OZONE TRANSPORT COMMISSION

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Michelle Manion
Executive Director

89 South St., Suite 602
Boston, MA 02111
(617) 259-2005
www.otcair.org

March 23, 2026

U.S. Environmental Protection Agency
EPA Docket Center
1200 Pennsylvania Ave., NW
Washington, DC 20460
Attn: Docket ID No. EPA-HQ-OAR-2025-0192

RE: Interstate Transport Plan Review for the 2015 Ozone NAAQS

Dear Administrator Zeldin:

The Ozone Transport Commission (OTC) is providing these comments on the U.S. Environmental Protection Agency's (EPA's) proposed *Interstate Transport Plan Review for the 2015 Ozone NAAQS* [91 Fed. Reg. 4026-4045 (January 30, 2026)] (hereinafter referred to as the "proposed rule"). The OTC is a non-partisan multi-state organization created under the Clean Air Act (CAA) led by the governors and their designated representatives from 12 states and the District of Columbia[1] to advise the EPA on addressing our shared ground-level ozone problem. Ozone pollution affects the health of more than 66 million people in the Ozone Transport Region (OTR), particularly the young, elderly, and vulnerable populations. Protecting public health and the environment from the harms of ozone pollution is at the core of the OTC's work.

The OTC strongly disagrees with the approach taken in the EPA's proposed rule to use a 1 part per billion (ppb) presumption as the linkage threshold for determining significant contributions to ozone problems in downwind states caused by emissions in upwind states.

The OTC members have a reliance interest in the EPA's previous and consistent use of 1 percent of the ozone national ambient air quality standard (NAAQS) as the linkage threshold. Use of the 1 percent threshold also reflects the collective agreement of 17 states in the Midwest and East since 2009.[2]

With the EPA's past approach to addressing interstate pollution transport obligations, regional programs to reduce nitrogen oxides (NOx), the key precursor to ozone formation on a regional scale, have clearly been successful in the eastern United States. The EPA, however, is now proposing to undermine this demonstrated success in a counterintuitive policy change to a

[1] The Washington, DC mayor designates its two OTC representatives.
[2] OTC and LADCO Joint Letter to EPA on CAIR Replacement Rule (September 2, 2009), https://otcair.org/upload/Documents/Correspondence/Final%20Recommendation%20Letter_090902.pdf.

1 ppb threshold. The EPA has not provided the public with a meaningful opportunity to comment on this significant policy change.

I. Overview

In this action, the EPA proposes to approve Good Neighbor state implementation plans (SIPs) for the 2015 8-hour ozone NAAQS submitted by eight states – Alabama, Arizona, Kentucky, Minnesota, Mississippi, Nevada, New Mexico, and Tennessee. The EPA further proposes withdrawing previously proposed "error correction actions" for Iowa and Kansas and previously proposed Good Neighbor SIP disapprovals for Arizona, New Mexico, and Tennessee. The EPA states that if finalized, this proposed rule will resolve these 10 states' Good Neighbor SIP obligations for the 2015 8-hour ozone NAAQS. The EPA further states that in this action, "the EPA finds it appropriate to presumptively apply a 1-ppb contribution threshold for the consistent treatment of all States." In making this presumptive application, the EPA cites an August 2018 EPA memorandum (hereinafter referred to as the "2018 memorandum") asserting that it "may be reasonable and appropriate for states to use a 1 ppb contribution threshold, as an alternative to a 1 percent threshold."[3] This is a change from the EPA's previously consistent application of a contribution threshold equal to 1 percent of the relevant NAAQS.[4]

The EPA's 2018 memorandum simply does not justify its new presumptive application of a 1 ppb threshold. It is a paradoxical change in Good Neighbor SIP requirements to *increase* the significance threshold for contributions to a *lower* (more stringent) health-based ozone standard. It undermines downwind states' reliance interests in developing their attainment SIPs, unimpaired by significant ozone contributions caused by upwind state emissions. The proposed rule also threatens to erode the great successes of past regional Good Neighbor programs that the EPA fostered through its previously consistent approach to interstate ozone transport.

II. The EPA's presumptive application of a 1 ppb threshold departs from past consistent practice and is illogical for a more stringent ozone NAAQS.

The OTC strongly disagrees with the EPA's and states' assertions that they should be able to use a 1 ppb linkage threshold rather than the previously consistent use of 1 percent of the NAAQS in determining significant contribution linkages.

In the context of the strengthened ozone NAAQS of 70 ppb, the OTC commented in 2022 to the EPA on the proposed Good Neighbor Plan that "[t]o raise the linkage threshold to 1 ppb (or greater) in the face of increasingly stringent air quality health standards creates the counterintuitive result that upwind contributions have to be quantitatively larger in order to 'contribute significantly' to nonattainment or maintenance problems under a more stringent

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[3] U.S. EPA Memorandum, *Analysis of Contribution Thresholds for Use in Clean Air Act Section 110(a)(2)(D)(i)(I) Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards* (August 31, 2018), at p. 4, https://www.epa.gov/sites/default/files/2018-09/documents/contrib_thresholds_transport_sip_subm_2015_ozone_memo_08_31_18.pdf.

[4] At the time of these comments, two circuit courts have upheld Kentucky's and Mississippi's use of a 1 ppb linkage where the upwind states asserted reliance interests in the EPA's 2018 memorandum [*Kentucky v. EPA*, No. 23-3216 (6th Cir. Dec. 6, 2024); *Texas v. EPA*, No. 23-60069 (5th Cir. Mar. 25, 2025)]. Those opinions did not address the reliance interests of downwind states in maintaining the 1 percent threshold nor has the EPA considered downwind states' reliance interests as it seeks to relax requirements for upwind states.

NAAQS than with prior weaker standards."[5]

III. States have a reliance interest in the continuing application of a 1 percent of the NAAQS linkage threshold, which is consistent with a 2009 multistate framework agreement reached by 17 states in the eastern U.S.

Under the CAA, states must develop Good Neighbor SIPs that fully address their significant contributions to NAAQS nonattainment and maintenance problems in downwind states. When states do not submit or submit inadequate Good Neighbor SIPs, the EPA must issue a federal implementation plan (FIP). Even with a FIP, states remain free to submit alternative SIPs identifying how they will achieve the necessary emission reductions within their states to meet the Good Neighbor requirements of the CAA. Regardless of a Good Neighbor SIP or FIP, downwind states with ozone nonattainment areas rely on these reductions to occur within the statutory attainment deadlines that they are obligated to meet under the CAA. The EPA's weakening of the linkage threshold undermines the downwind states' reliance on the EPA's long established approach in determining significant contributions.

A group of eastern states have previously collectively agreed to a 1 percent linkage as the threshold for determining significant contributions. In 2009, 17 states that are members of the OTC and the Lake Michigan Air Directors Consortium (LADCO) developed framework recommendations that they provided to the EPA (and are attached to these comments) for addressing the interstate transport requirements of CAA Section 110(a)(2)(D).[6] The signatories were the environment agency leads from Connecticut, District of Columbia, Illinois, Indiana, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, and Wisconsin. The 1 percent of the NAAQs significance threshold is also consistent with the EPA's prior rulemakings such as the Clean Air Interstate Rule.

