readily Available*

In nearly every state addressed by the 2016 Transport Rule, there is a mix of controlled and uncontrolled coal units, generally with a good deal of slack capacity in the fully-controlled units. On a five-month ozone season average, there is great ability for generation fleets to shift dispatch from high-NOx to lower-NOx sources. A much greater amount of the generation from polluting power plants can be shifted to those plants' better-controlled counterparts. As such, through redispatch of uncontrolled coal to SCR-equipped coal units, as well as redispatch from such plants to zero-NOx renewable sources such as wind or solar, or to low-NOx gas-fired sources, further emissions reductions in numerous states could be achieved very readily.

In the 2016 Transport Rule, EPA acknowledged that it had not implemented all reductions available through generation shifting. Instead, in that rule EPA expressly limited its use of these reductions in calculating state emission budgets to the shifting of generation between different sources within each state, which EPA claimed approximated the generation shifting reductions available in the short period between finalization of the rule and the beginning of the 2017 ozone season. 81 Fed. Reg. at 74,544/3; EGU NOx Mitigation Strategies Final Rule Technical Support Document at 12, JA0402 (EPA-HQ-OAR-2015-0500-0554). EPA did not— and does not—deny that further emission reductions are available through generation shifting across state lines. The availability of such reductions confirms that the Bad Neighbor Rule does not prohibit interstate pollution as expeditiously as practicable, and the agency's failure to require these reductions in the Bad Neighbor Rule is unlawful and arbitrary.

These reductions in emissions would translate into lowered emissions allocations before 2023, thereby helping to close the gap between the proposed Bad Neighbor Rule and what is necessary to fully resolve significant contributions to ozone transport under the 2008 NAAQS in the years between now and 2023.

4.   *The Overhang of NOx Allocations from CSAPR Can and Must Be Eliminated*

Although in the 2016 Transport Rule, EPA incorporated a vast number of NOx emission allocations from the prior CSAPR rule, there is no reason that EPA could not retire such remaining allocations in a supplement to the 2016 Transport Rule, thereby ensuring NOx emission decreases well before 2023. Indeed, EPA must do this, as the carrying forward of the overhang of emission credits from CSAPR was never justified in the first place.

When EPA promulgated the 2016 Transport Rule, there was a large pool of emission credits sloshing through the markets in the original CSAPR system. It is unlawful and arbitrary to use those credits, generated by a litigation delay in implementation of the transport aspects of the 1997 ozone NAAQS as a tool to delay and weaken implementation of the transport aspects of the entirely different 2008 ozone NAAQS.

As EPA acknowledges, significant changes in the electrical generation fleet occurred while the original CSAPR rule was stayed. The nation has added vast quantities of zero-NOx

renewables resources in the form of solar and wind generation, and increasing application of low-cost energy efficiency has bent the growth curve in electricity demand downward. Tightening environmental control requirements has forced dirty fossil power to internalize more of the costs it imposes on society and the environment, and in the meantime, lower-NOx fossil fuels such as natural gas have become cheaper, shifting fossil generation away from higher-NOx sources like uncontrolled coal units. As a result, the fleet of power plants in the CSAPR states emitted less NOx in 2015 than it did in 2012, translating into a huge surfeit of credits under the CSAPR allocations intended to go into effect in 2012.

But "early" reductions in NOx emissions as part of a trading scheme designed to resolve interstate impacts under the 1997 ozone NAAQS does not ensure resolution of impacts under the 2008 ozone standard. Put another way, progress towards achieving an 80 parts per billion standard does not suffice to achieve a lower 75 parts per billion standard. Accordingly, these credits must be retired, resulting in further NOx emission decreases before 2023.

In sum, EPA's claim that there are no practicable emissions reductions before 2023 is unsupported—indeed, contradicted—by record evidence, contrary to EPA's prior statements, and arbitrary. *See* 5 U.S.C. § 706(2); *Ass'n of Data Processing Service Orgs. v. Bd. of Governors*, 745 F.2d 677, 683-84 (D.C. Cir. 1984) (Scalia, J.) ("in their application to the requirement of factual support the substantial evidence test and the arbitrary or capricious test are one and the same;" "it is impossible to conceive of a 'nonarbitrary' factual judgment supported only by evidence that is not substantial in the APA sense"); *Genuine Parts Co. v. EPA*, 890 F.3d 304, 312 (D.C. Cir. 2018).

5.   *EPA's Failure to Apply the Statutory Standard is Unlawful and Arbitrary.*

Although EPA has conceded that it must prohibit interstate pollution that contributes significantly to downwind nonattainment or interferes with maintenance as "expeditiously as practicable," and does not claim otherwise in the proposal, the proposal defers necessary reductions on grounds of industry convenience and agency convenience and uses worst case assumptions in selecting 2023 as the analytic year. EPA refuses to consider reductions available immediately through shifting of generation to cleaner sources on the ground that EPA prefers not to consider any reductions before it can consider all reductions. 83 Fed. Reg. at 31,928/1. EPA arrives at an estimate of SCR installation time based on claims that control requirements "could" lead to installation bottlenecks—not that they would. *Id.* at 31,928/3. And EPA's reasoning rests ultimately on the claim that the total time for installation of the technology could be "up to" 39 months and that 48 months is "a reasonable time period" for the industry—which is not the same as the most expeditious time frame that is practicable. *Id.* All in all, EPA fails to comply with— or even to apply—the statutory requirement to prohibit the offending pollution as "expeditiously as practicable." In light of this failure, the proposed rule is unlawful, unreasonably "untethered to Congress's approach," *NRDC*, 777 F.3d at 469, and arbitrary.

Finally, EPA proposes to base its target year determination on an illogical "no project left behind" approach that conflicts with the agency's prior consistent approach of securing available

reductions expeditiously, even when other reductions might require more time. *See* 81 Fed. Reg. 74,516/3-17/1; 70 Fed. Reg. 25,162, 25,177 (May 12, 2005) (Clean Air Interstate Rule). The agency's unexplained departure from its prior practice is arbitrary. Further, it is arbitrary for EPA to base its analysis on universal installation of the costliest and most time-intensive form of control on a single type of source. EPA arbitrarily ignored technologies that could be implemented immediately and at lower cost (e.g., reactivation of idled SNCRs) or any type of controls on non-electric generating units including optimization of installed controls.

V. EPA'S DECISION NOT TO REDUCE OR PROHIBIT INTERSTATE OZONE POLLUTION DISPROPORTIONATELY HARMS ENVIRONMENTAL JUSTICE COMMUNITIES AND CHILDREN.

EPA's proposed decision not to reduce or prohibit interstate ozone pollution in the Eastern region will disproportionately harm environmental justice communities and children in violation of Executive Orders 12898 and 13045. In addition, EPA's failure to adequately consider whether its rule complies with these Executive Orders is arbitrary and capricious.

Executive Order 12898, entitled Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, provides that "each Federal agency"— including EPA—"shall," identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Executive Order 12898 § 1-101. Yet EPA has failed either to identify or to address the disproportionately high and adverse impact on minority communities of continued interstate ozone pollution that contributes to violations of both the 2008 and 2015 health-based standards for ozone and harms human health. These failures violate the Executive Order and represent arbitrary agency action.

EPA's modeling for the 2016 Transport Rule showed that interstate ozone pollution contributes significantly to downwind states' failure to attain and maintain the 2008 ozone standard and identified the downwind nonattainment and maintenance areas that receive this pollution. 81 Fed. Reg. at 74,533 tbl.V.D.1; *id*. at 74,537 tbl.V.E-1. Moreover, EPA conceded that the 2016 Transport Rule would achieve only very small reductions in the pollution those areas receive, and said that EPA expected their air quality problems to persist. 2016 Regulatory Impact Analysis at 3-10; 81 Fed. Reg. at 74,536/2. Data for the 2017 ozone season confirms EPA's projection that these areas would continue to suffer poor air quality in violation of the 2008 standard. And EPA does not deny, in the Bad Neighbor Rule or elsewhere, that these significant contributions to downwind air quality problems will continue, let alone support such denial with substantial evidence. Rather, the agency claims only that all Eastern states will be in compliance with the 2008 ozone standard in 2023—a claim which, in addition to being inadequately supported, *see infra* Pt.VI, does not negate the serious harms that will result from unhealthy ozone levels this year, next year, and in future years.