One agreed-upon recommendation was that "[a]n upwind state significantly contributes to nonattainment or interferes with maintenance in a downwind area of interest if its total impact from all source sectors equals or exceeds 1 percent of the applicable NAAQS." This was at a time when the ozone NAAQS was being lowered from an 8-hour maximum daily average of 80 ppb to 75 ppb. Therefore, the state signatories at that time clearly recognized that their agreed-upon linkage threshold was less than 1 ppb.

In January 2019, the OTC wrote to the EPA with its concerns on the use of a 1 ppb metric after the EPA released its 2018 memorandum first suggesting that it could be an alternative, if justified, to the 1 percent of the NAAQS linkage threshold.[7] In the OTC's letter, we expressed

[5] OTC Comments on EPA's Proposed FIP Addressing Regional Ozone Transport for the 2015 Ozone NAAQS, submitted to Docket ID No. EPA–HQ–OAR–2021–0668 (June 21, 2022), at p. 4, https://otcair.org/upload/Documents/Correspondence/OTC%20GN%20FIP%20comments%20final%2020220621.pdf.

[6] OTC and LADCO Joint Letter to EPA on CAIR Replacement Rule (September 2, 2009), https://otcair.org/upload/Documents/Correspondence/Final%20Recommendation%20Letter_090902.pdf. For purposes of the framework agreement, the District of Columbia is counted as a "state."

[7] OTC Letter to EPA Assistant Administrator W. Wehrum Concerning Good Neighbor SIPs (January 23, 2019), https://otcair.org/upload/Documents/Correspondence/OTC-Good%20Neighbor%20State%20Implementation.pdf.

misgivings with the technical basis of the 2018 memorandum and its potential to weaken the EPA's 4-step framework approach in addressing interstate transport of ozone and its precursors. That letter is attached to these comments.

Despite the incongruity of using a less stringent contribution threshold for a more health-protective NAAQS, the EPA in this proposed rule indicates that a presumptive 1 ppb threshold is now being applied to all states.[8] Before the EPA makes such a presumption, it should present a fuller explanation for its national approach to increasing a significant contribution level. Multiple updates to the Good Neighbor provisions for the ozone NAAQS have occurred utilizing the 1 percent threshold and have withstood judicial review. Furthermore, the EPA needs to provide the states and the public with adequate notice and a meaningful opportunity to comment on such a profound change. Adopting a significant policy change during the course of a SIP approval is not consistent with the notice and rulemaking process for national policy changes.

Weakening the significant contribution linkage for a more stringent 8-hour ozone NAAQS runs contrary to past applications of the requirements of the CAA's Good Neighbor provision in that now it would take a *larger* contribution to constitute a significant contribution to a *lower* (more stringent) NAAQS. When the EPA finalized its Federal Implementation Plan in 2011 to address interstate transport under the 1997 8-hour ozone NAAQS of 80 ppb (0.08 parts per million), it applied a 1 percent linkage of 0.8 ppb in its framework for determining significant contributions between upwind emissions and downwind problem monitors.[9] Therefore, this linkage was already below 1 ppb 15 years ago. Since that time, the ozone NAAQS has been revised twice to increase its stringency in reflection of the accumulating science that adverse health impacts occurred at ozone exposures below the 1997 standard. The 8-hour ozone NAAQS now is set at 70 ppb (0.070 ppm).

With the increasing health protectiveness of the ozone NAAQS, the EPA intends to relax the linkage for determining significant contributions. While the ozone NAAQS *has increased* in stringency by 12.5 percent, the EPA's new presumptive threshold metric for determining significant contributions is *being relaxed* by 42.9 percent (0.7 ppb to 1 ppb). The EPA needs to provide a logical rationale to support why changing the methodology for determining significant contribution in this way makes sense. The OTC does not believe it does.

Downwind states, such as those in the OTC, have an important stake in the consistent and logical application of significant contribution thresholds as they develop their own ozone attainment SIPs for the current NAAQS. The EPA's approach to weaken the threshold linkage from 1 percent of the NAAQS to 1 ppb does not rest on a reasoned explanation and fails to account for the downwind states' reliance interests in obtaining the full extent of reasonable upwind reductions to help them achieve the ozone NAAQS. The EPA should withdraw its 2018 memorandum and retain the 1 percent threshold linkage consistent with past practice.

[8] "[T]he EPA finds it appropriate to presumptively apply a 1-ppb contribution threshold for the consistent treatment of all States." 91 Fed. Reg. at 4034.
[9] 76 Fed. Reg. 48208 (August 8, 2011), at 48236.

IV. Each state has the individual responsibility to address its significant contribution to downwind ozone problems regardless of other contributors.

The EPA's consistent approach to this point has been to quantify the highly cost-effective emissions reductions that are available in those upwind states that are linked at 1 percent of the NAAQS to downwind ozone problem areas. The quantified significant contribution is unique to each state and not relative to the contributions from others. Many upwind states have asserted that there are greater contributions from other places and sources than from their own states or that downwind states must act first. These assertions are irrelevant and extraneous to the significant contribution analysis. It is each contributing upwind state's responsibility as a good neighbor to address that portion of its contribution to downwind air quality problems regardless of any other contributors.

V. Science unequivocally demonstrates that the EPA's existing framework approach to implement the CAA's Good Neighbor SIP provisions has worked as designed and should be maintained going forward.

For more than 25 years, the EPA has used a longstanding, court-affirmed 4-step framework in determining which states must achieve additional reductions in NOx pollution to address their Good Neighbor obligations.[10] The history of previous interstate transport rules (*e.g.,* NOx SIP Call, CAIR, CSAPR) has consistently shown that the EPA's framework, with its use of air quality modeling, is directionally correct in achieving ozone reductions on the highest ozone days. Numerous peer-reviewed scientific studies conducted after implementation of previous regional interstate programs to address ozone problems have retrospectively corroborated the effectiveness and success of the EPA's approach.[11] The abundant number of peer-reviewed

[10] The first regional NOx control program to address "good neighbor" interstate ozone contributions to downwind nonattainment problems was the "NOx SIP Call" promulgated by the EPA in 1998, 63 Fed. Reg. 57356-57538 (October 27, 1998).

[11] Aleksic, N., Ku, J. Y., & Sedefian, L. (2013). Effects of the NOx SIP Call program on ozone levels in New York. *Journal of the Air & Waste Management Association*, *63*(11), 1335-1342; Butler, T. J., Vermeylen, F. M., Rury, M., Likens, G. E., Lee, B., Bowker, G. E., & McCluney, L. (2011). Response of ozone and nitrate to stationary source NOx emission reductions in the eastern USA. *Atmospheric Environment*, *45*(5), 1084-1094; Chan, E., & Vet, R. J. (2010). Baseline levels and trends of ground level ozone in Canada and the United States. *Atmospheric Chemistry and Physics*, *10*(18), 8629-8647; Chen, Y., Rich, D. Q., Masiol, M., & Hopke, P. K. (2023). Changes in ambient air pollutants in New York State from 2005 to 2019: Effects of policy implementations and economic and technological changes. *Atmospheric Environment*, *311*, 119996; Cooper, O. R., Gao, R. S., Tarasick, D., Leblanc, T., & Sweeney, C. (2012). Long-term ozone trends at rural ozone monitoring sites across the United States, 1990–2010. *Journal of Geophysical Research: Atmospheres*, *117*(D22); Gégo, E., Porter, P. S., Gilliland, A., & Rao, S. T. (2007). Observation-based assessment of the impact of nitrogen oxides emissions reductions on ozone air quality over the eastern United States. *Journal of Applied Meteorology and Climatology*, *46*(7), 994-1008; He, H., Liang, X. Z., Sun, C., Tao, Z., & Tong, D. Q. (2020). The long-term trend and production sensitivity change in the US ozone pollution from observations and model simulations. *Atmospheric Chemistry and Physics*, *20*(5), 3191-3208; He, H., Stehr, J. W., Hains, J. C., Krask, D. J., Doddridge, B. G., Vinnikov, K. Y., ... & Dickerson, R. R. (2013). Trends in emissions and concentrations of air pollutants in the lower troposphere in the Baltimore/Washington airshed from 1997 to 2011. *Atmospheric Chemistry and Physics*, *13*(15), 7859-7874; Jin, X., Fiore, A. M., Murray, L. T., Valin, L. C., Lamsal, L. N., Duncan, B., ... & Tonnesen, G. S. (2017). Evaluating a space-based indicator of surface ozone-NOx-VOC sensitivity over midlatitude source regions and application to decadal trends. *Journal of Geophysical Research: Atmospheres*, *122*(19), 10-439; Li, J., Mao, J., Fiore, A. M., Cohen, R. C., Crounse, J. D., Teng, A. P., ... & Horowitz, L. W. (2018). Decadal changes in summertime reactive oxidized nitrogen and surface ozone over the