U.S. Census data from 2016 show that the downwind areas that continue to experience violations of the 2008 ozone standard due to transported pollution are home to millions of people who are disproportionately members of minority racial and ethnic groups. Indeed, the disparity

in the population makeup of these neglected areas compared to areas of the Eastern region that do not violate the 2008 ozone standard is stark. People living in the neglected downwind areas—which include Houston, Dallas, Baltimore, and New York—are more than fifty percent more likely to be members of a minority racial or ethnic group (53.6% versus 34.2%), significantly more likely to be black (17.8% versus 15.2%), and almost twice as likely to be Hispanic or Latino (25.5% versus 13.9%).

In addition to these environmental justice impacts downwind, EPA's decision not to prohibit this pollution will expose communities who live near polluting sources to continued high levels of pollution. These individuals too are disproportionately members of racial and ethnic minorities. An analysis by the NAACP finds that, of the 8.1 million people living within three miles of a coal-fired plant, 39% are people of color, a percentage significantly higher than the proportion of people of color in the U.S. population as a whole—36%.[36] Moreover, coal plants that have been built in urban areas are overwhelmingly located in communities of coloar.[37]These people are exposed to greater hazards from coal-plant pollution, including higher ambient pollution levels and greater exposure to hazardous air pollutants.[38] EPA itself has previously recognized the disproportionate racial impacts of power plant pollution. 77 Fed. Reg. at 9445; 81 Fed. Reg. 24,420, 24,439 n.34 (April 25, 2016) ("distributional concerns, such as impacts to the most exposed and sensitive individuals in a population, are important for [power plants regulation]").

The people most exposed to power plant pollution are the least likely to be able to afford the health care costs imposed by exposure to pollution: the per capita income of the 8.1 million people who live within 3 miles of a coal-fired power plant is $18,594, significantly lower than the national average. And nearly 50 percent of the risk of premature mortality from power plant-related exposures is borne by the 25 percent of the population with less than a high school education.[39] Socially disadvantaged populations are also at greater risk of adverse health effects from air pollution, with one study finding that nearly 50% of the risks for premature mortality of power plant-related exposures were borne by the 25% of the population lacking a high school education. Socially disadvantaged populations also are more likely to lack access to health care and to live in conditions associated with asthma exacerbations. If EPA were to conduct an adequate environmental justice analysis for the rule, the agency might well identify additional racial and ethnic disparities. Yet EPA has failed to assess the potential for disproportionate adverse effects on minority populations from its decision, identify these or other disproportionate

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[36] NAACP, *Coal Blooded* (April 2016) at 15, https://www.naacp.org/wp-content/uploads/2016/04/CoalBlooded.pdf
[37] *Id.*
[38] 77 Fed. Reg. 9304, 9445 (Feb. 16, 2012); American Lung Association, *Emissions of Hazardous Air Pollutants from Coal-fired Power Plants* (May 7, 2011), http://www.lung.org/assets/documents/healthy-air/emissions-of-hazardous-air.pdf
[39] Env. Comments on MATS at I-18; American Lung Association, Toxic Air: The Case for Cleaning Up Coal-fired Power Plants at 6 (March 2011), http://www.lung.org/assets/documents/healthy-air/toxic-air-report.pdf.

effects, or address them. EPA has also failed to engage in reasoned decisionmaking with regard to the requirements of Executive Order 12898.

The agency's attempt to justify its failure to identify and address disproportionately high and adverse impacts on minority populations is contrary to the Executive Order and arbitrary. EPA claims that the Bad Neighbor Rule does not establish a health or safety standard, but Executive Order 12898 applies to all "effects of [EPA's] programs, policies, and activities." This includes effects of EPA's administration of the Clean Air Act's Good Neighbor provision and the proposed decision not to address ongoing air pollution that contributes to violations of health-based air quality standards. Further, there is no basis to conclude that the Executive Order creates any exception for EPA programs, policies, or activities that effectively authorize, rather than curtail pollution. To the contrary, decisions that result in greater pollution are precisely the decisions that are most likely to have disproportionately high and adverse impacts on minority populations. In addition, the Executive Order applies here because EPA has authority and discretion—and indeed, as explained below, an obligation—to reach a different decision and protect the minority populations at issue from these discriminatory effects.