studies serve as robust validation of the EPA's 4-step framework that underpins its previous Good Neighbor approach.

While the EPA's framework approach has successfully demonstrated linkages between upwind emissions and downwind ozone problems through the prospective studies of regional NOx programs, the OTC has previously noted that the EPA's modeling methodology for determining if a linkage exists is conservative (*i.e.,* less prone to establishing a linkage).[12] Past EPA modeling of ozone design values when projected from a past emissions inventory year (*e.g.,* 2016) tends to underpredict the monitored design values.[13] This indicates that modeled regional interstate ozone contributions are larger than the EPA's modeling estimates.

The OTC agrees with the EPA in its proposed rule that if adequately explained, the agency can "consider updated information in taking action on these SIP submissions or any other types of SIP submissions."[14] Incorporating better information can uncover additional upwind-downwind linkages that were not accounted for in prior iterations of the analysis. Incorporating better information can also prevent unnecessary regulatory burden on states and sources by uncovering "false positive" linkages identified in prior analysis iterations. The end result is an approach that applies to all states and sources equally because it is based on the best available science and data, and it takes into account the most up-to-date information, including that gathered in response to public comments. Inexplicably, however, the EPA seeks to only apply new information in one direction, *i.e.,* to absolve upwind states from their Good Neighbor obligations (*e.g.,* absolving Kentucky from Good Neighbor obligations using more recent 2016v3 modeling results). Where the same information source would obligate proactive Good Neighbor requirements, the EPA simply ignores it. New information should be consistently applied to the SIP review process, regardless of whether it results in a regulatory obligation that is more or less strict.

Finally, we note that studies of ozone trends indicate that with the increasing sensitivity of ozone formation to NOx as the result of past control programs, additional regional NOx controls implemented now will improve ozone air quality even more than would have occurred if these same NOx controls had been implemented in 2005.[15] Conversely, loosening of NOx accountability now may lead to disproportionate ozone degradation in downwind states due to

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Southeast United States. *Atmospheric Chemistry and Physics*, *18*(3), 2341-2361; Yan, Y., Lin, J., & He, C. (2018). Ozone trends over the United States at different times of day. *Atmospheric Chemistry and Physics*, *18*(2), 1185-1202.

[12] OTC Comments on EPA's Proposed FIP Addressing Regional Ozone Transport for the 2015 Ozone NAAQS, submitted to Docket ID No. EPA–HQ–OAR–2021–0668 (June 21, 2022), at p. 3, https://otcair.org/upload/Documents/Correspondence/OTC%20GN%20FIP%20comments%20final%2020220621.pdf.

[13] *See e.g.,* OTC, 2023 Fall OTC and MANEVU Stakeholder Meeting, Presentation – Modeling (September 21, 2023), slides 5 & 6, https://otcair.org/upload/Documents/Meeting%20Materials/3%2020230921_OTC_MC_Stakeholders%20final.pdf.

[14] 91 Fed. Reg. at 4035.

[15] Henneman, L. R., Shen, H., Liu, C., Hu, Y., Mulholland, J. A., & Russell, A. G. (2017). Responses in ozone and its production efficiency attributable to recent and future emissions changes in the Eastern United States. *Environmental Science & Technology*, *51*(23), 13797-13805; Jin, X., Fiore, A. M., Murray, L. T., Valin, L. C., Lamsal, L. N., Duncan, B., ... & Tonnesen, G. S. (2017). Evaluating a space-based indicator of surface ozone-NOx-VOC sensitivity over midlatitude source regions and application to decadal trends. *Journal of Geophysical Research: Atmospheres*, *122*(19), 10-439.

the increased sensitivity of ozone formation to the remaining NOx. Knowing this, it is extremely disconcerting that the EPA is backsliding in contradiction to CAA sec. 110(l) in its attempt to weaken Good Neighbor SIP responsibilities in upwind states. This will prolong the exposure of millions of Americans to harmful ozone levels and impede the ability of downwind states to meet ozone attainment deadlines that the CAA requires to be met "as expeditiously as practicable."

VI. Summary

The EPA's change from a 1 percent of the NAAQS linkage threshold to a presumptive linkage of 1 ppb constitutes backsliding. With such a weakening, downwind states will be forced to obtain deeper local pollution reductions to meet the current ozone NAAQS while upwind states are essentially absolved from the responsibility to address what would have been considered significant contributions under the EPA's previous approach.

The EPA's shift is based on its flawed 2018 memorandum that the OTC has previously critiqued. The EPA has not adequately explained its counterintuitive change in position and has not provided a fuller opportunity for public notice and comment on the policy change. Furthermore, the OTC strongly disagrees with the EPA allowing states to use other factors outside the EPA's long-established significant contribution 4-step framework in seeking to diminish their own responsibilities. Each state's significant contribution should stand on its own.

The EPA's change in policy is even more perplexing in light of the demonstrated historical success of the EPA's 4-step framework approach to address interstate transport using a threshold linkage of 1 percent of the 8-hour ozone NAAQS. The linkage has been under 1 ppb for 15 years and has been working well to reduce ozone pollution.

In conclusion, the OTC disagrees that a 1 ppb linkage threshold is reasonable. The OTC requests that the EPA withdraw its 2018 memorandum and reinstate its past consistent practice using a 1 percent threshold that has accomplished so much in improving ozone air quality across the eastern United States.

Sincerely,

Emma Cimino

Emma Cimino
Chair, Ozone Transport Commission, and
Deputy Commissioner, Connecticut Department of Energy and Environmental Protection

cc: OTC Air Pollution Control Officials

Attachments:
1) 17-State Joint Letter to U.S. EPA with framework recommendations for addressing interstate pollution transport (September 2, 2009)
2) OTC Letter to EPA Assistant Administrator W. Wehrum Concerning Good Neighbor SIPs (January 23, 2019)

September 2, 2009

The Honorable Lisa P. Jackson, Administrator
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Mail Code 1101A
Washington, DC 20460

Dear Administrator Jackson:

On behalf of 17 states in the eastern half of the U.S., we wish to provide the following recommendations to the Environmental Protection Agency (EPA) to consider as it develops a replacement rule for the Clean Air Interstate Rule (CAIR), in light of the December 23, 2008, remand by the U.S. Court of Appeals for the D.C. Circuit.