The Bad Neighbor Rule is also contrary to Executive Order 13045, entitled Protection of Children From Environmental Health and Safety Risks, which requires EPA to "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 13045 § 1-101(a)-(b). 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, *e.g.,* EPA Fact Sheet, Ozone and Children's Health (2015), attached as Exhibit G. 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 violate the Executive Order and constitute arbitrary and capricious agency action.

EPA's claim that Executive Order 13045 does not apply to this action is contrary to the Executive Order, arbitrary, and just flat-out wrong. EPA claims that the Bad Neighbor Rule is not a "covered regulatory action" under section 2-202 of the Executive Order, 83 Fed. Reg. at 31,938/2-3, but section 2-202 plainly encompasses the Bad Neighbor Rule. That section provides, as relevant here, that "covered regulatory action" means "any substantive action in a rulemaking" that is "likely to result in a rule that may" (1) "adversely affect in a material way . . . the environment, public health or safety, or State, local, or tribal governments or communities" and (2) "concern an environmental health risk or safety risk that an agency has reason to believe may disproportionately affect children." Executive Order 13405 § 2-202. Both prongs of this definition are met here. EPA's proposed decision not to abate interstate pollution adversely affects both the environment and public health, and it harms downwind states, tribes, and communities that suffer from unhealthy air and, in many cases, must adopt more stringent pollution control measures than they otherwise would. And ozone pollution above the air quality

standards EPA has adopted indisputably is a health risk that disproportionately affects our nation's children.

VI.   EPA'S CONCLUSION THAT NO ATTAINMENT OR MAINTENANCE PROBLEMS WILL REMAIN IN 2023 IS FLAWED.

The modeling that EPA relies on to predict downwind attainment in 2023 has at least three serious issues: 1) EPA assumed strict compliance with rules EPA is actively seeking to rescind, 2) the model includes biases such as assumed over-compliance with prior air pollution rules, and 3) EPA ignored significant modeling uncertainty, all while expecting high enough accuracy from such a long-range projection to discern compliance by tenths of a part per billion. This unsupportable conclusion is therefore arbitrary and capricious.

A.   <u>EPA arbitrarily assumed strict compliance with rules EPA is actively seeking to rescind.</u>

First, EPA proposes to rely on projections of future emissions based on a current regulatory framework that EPA is actively attempting to dismantle. This is a critical problem with the proposed rule: EPA predicts future ozone levels by assuming that current regulations continue to control, while seeking to rescind, weaken, and undo many of those same regulations.

Among the current EPA actions not accounted for in EPA's modeling is the recently proposed "Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits" stands out. 82 Fed. Reg. 53,442 (Nov. 16, 2017). The rule applies to glider vehicles, which are heavy duty diesel trucks that are constructed from a new body assembly (cab, brakes, front axle, etc.) mated to a previously owned power train (engine and transmission). *Id.* at 53,443/2. Gliders are typically ~25% cheaper than new trucks, mechanically simpler, and more fuel efficient due largely to less stringent emissions controls. *Id.* at 53,443/3-44/2. But the older, less stringently controlled engines that would be allowed in glider vehicles if the repeal is finalized emit extremely significant amounts of NOx. *See* EPA-420-R-16-901, "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2," Response to Comments for Joint Rulemaking, at 1875-6 (Aug. 2016) (responding to comments on the original regulation of glider vehicles). As discussed in EPA's response to comments on the original rule, EPA estimated that unregulated, glider vehicles would increase emissions from heavy-duty highway vehicles by ~300,000 tons annually in 2025. *Id.* Conversely, the entire 2016 Transport Rule only reduces annual NOx emissions by 75,000 tons, meaning that EPA's proposed glider deregulation would swamp multiple times over the emission reductions from the 2016 Transport Rule—severely undercutting the assumptions baked into the EPA's estimates. *See* 2016 Regulatory Impact Analysis at ES-8, tbl.ES-1.