The recommendations follow through on the commitment we made in the March 9, 2009, Framework Document to work together to address the transport requirements of Section 110(a)(2)(D) of the Clean Air Act (CAA), and to attain the ozone and PM2.5 National Ambient Air Quality Standards (NAAQS). Please understand that in preparing these recommendations our fundamental air quality objective is to achieve attainment and ensure maintenance of the NAAQS as expeditiously as practicable.

As the result of our collaboration, we recommend for your consideration a framework, which is based on in-depth technical evaluations and a sincere and concerted effort by all states to reach common ground on an overall approach to addressing transport. This comprehensive framework comprises national rules involving significantly contributing states that combine statewide emissions caps and complementary regional trading programs with a state-led planning process to address transport in a multi-pronged and layered approach. While the undersigned states have reached consensus on this suggested framework, there are some regional differences concerning the timing and stringency of electric generating unit (EGU) reductions, and the criteria for determining which states are included in the state-led planning process. In addition, the states differ in their perspectives on whether performance based standards should be part of the strategy.

The Lake Michigan Air Directors Consortium (LADCO) and the Ozone Transport Commission (OTC) will be submitting separate letters to explain their perspectives on these areas of regional differences on implementation of the framework.

Many areas in the eastern U.S. are designated as nonattainment for the current ozone and PM2.5 standards (1997 version), and it is expected that even more areas will not be in compliance with 2008 ozone and 2006 PM2.5 standards. Numerous data analysis and modeling studies have shown that some (not all) of these nonattainment problems are strongly influenced by inter-state transport.

Additional regional emission reductions will be necessary to help states meet the new air quality standards. A timely and robust federal program that requires substantial regional emission reductions from mobile sources, area sources and large point sources such as

EGUs is an essential component of any strategy to reduce interstate transport of air pollution. These reductions are necessary to attain and maintain compliance with the NAAQS.

The undersigned states recommend a 3-step approach, as further discussed below, to establish a framework from which to address the requirements of CAA section 110(a)(2)(D):

1. Identifying areas of interest (i.e., those not meeting the standards and those struggling to maintain the standards);
2. Identifying, based on specific criteria, upwind states which contribute to nonattainment or interfere with maintenance in these areas of interest; and
3. Implementing a multi-sector remedy to meet CAA requirements.

Step 1 - Identifying Areas of Interest

A. While the requirements of Section 110(a)(2)(D) apply to all areas, most attention should be given to those areas not meeting or struggling to maintain the NAAQS. These "areas of interest" should be identified using monitoring and modeling data.

B. Specifically, areas with both base monitored design values and future modeled design values above the applicable NAAQS should be designated as areas of interest. The monitored design values are based on the maximum design value from the periods 2003-2005 through the most recent three-year period, and the future modeled values are based on future year modeling which reflects legally enforceable control measures and a conservative model attainment test - i.e., use of maximum design values rather than average design values.

    1. The use of maximum design values and a conservative model attainment test are intended to account for historic variability, which is necessary to ensure maintenance. An alternative means of accounting for historic variability is to conduct a statistical analysis of the year-to-year variation in meteorology.

    2. Requiring a more conservative model attainment test will necessitate a change in EPA's modeling guidance. EPA should also establish performance criteria to insure that the modeling is capturing transport appropriately.

    3. EPA's approach in CAIR also reflects a "monitored and modeled" test to identify areas of interest.

Step 2 - Identifying Upwind States that Significantly Contribute to Nonattainment or Interfere with Maintenance

A. An upwind state significantly contributes to nonattainment or interferes with maintenance in a downwind area of interest if its total impact from all source sectors equals or exceeds 1% of the applicable NAAQS.

B. Individual state contributions should be determined through a weight-of-evidence approach, including source apportionment modeling.

C. Use of 1% of the NAAQS as the significance threshold is consistent with EPA's approach in CAIR.

Step 3 - Implementing a Multi-Sector Remedy to Meet Clean Air Act Requirements

A two-part process is recommended consisting of: (A) a national/regional control program adopted by EPA for EGUs and additional federal control measures for other sectors, and (B) state-led efforts to develop, adopt, and implement federally enforceable plans for each area of interest that is not expected to attain the standards even after implementation of the national/regional program.

A. National/Regional Control Program

A significantly contributing state (i.e., a state which contributes at least 1% to a downwind area of interest) must comply with the national/regional control program described below.

1. EGU point source strategy (applicable to units ≥ 25 MW)
   In adopting a CAIR replacement rule EPA should:

   (a) make federally enforceable through appropriate mechanisms all nitrogen oxide (NOx) and sulfur dioxide (SO_2) controls to comply with the original CAIR Phase I program;

   (b) make federally enforceable through appropriate mechanisms optimization by no later than early 2014 of existing NOx and SO_2 controls;

   (c) make federally enforceable through appropriate mechanisms application by 2015 of low capital cost NOx controls;

   (d) establish statewide emission caps by no later than 2017 for all fossil fuel-fired units ≥25MW. The caps should reflect an analysis of NOx and SO_2 controls on coal-fired units ≥ 100 MW which, in combination with the three measures above, will achieve rates that are not expected to exceed 0.25 lb/MMBTU for SO_2 (annual average for all units ≥25 MW) and 0.11 lb/MMBTU for NOx (ozone seasonal and annual average for all units ≥25 MW) and which will result in lower rates in some states. Previously banked emissions under the Title IV or CAIR programs shall not be used to comply with the state-wide emission caps; and

   (e) to the fullest extent allowed under the Clean Air Act, EPA should work with the states to establish regional emissions caps with full emissions trading to replace the caps currently applicable under CAIR.

Again, there are regional differences on some elements of the EGU point source strategy, including mechanisms for achieving reductions prior to 2017. Further recommendations will be provided in separate letters by LADCO and OTC.

2. Non-EGU point source strategy

    a. EPA should identify and prioritize other categories of point sources with major emissions of NOx and/or SO_2 (e.g., cement plants) based on a review of available emissions inventories and other information, such as source apportionment studies.

    b. For the non-EGU point sources, EPA should identify and evaluate control options for reducing NOx and/or SO_2 emissions. The evaluation should consider the technological, engineering, and economic feasibility of each control option.

    c. At a minimum, EPA should evaluate the technological, engineering, and implementation feasibility, and cost-effectiveness of controlling SO_2 and NOx emissions from industrial, commercial, and institutional boilers $\geq$ 100 MMBTU/hour.

3. Mobile source strategy, such as new engine standards for on-highway and off-highway vehicles and equipment, and a single consistent environmentally-sensitive formulated fuel.

4. Area source strategy, such as new federal standards for consumer products and architectural, industrial and maintenance coatings as originally promised by EPA in 2007

B. State- Led Attainment Planning

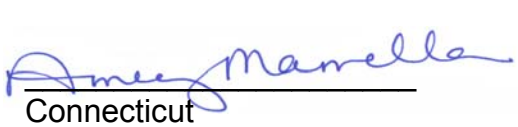
The undersigned states recommend the use of a state-led attainment planning process concurrent with developing the transport SIP to address areas of interest that are not expected to attain after implementation of the national/regional control program. The state-led planning effort should involve a key subset of significantly contributing states to develop, adopt, and implement an appropriate attainment strategy. EPA should work with the states to establish criteria for determining which significantly contributing states should be involved in the state-led planning process. Additionally EPA should work with the states to determine the appropriate criteria for each state to satisfy CAA section 110(a)(2)(D). The advantages of this state-led planning effort include:

- A one-size-fits-all federal solution cannot provide the most appropriate and cost-effective solution for each area;
- Attainment planning is more effective and more likely to succeed if it is done on a non-attainment area basis with a key subset of contributing states;
- Additional controls are identified where they are needed; and
- States maintain their responsibility under the Clean Air Act to establish state implementation plans.

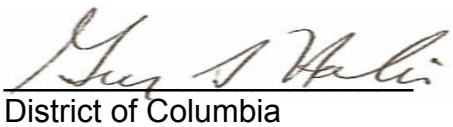
Further recommendations on this issue will be provided in separate letters by LADCO and OTC.

The comprehensive framework outlined above represents the culmination of our collaborative work over the past six months. We look forward to working with you further as EPA develops its CAIR replacement rule.

Sincerely,

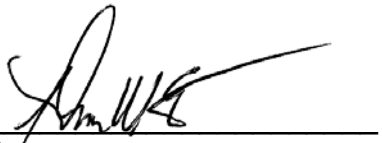


Connecticut



District of Columbia

Illinois



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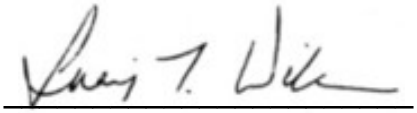

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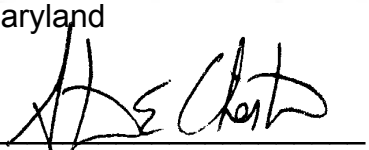

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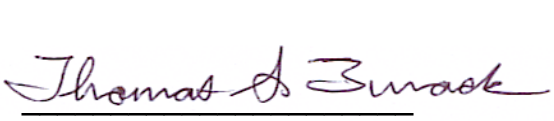

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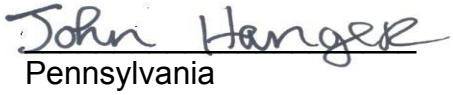
New Jersey

New York

Ohio



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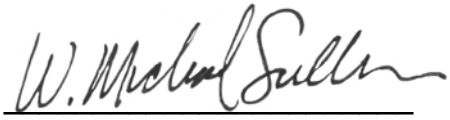

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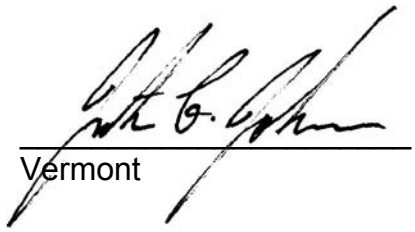

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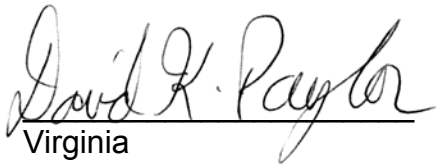

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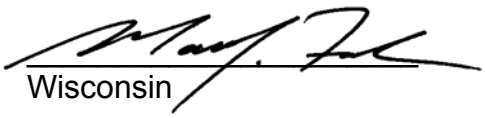

Wisconsin

OZONE TRANSPORT COMMISSION

Connecticut

Delaware

District of Columbia

Maine

Maryland

Massachusetts

New Hampshire

New Jersey

New York

Pennsylvania

Rhode Island

Vermont

Virginia

David C. Foerter
Executive Director

800 Maine Ave., SW
Suite 200
Washington, DC 20024
(202) 318-0190
Email: ozone@otcair.org

January 23, 2019

The Honorable William Wehrum,
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection
Agency Mail Code 6101A
1200 Pennsylvania Avenue,
N.W. Washington, DC 20460

Dear Assistant Administrator Wehrum:

The Ozone Transport Commission (OTC) consists of 12 states and the District of Columbia that work together to address ozone transport under requirements of the 1990 Clean Air Act Amendments. Since its creation, the OTC has been tremendously successful in reducing ozone concentrations in all member states by collectively driving science and technology towards efficiency, thereby creating a healthier environment for nearly 66 million people. Despite this success, half of OTC's residents are still breathing air that exceeds the 2015 ozone National Ambient Air Quality Standard (NAAQS) and almost 4.5 million people are exposed to ozone levels exceeding the 2008 NAAQS. OTC's modeling indicates that without additional emission reductions, 12 million people in OTC states will still be breathing unhealthy air in 2023. Breathing unhealthy levels of ozone is linked to serious respiratory illness like asthma and can also lead to early mortality. Children and the elderly are at greatest risk from breathing unhealthy levels of ozone.

Over the past six months there has been a considerable amount of discussion and debate over the technical and scientific basis of environmental decision making. The OTC is concerned with a discernible trend by the Environmental Protection Agency (EPA) to present technical information in an incomplete way that favors EPA's preferred policy. In the case of recent Agency memoranda and proposals, EPA selectively presents information that undermines and mischaracterizes the continued need for emission reductions from upwind states in order to bring air in compliance with federal standards to the residents of the OTC.

An August 31, 2018 memorandum signed by Peter Tsirigotis, Director of EPA's Office of Air Quality Planning and Standards, to Regional Air Division Directors indicates that EPA intends to revise the threshold used to determine significant ozone contribution from upwind states to downwind nonattainment areas. The memo weakens the effectiveness of the Clean Air Act's "Good Neighbor" provisions (Section 110 (a)(2)(D)) and appears to be based upon faulty technical analyses. The Act's Good Neighbor provisions are intended to provide downwind nonattainment areas with relief from interstate pollution transport that prevents them from meeting federally mandated attainment dates. The significance thresholds in the EPA/Tsirigotis memorandum do not provide relief and will further delay public health protection to our citizens. This is unacceptable.

The attached comments are OTC's most recent submittal to EPA identifying technical analyses that are overly optimistic and in some cases misrepresent the science to support the EPA's policy position that upwind states do not need to include additional emission reduction measures in their Good Neighbor State Implementation Plans (SIPs) for the 2008 and 2015 NAAQS. The central and critical issues that OTC comments on include:

1. Inconsistency of EPA's analyses with the current understanding of ozone formation and transport;
2. Inadequacy of the weakened one part per billion threshold for significant contribution; and
3. Need for EPA to utilize a more appropriate threshold for control costs that equitably allocates responsibility between upwind and downwind states.

More specifically, this includes:

- Ignoring the results from another EPA approved model that shows less optimistic results;
- Averaging modeling results over multiple days which can mask maximum contribution on high ozone days;
- Using inaccurate assumptions to estimate daily and hourly emission profiles for significant ozone precursor sources;
- Failing to represent key meteorological regimes and conditions for ozone transport and local ozone formation;
- Not considering the collective contribution of upwind states in determining the appropriate threshold;
- Assuming emissions reductions that are not backed with enforceable requirements;
- Not utilizing low-cost controls that can be implemented sooner than 2023;
- Not considering the impact that various regulatory rollbacks will have on future year emissions; and
- Not considering the costs of programs in downwind nonattainment areas when determining cost-effectiveness of upwind reductions.