Other ozone-significant, deregulatory actions currently underway include efforts to weaken the Corporate Average Fuel Economy (CAFE) standards and accompanying EPA emission standards. *See* 77 Fed. Reg. 62,624 (Oct. 15, 2012); 83 Fed. Reg. 42,986 (Aug. 24, 2018). When promulgated, the 2017 and later CAFE standards were anticipated to reduce annual light-duty highway vehicle emissions of NOx by 904 tons in 2020 and 6,509 tons in 2030, and

emissions of VOCs, another ozone precursor, by 11,712 and 123,070 tons in 2020 and 2030. *Id.* at 62,899-900. EPA is also considering rescinding 2016 Control Techniques Guidelines for the Oil and Natural Gas Industry, which are estimated to reduce VOC emissions by 80,000 tons annually. 81 Fed. Reg. 74,798 (Oct. 27, 2016); Final Control Techniques Guidelines Fact Sheet[40] at 3.

None of these actions are accounted for by EPA modeling. *See* EPA, "Technical Support Document, Additional Updates to Emissions Inventories for the Version 6.3, 2011 Emissions Modeling Platform for the Year 2023," ("2023 Model TSD") at 96, tbl 4-1 (Oct. 2017). These steps by EPA would doubtless ensure that the exceedingly narrow compliance margins assumed by its modeling in 2023 are not achieved. To the extent that EPA stakes Good Neighbor compliance on an unenforced and actively undercut prediction, its reliance is arbitrary and capricious.

B. The 2023 emission forecasting model includes biases such as assumed over-compliance with prior air pollution rules.

Second, EPA's modeling also over-predicts actions taken in compliance with the 2016 Transport Rule. For example, the 2023 Model TSD reveals assumptions that facilities that are retrofit between now and 2023 to install SCR will achieve an emission rate of 0.075 lb NOx/MMbtu.[41] The TSD explains that "[e]missions from units with scheduled SCR, SNCR and/or FGD retrofits prior to 2023 are adjusted to reflect the emission rates expected with new SCR installation (0.075 lb/mmBtu of NO_x), new SNCR (a 25% decrease in emission rate), and/or new FGD (0.06 lb/mmBtu of SO2) and are assumed to operate at the same 2016 utilization levels."[42] Although EPA is correct that these rates are consistently achievable with an SCR, it is unrealistic and arbitrary for EPA to assume that these rates will be achieved under current regulations. EPA itself recognized in the 2016 Transport Rule that units with SCR frequently fail to engage them or optimize their operation. 80 Fed. Reg. at 75,731-32. In fact, in the 2016 Transport Rule, the EPA determined that an emission rate of 0.10 lbs/mmBtu for units with SCR was achievable for the 2017 EGU NOx ozone season.[43] As EPA has not proposed to reduce the emission budget between now and 2023 to require a 0.075 lb/mmBTU emission rate from units with new SCR, and these units can comply with the current rule while operating at a much higher SCR optimization rate, EPA's assumption takes credit for emission reductions that are not legally required and not likely to occur, and is therefore unreasonable and arbitrary. EPA cannot decline to address interstate ozone pollution now while taking credit for unenforceable emission reductions in 2023 to once again abdicate its legal obligations under the Clean Air Act.

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[40] Available at https://www.epa.gov/sites/production/files/2016-10/documents/fact-sheet-2016-oil-and-gas-ctg.pdf.
[41] 2023 Model TSD at 99.
[42] *Id.*
[43] 81 Fed. Reg. at 74,543.

Likewise, the modeling predicts that existing units will either install new controls or operate controls at higher efficiencies following the 2016 Transport Rule, despite limited incentives to do so. This is apparent in the contrast between reductions EPA models for individual units and their actual emissions during the 2017 ozone season (after the CSAPR Update was in effect).[44] For example, EPA assumes that the Paradise unit 3 in Kentucky will optimize its SCR (0.10 lb NOx/MMbtu) and reduce its NOx output to ~1000 tons per ozone season. Yet in the 2017 ozone season, that unit emitted over twice that amount (~2400 tons or 0.22 lb NOx/MMbtu), and there is no reason to think Kentucky will require more future control as it is already in compliance with EPA requirements. Moreover, the TSD generally assumes that facilities that emitted at a rate higher than 0.10 lbs/MMbtu in 2016 will come down to 0.10 in 2023 (TSD at 100); this ignores the reality of emissions trading under CSAPR. Effectively, it assumes that the market for emissions credits will price those credits so highly that no emitter will choose to buy credits rather than reduce emissions, which is belied by the purpose and experience of the CSAPR trading scheme. In fact, in 2017, after the CSAPR Update was implemented, the average emission rate of the units assumed to operate at an emission rate of 0.10 lb NOx/MMbtu in the 2023 forecasting model only operated at a rate of 0.12 lb NOx/MMbtu.[45] The proposed rule does not explain this significant discrepancy.