These comments build upon a progression of comments that OTC and member states have submitted in recent months and over the past few years. Other submittals where OTC and its member states have discussed EPA's less conservative and overly optimistic scientific and technical data and analyses include:

- April 6, 2017 OTC Comments to U.S. EPA; Docket ID No: EPA-HQ-OAR-2016-0751; RE: Notice of Availability of the Environmental Protection Agency's Preliminary Interstate Ozone Transport Modeling Data for the 2015 Ozone National Ambient Air Quality Standard (NAAQS);
- August 31, 2018 OTC Comments, including OTC Technical Assessment – Attachment 1, on the EPA's Proposed Determination Regarding Good Neighbor Obligations for the 2008 Ozone National Ambient Air Quality Standard (CSAPR Close-Out); and
- Comments from individual states on Section 126 Petition actions, Good Neighbor SIPs for upwind states, the CSAPR Update, the CSAPR Close-Out and other EPA actions or

proposals. Delaware, Connecticut, Maryland, New Jersey and New York have all submitted multiple comments to EPA on issues related to ozone transport.

As you know, many OTC states are working individually and in concert with others to challenge EPA decisions on many transport related actions. The science is very clear and EPA needs to require that upwind states adopt additional enforceable NOx reduction measures as part of their Good Neighbor SIPs for both the 2008 and the 2015 ozone standards. OTC member states are interested in discussing these issues further. I will be reaching out to you to schedule time for us to meet. If you have any questions in the meantime, please contact me or have your staff contact Mr. David Fees with my Division of Air Quality at (302) 739-9402.

Sincerely,

Shawn M. Garvin
OTC Chair

cc: OTC Commissioners and Air Directors
U.S. EPA Regional Administrators for Regions I, II, and III

OTC TECHNICAL ANALYSIS OF THE EPA DOCUMENT RELEASED ON AUGUST 31, 2018 ENTITLED "ANALYSIS OF CONTRIBUTION THRESHOLDS FOR USE IN CLEAN AIR ACT SECTION 110(A)(2)(D)(I)(I) INTERSTATE TRANSPORT STATE IMPLEMENTATION PLAN SUBMISSIONS FOR THE 2015 OZONE NATIONAL AMBIENT AIR QUALITY STANDARDS."

AUGUST 31, 2018 MEMORANDUM FROM PETER TSIRIGOTIS, DIRECTOR EPA OAQPS TO REGIONAL AIR DIVISION DIRECTORS

DECEMBER 7, 2018

Introduction

The Ozone Transport Commission (OTC) is submitting technical comments below on the August 31, 2018 Memorandum from Peter Tsirigotis, Director U.S. Environmental Protection Agency's (EPA) Office of Air Quality Planning and Standards (OAQPS) to Regional Air Division Directors, *Analysis of Contribution Thresholds for Use in Clean Air Act Section 110(a)(2)(D)(i)(I) Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards*.

The Tsirigotis memo of August 31, 2018 concludes that relaxing the significant contribution threshold from 1-percent (%) of the National Ambient Air Quality Standards (NAAQS) to 1 part per billion (ppb) achieves results that are "generally comparable." OTC analysis finds that raising the significant contribution threshold from 1% of the NAAQS to 1 ppb is not comparable at many of OTC's most challenged locations and shifts the burden of reducing of up to 3 ppb away from states that would have been attached contributing states that drop out of significant contributor status under the potential change of threshold. The net result is that downwind areas will have to make-up this difference, with much more expensive control options than are currently available in upwind contributing areas.

The OTC has three main major concerns with the way EPA has characterized technical data in the August 31, 2018 Tsirigotis memorandum:

- EPA needs to ensure that the modeling used to support state SIPs is consistent with current conceptual understanding of how ozone is formed;
- EPA's preference to allow the threshold for significant contribution to increase from 1 percent of the NAAQS to a more lenient 1 ppb further shifts the burden of compliance from states outside of the OTR to states in the OTR; and
- The effect of combining a more lenient threshold for significant contribution with the extremely low and undervalued marginal cost threshold of $1,400 per ton of NOx removed, allows upwind states to determine that their "linked contribution" is not "significant" and increases the inequity for control costs in nonattainment areas and those areas contributing significantly to that nonattainment (i.e., it absolves the upwind states from any further transport obligations).

Consistency with Current Conceptual Understanding of Ozone

- **EPA needs to ensure that the modeling used to support state SIPs is consistent with current conceptual understanding of how ozone is formed[1].**
    - **Understanding Ozone Formation**

Although ozone design values in the East have dropped dramatically over the past ten years, there is still a large population that is exposed to ozone concentrations in excess of the 2008 and 2015 National Ambient Air Quality Standard (NAAQS). As ozone precursor emissions have been reduced, the way in which high ozone days occur has also changed. Historically, high levels of local emissions would combine with regionally produced emissions to form widespread ozone exceedances across the Ozone Transport Region (OTR). As states in the OTR worked individually and collaboratively to address local and regional ozone transport in order to meet the 1990 1-hour, 1997 8-hour, and 2008 8-hour ozone NAAQS, emissions and corresponding ozone concentrations came down significantly. During the process, virtually every cost-effective emission reduction was studied and pursued, and the continuing need for emission reductions resulted in incrementally higher costs, especially when compared to OTC's upwind neighbors.

In the 1990s, the Ozone Transport Assessment Group (OTAG) was formed to study ozone transport beyond the established Northeast OTR. Upon conclusion, they found that ozone and its precursor emissions could transport hundreds of miles through various meteorological regimes. Measurements taken around this time found that high-ozone events in the Northeast were linked to widespread regional transport episodes, where regional ozone routinely reaching concentrations of 70 to 90 ppb was found to be transporting aloft into the OTR just a few thousand feet above the ground. After transporting into the OTR, this regional aloft "reservoir" was found to mix down into lower elevations with local emissions that were released during the mid-morning to create high levels of ground-level ozone, often well above the standard. The OTAG process concluded with EPA implementing the NOx SIP Call, which successfully reduced inter-regional ozone transport and enabled many eastern locations to attain the ozone NAAQS.

Since the 1990s, additional regional and national emission measures have been implemented including the Clean Air Interstate Rule (CAIR), Cross-State Air Pollution Rule (CSAPR), and low emission vehicles and clean fuel requirements, but perhaps one of the biggest recent drivers of cleaner air in the eastern United States is not a regulation at all. It is an economic driver created by increasing low-cost natural gas supplies through improved fracking technology. Electric generating companies and large industry often found it more economical to switch to low cost and lower polluting natural gas that naturally meets most environmental regulations than it was to continue to operate with higher emitting fuels and operate post-combustion technology. While this economic driver has been very effective in reducing emissions and lowering ozone concentrations across the East, it comes with an uncertain future that is

[1] The following language is similar to that noted in Section 1 of the Ozone Transport Commission's (OTC's) Comment and Technical Assessment regarding Good Neighbor Obligations for the 2008 Ozone National Ambient Air Quality Standard, August 31, 2018.

dependent on an assumption that future year economics will continue to support low cost natural gas. It also comes with demonstrated changes in how high ozone events in the East are formed.

In recent years, the worst ozone days in the East are still almost always linked to regional events. Regional nitrogen oxide emissions (NOx) from electric generating units (EGUs) still create an aloft reservoir that mixes down, but ozone levels in the reservoir are more commonly in the 50 to 70 ppb range compared to the 70 to 90 ppb range observed ten years ago. Local emissions and short-range transport (West Virginia and Pennsylvania to Maryland, Maryland to New Jersey, New Jersey to Connecticut, etc.) have become more critical, adding up to 15 to 30 ppb of ozone to the 50 to 70 ppb of ozone mixing down from aloft. This can be the difference between exceeding and not exceeding the 2008 and 2015 standards. Driven by local meteorology, local geography and day-specific emissions, contribution from local emissions and short-range transport vary from one high ozone day to another. Modeling needs to account for fine scale topographical and emission features and have good model replication of the aloft transport reservoir.

- **Sea and Bay Breezes**

Sea and bay breezes are currently an important phenomenon at many of the high ozone monitoring locations in the OTR. These events can create large gradients between high and low ozone locations. Photochemical model performance in these locations is not strong enough to forecast with certainty to fractions of a ppb as was done in the transport modeling used to support the Tsirigotis memo. Modelers have explored removing data from the calculations, but this methodology is unproven and the source of additional uncertainties. Ideally, future modeling will include fine enough resolution where the near water model performance issue for high ozone monitors can be resolved to improve performance and certainty.

- **Emissions on High Ozone Days**

Another important detail that has not been accurately accounted for in current modeling is emissions on high temperature days. These high temperature periods are often also periods of high electricity demand where base load EGUs run at maximum capacity and peaking or load-following EGUs, that do not run every day, are also running at a high capacity. Infrequently operating peaking units, which often lack emission controls, have proven difficult to account for in the ozone modeling emission inventories. Such units have their modeled emissions "averaged" over long durations rather than capturing emission peaks concentrated on just a few days, or even hours, in the way these sources in the real world operate during high electricity demand periods.

- **Inventory and Modeling Uncertainties**

Support modeling for Good Neighbor (GN) State Implementation Plans (SIPs) introduces a new level of required modeling sophistication where fractions of a ppb become even more important. The results of this work determine which states owe emission reductions in their GN SIPs to address modeled violations of the ozone NAAQS. Getting this wrong can leave downwind areas facing failure to attain the NAAQS with insufficient help in reducing transport. For this test, EPA uses the model to predict future year (2023) design values and how much transport will

exist from upwind states to a monitor predicted to violate the NAAQS within its four-factor framework:

1. Identifying downwind air quality problems relative to the NAAQS;
2. Determining which upwind states are linked to these identified downwind air quality problems and which ones warrant further analysis to determine whether their emissions violate the good neighbor provision;
3. For upwind states linked to downwind air quality problems, identifying on a statewide basis, emissions (if any) that will significantly contribute to nonattainment or interfere with maintenance of a standard, based on cost and air quality factors evaluated in a multi-factor test; and,
4. For states that are found to have emissions that significantly contribute to nonattainment or interfere with maintenance of the NAAQS downwind, implementing the necessary emission reductions within the state.

There are many ways to evaluate transport and there are many large uncertainties including the use of future year expected emissions and meteorological variability. OTC performed an analysis of several different contribution metrics and found differing answers as to who significantly contributes to a modeled future year ozone violation. While the approach used by EPA to determine significant contribution is simple, there are other approaches that better reflect the realities of today's ozone transport problems.

EPA once used a calculation that averages state ozone contribution linkages to downwind nonattainment and maintenance areas on modeled days exceeding 70 ppb. The process was modified in the EPA March 2018 updated contribution modeling to average state ozone contribution linkages on the top ten modeled ozone days to the same areas of concern. Since the form of the ozone NAAQS considers the four highest ozone days per year for a given monitor, it makes sense to look at significant transport in a way that also considers the four largest individual day ozone contributions occurring during the highest modeled ozone days, rather than to average state ozone contributions on the top ten modeled ozone days. The OTC technique averages the maximum four state contribution linkages to areas of concern from the top ten modeled ozone days. Such a metric naturally improves consideration of key meteorological regimes (e.g., along corridor, westerly transport, local recirculation, etc.) and adds a needed small level of conservatism to better ensure attainment, which is generally absent from EPA transport analyses. Inherent uncertainties of year to year meteorology still limit full transport consideration of all common meteorological regimes to only those inherent to the base year meteorology.

Overall, photochemical modeling has historically done well with predicting larger ozone changes, but not to the degree where fractions of a ppb are predicted within modeling uncertainty. Today, there are widespread areas that are just a few ppb above the ozone NAAQS and the role of modeling and emission uncertainties is becoming increasingly important. EPA 2023 future year modeling is predicting a number of locations in the OTR to be within plus-or-minus 1 ppb of attainment, but uncertainties in future year emissions and meteorology make the prospect of these areas actually reaching attainment by 2023 tenuous without better accounting

for the current conceptual understanding of ozone formation and the uncertainties inherent to the analysis.

- **Need for enforceable limitations**

In step 1 of its four-step analysis, EPA's 2023 projection inventory and modeling presumes that certain emission reductions will occur, and thus air quality will improve in the future to such a degree that no area in the eastern United States will endure ozone nonattainment or maintenance issues. Many of these claims of emission reductions are dubious and are unlikely to occur without enforceable provisions. Without enforceable emission limits being implemented at facilities as assumed in the 2023 modeling, there is no guarantee that any emission reductions will actually occur. This serves to underrepresent the extent of downwind nonattainment and maintenance issues, and minimizes the extent of ozone transport from upwind states. EPA's approach is also contrary to the fundamental principle behind the statutory obligation that SIPs must "include enforceable emission limitations" and "contain adequate provisions prohibiting ... 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 any such national ambient air quality standard."[2] By declaring future air quality as attaining the NAAQS without making enforceable the very measures by which that prediction was made, EPA subverts the text and meaning of CAA section 110(a)(2).

Significant Contribution Thresholds

- **EPA's preference to allow the threshold for significant contribution to increase from 1 percent of the NAAQS to a more lenient 1 ppb shifts the burden of compliance from states outside of the OTR to states in the OTR.**

From a simple math perspective, changing the historically used significant contribution threshold from one percent of the NAAQS to 1 ppb raises the threshold between 25 and 30 percent for the 2008 and 2015 ozone NAAQS, respectively. Because fewer states would qualify as contributing states, fewer sources would be left with the responsibility of finding greater emission reductions to meet the goal of attainment. The applicability of 1 ppb would have to be reassessed each time the NAAQS is updated.

The origins of using 1 ppb as a significant contribution threshold comes through the Prevention of Significant Deterioration Program (PSD) where a technical analysis is conducted on individual emission sources to determine if the facility emissions will significantly contribute to air quality degradation. This analysis uses a significant impact level (SIL) as a screening threshold for the facility during single-source dispersion modeling as part of a permitting analysis. The ozone SIL resulted from a bootstrap statistical analysis of measured ozone monitor variability. As such, the 1 ppb threshold reflects an ozone change that a typical ozone monitor would be capable of recording created by the modeled emission source with a degree of statistical certainty. It's a bit of a leap to apply the ozone SIL to state-wide emission sources in a photochemical modeling analysis where fractions of a ppb are known to be important.

[2] Clean Air Act sections 110(a)(2)(A) and 110(a)(2)(i)(I), respectively.