Overall, EPA's NOx trading schemes have frequently been characterized by allowance gluts that negate the economic and regulatory incentive for units to operate and maintain their installed NOx control equipment. In developing the inputs to its model, EPA has arbitrarily failed to take account of the actual operation of its own regulatory programs.

C. EPA ignored significant modeling uncertainty, while expecting high enough accuracy from such a long range projection to discern compliance by tenths of a part per billion.

Third and finally, reliance on modeling that predicts future compliance by 0.1 ppb when inherent uncertainties are much larger than that margin is arbitrary and capricious. EPA speculatively suggests ozone NAAQS attainment without performance of any sensitivity analyses and through incorporation of a series of dubious assumptions, and even then projects attainment by only the narrowest of margins: by 0.1 ppb. Electing to rely on such modeling, and in the process ignoring all other data, is the very essence of arbitrary and capricious agency decision-making. The uncertainty in EPA's projection is immense.

EPA's prediction of compliance throughout the eastern United States in 2023—by a margin of 0.1 ppb—is the product of thousands upon thousands of inputs, assumptions, and

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[44] The values for estimated 2023 unit emissions are taken from "2023en_Engineering_Analysis_Unit_File.xls," referenced on page 98 of the 2023 Model TSD, actual 2017 emissions are drawn from the Air Markets Program Data database at https://ampd.epa.gov/ampd/.

[45] *See* "2023en_Engineering_Analysis_Unit_File.xls," referenced on page 98 of the 2023 Model TSD.

simplifications. *See generally* 2023 Model TSD. Emission inventories may be drawn from reported data or based on separate models, and even sub-models. Quantities like future power consumption, fuel prices, and vehicle miles traveled must be predicted. Meteorological conditions must be assumed and simplified, along with atmospheric mixing dynamics. Chemical reactions that involve thousands of species and complex interactions with airborne particles, clouds droplets, and sunlight must be reduced to highly simplified approximations.

Natural gas prices—which have been low in recent history, causing significant reduction in coal generation and NOx emissions—are a prime example of the huge degree of uncertainty in this prediction. Even before the photochemical model runs, 2023 emissions must be predicted. An element in the emissions modeling predicts power plant fuel utilization based on a guess of future fuel prices in 2023. If gas prices are higher than predicted, the model will predict greater dependence on coal-fired generation, predicting higher NOx emissions, and ultimately under - predict ozone formation.

Moreover, a recent study published in the Proceedings of the National Academy of Science in May casts grave doubt about the accuracy of EPA's NOx emission inventories, which are a critical input in EPA's ozone modeling.[46] The attached analysis by Jiang et al. finds a growing divergence between top-down calculations of NOx emissions between 2011 and 2015 and EPA's bottom-up inventories, with EPA increasingly under-estimating total NOx emissions.[47] The authors' analyses suggest that EPA's NOx under-prediction is "mainly driven by the growing relative contribution of industrial, area, and off-road mobile sources of emissions, decreasing relative contribution of on-road gasoline vehicles, and slower than expected decreases in on-road diesel NOx emissions."[48] EPA's inability to accurately calculate current NOx emissions and systematic under-prediction dramatically undermines the credibility of EPA's future NOx emissions inventories that form the basis for EPA's 2023 ozone modeling.

In sum, even when improperly focusing on the year 2023, EPA proposes to rely exclusively on an uncertain prediction of compliance to justify inaction. EPA's insistence that this flawed modeling absolves the agency from the need to meet statutory deadlines, and from any further need to address its good neighbor obligations is unlawful, arbitrary, and capricious.

VII.   TAKEN TOGETHER, EPA'S DECISIONS ON RELATED INTERSTATE TRANSPORT PROVISIONS AMOUNT TO AN ARBITRARY "BAIT AND SWITCH".

EPA's refusal to prohibit pollution that contributes to downwind nonattainment and maintenance problems has led downwind states to attempt to address upwind states'

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[46] Zhe Jiang et al., Unexpected slowdown of US pollutant emission reduction in the past decade, PNAS (May 15, 2018), attached as Exhibit H.
[47] *Id.*
[48] *Id.* at 5.

contributions to the ozone air quality problems via other, resource-intensive Clean Air Act mechanisms. For example, in November of 2016, the State of Maryland submitted a section 126 Petition to EPA requesting that EPA impose emission limitations on 36 EGUs in five upwind states which are significantly contributing to exceedances of the ozone NAAQS in Maryland. *See* Maryland 126 Petition (Nov. 16, 2016)[49]; 42 U.S.C. § 7426(b). Despite Maryland's robust technical demonstration that the 36 EGUs significantly contribute to ozone nonattainment and interfere with maintenance of the ozone NAAQS in Maryland, EPA has proposed to deny Maryland's petition. *See* 83 Fed. Reg. 26,666 (June 8, 2018). EPA's proposed denial of Maryland's 126 Petition is another instance of its failure to address interstate transport issues pursuant to its obligations under the Good Neighbor provision.

Similarly, downwind states in the Ozone Transport Region have also petitioned EPA, pursuant to Section 176A of the Clean Air Act, to add nine upwind states to the OTR, including several states covered by the proposed Bad Neighbor Rule. *See* 176A Petition (as amended Dec. 10, 2013)[50]; 42 U.S.C. § 7506a. The 176A Petition is supported by a technical support document showing how upwind states significantly contribute nonattainment, and interfere with maintenance, of the ozone NAAQS in downwind OTR states.[51] Inclusion in the OTR would require the upwind states to impose controls in-state to reduce ozone precursor pollutants and the resulting contributions to downwind ozone. EPA has denied the 176A Petition. 82 Fed. Reg. 51,238 (Nov. 3, 2017). Specifically, EPA explained that, "[f]or purposes of addressing interstate transport with respect to the 2008 ozone NAAQS, the EPA believes that continuing its longstanding and effective utilization of the existing and expected control programs under the CAA's mandatory good neighbor provision…is a more effective means of addressing regional ozone pollution transport." *Id.* at 51,239/2. Nevertheless, EPA is now proposing to find that the upwind states contributing to ozone problems in the OTR have fulfilled their Good Neighbor obligations under the 2008 ozone NAAQS, based on claims about conditions in 2023, which will do nothing to address the significant contributions to ozone air quality problems that are ongoing today.

It is unlawful and arbitrary for EPA to refuse timely redress for violations of air quality standards by continuously invoking different and various CAA provisions as excuses for inaction on the ozone transport problem. It is similarly arbitrary and capricious for EPA to reverse itself without confronting its prior position.

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[49] *Available at* http://news.maryland.gov/mde/wp-content/uploads/sites/6/2016/11/MD_126_Petition_Final_111616.pdf

[50] *Available at* www.ct.gov/deep/176aPetition.

[51] *Available at* http://www.ct.gov/deep/lib/deep/air/176a/technical_support__document_2013dec10.pdf

VIII. CONCLUSION.

For all of the foregoing reasons, EPA's proposed decision not to require any reductions in cross-state ozone air pollution is contrary to the Clean Air Act and arbitrary, and would violate Executive Orders intended to protect overburdened communities' and children's health. EPA should withdraw the proposed rule and promptly develop a proposal that fully addresses the urgent public health problems caused by interstate ozone pollution.

Appendix A
https://gispub.epa.gov/arcgis/rest/services/OAR_OAQPS/hysplit_odmt_1416/MapServer

HYSPLIT back trajectories for receptor sites for days violating the Ozone NAAQS during the years 2013-2015 and 2014-2016. The starting heights are plotted -- 100m AGL (red), 500m (blue), and 1000m (green) – for each ozone monitor with a design value greater than 70ppb for each day that monitor's daily maximum 8-hour average ozone value exceeded 70ppb. The lines represent HYSPLIT trajectories 24 hours in length, utilizing NOAA EDAS data for all meteorological input, including vertical motion.

090019003	Fairfield	Sherwood Island Westport