EPA's August 31, 2018 memo suggests that the resulting modeled GN transport contributions of a 1% of the NAAQS and a 1 ppb threshold are "generally comparable, overall," however OTC analysis finds a significantly increased burden to downwind nonattainment and maintenance areas within the OTR. The table below summarizes states that would be linked via 1% of the NAAQS and 1 ppb thresholds to downwind problem areas in 2023. Using the Susan Wagner High School monitoring site in Richmond County, New York as an example, switching from 1% of the NAAQS to a 1 ppb threshold would eliminate three states (Illinois, Indiana, and Kentucky) as significant contributors representing up to 2.56 ppb of modeled ozone impact onto the downwind nonattainment area. When Congress established the transport provisions of the Clean Air Act, it envisioned that States would address their significant contributions to downwind nonattainment and interference with maintenance in an equitable and cost-effective manner. By increasing the threshold for significant contribution, EPA is further shifting the burden to downwind States without regard for the overall impact upwind states have on nonattainment.

Comparison of Potential Significance Threshold Changes for 2015 Ozone NAAQS[3]

AQS Code	County	Site	1% NAAQS	1 ppb	2023 EPA CAMx	Nonattainment Area Makeup (ppb)
090019003	Fairfield	Sherwood Island /estport	CT, MD, NJ, NY, OH, PA, VA, WV	CT, MD, NJ, NY, OH, PA, VA	72.7	0.89
360850067	Richmond	Susan Wagner S	IL, IN, KY, MD, MI, NJ, NY, OH, PA, VA, WV	MD, MI, NJ, NY, OH, PA, VA, WV	71.9	2.56
240251001	Harford	Edgewood	IN, KY, MD, MI, OH, PA, VA, WV	IN, KY, MD, OH, PA, VA, WV	71.4	0.81
090010017	Fairfield	Greenwich Point	CT, MD, NJ, NY, OH, PA, VA	CT, MD, NJ, NY, PA, VA	69.8	0.95
090013007	Fairfield	Lighthouse-tratford	CT, MD, NJ, NY, OH, PA, VA, WV	CT, MD, NJ, NY, OH, PA, VA	71.2	0.81
361030002	Suffolk	Babylon	MD, MI, NJ, NY, OH, PA, VA, WV	MD, NJ, NY, OH, PA, VA,	72.5	1.67
090099002	New Haven	Hammonasset tate Park-ladison	CT, MD, NJ, NY, OH, PA, VA	CT, MD, NJ, NY, OH, PA, VA	71.2	0.00
360810124	Queens	Queens College	MD, MI, NJ, NY, OH, PA, VA, WV	MD, MI, NJ, NY, OH, PA, VA	70.1	0.89
361192004	Westchester	White Plains	CT, MD, NJ, NY, OH, PA, VA, WV	CT, MD, NJ, NY, OH, PA, VA	68.1	0.89
340150002	Gloucester	Clarksboro	DE, IL, IN, KY, MD, MI, NJ, NY, OH, PA, VA, WV	DE, MD, KY, NJ, OH, PA, VA, WV	68.2	3.62
090011123	Fairfield	Danbury	CT, MD, NJ, NY, OH, PA, VA, WV	CT, MD, NJ, NY, OH, PA, VA	66.4	0.76

Note: States shown in red are those that would be considered contributing states under the 1% of the NAAQS criterion, but not under the 1 ppb criterion.

[3] Based on EPA's March 2018 updated contribution modeling analysis with the 'en' emission inventory.

Inappropriate Threshold and Cost Criteria

- **The effect of combining a more lenient threshold[4] for significant contribution in Step 2 with the extremely low and undervalued marginal cost threshold of $1,400 per ton of NOx removed in Step 3, allows upwind states to determine that their "linked contribution" in Step 2 is not "significant" in Step 3 and increases the inequity for control costs in nonattainment areas and those areas contributing significantly to that nonattainment (i.e., it absolves the upwind states from any further transport obligations).**

The effect of combining a more lenient 1 ppb threshold[5] in Step 2 with the extremely low and undervalued marginal cost threshold of $1,400 per ton of NOx removed in Step 3, allows upwind states to determine that their "linked contribution" in Step 2 is not "significant" in Step 3. The Step 3 analysis is used to determine if the linked upwind state's contribution is "significant" or will "interfere with maintenance" of the NAAQS at downwind receptor(s). Step 3 does this by injecting an exceedingly low-cost threshold of $1,400 per ton of NOx removed. OTC has commented to EPA on multiple occasions that the cost threshold of $1,400 doesn't come close to actual costs being incurred in the OTR, and that by using such a low threshold, it allows contributing states to escape making even the most basic and most cost-effective emissions remediation to address their transport to downwind areas. This results in a much higher cost of attainment compliance, extends the time of noncompliance, and is economically punitive and unfair to downwind nonattainment areas.

The CSAPR Update finalized EGU NOx ozone season emissions budgets for affected states that were developed using uniform control stringency available at a marginal cost of $1,400 per ton of NOx reduced. However, EPA's selection of $1,400 per ton of NOx removed as the threshold for determining significant contribution is non-rigorous and arbitrary. EPA used a set of commonly used, low-cost, NOx emission controls, but fails to consider more expensive controls that many downwind states have already been forced to adopt.

EPA analyzed the following NOx control strategies to arrive at the $1,400 "cost-effective" threshold:

- optimizing NOx removal by existing, operational selective catalytic reduction (SCR) controls ($800 per ton of NOx removed),
- turning on existing idled SCR controls ($1,400 per ton of NOx removed),
- installing state-of-the-art NOx combustion controls ($1,400 per ton of NOx removed),
- turning on existing idled selective non-catalytic reduction (SNCR) controls ($3,400 per ton of NOx removed), and
- shifting generation to existing units with lower NOx emissions rates within the same state (cost varies).

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[4] Page 4 of Memo; "Although the 1 ppb threshold captures somewhat less upwind contribution across receptors than the 1 percent threshold".

[5] Page 4 of Memo; "Although the 1 ppb threshold captures somewhat less upwind contribution across receptors than the 1 percent threshold".

The EPA also considered installation of new SCRs ($5,000 per ton of NOx removed) and new SNCRs ($6,400 per ton of NOx removed), but noted that these reductions could not be achieved during the 2017 ozone season.

The EPA methodology then identified potential NOx reductions associated with each of the dollar amounts ($800, $1,400, and $3,400 per ton of NOx removed), and found that there is more potential NOx removed in the $800 to $1,400 range than in the $1,400 to $3,400 range, and thus concludes that $1,400 is reasonable for use in determining significant contribution. This analysis leads to the suggestion that SNCR is not a cost-effective control technology because SCR control technology is more efficient at NOx removal than SNCR. However, had EPA considered what NOx control technologies are already being commonly utilized rather than comparing the marginal cost of SCR to SNCR, EPA may have concluded that $3,400 per ton of NOx removed is cost-effective. Moreover, CSAPR NOx allowance prices stayed within a range of $150 to $300 per ton for much of the 2018 ozone season – considerably lower than the cost estimates contained in the CSAPR Update. These represent the true costs of the CSAPR Update; allowance prices never exceeded the $800 per ton threshold during the 2017 ozone season or the 2018 ozone season to date. Absent permanent and enforceable emission limits, it is unreasonable to assume that units will operate already-installed controls, rather than just purchasing cheaper allowances.

Businesses/corporations do a great deal of economic analysis when deciding on capital expenditures. Prior to the installation of any NOx control technology, all companies determine if the added cost of the controls is cost effective; that is- can they make the money back? Certainly, if a company has installed post-combustion NOx controls (SCR or SNCR), operated the control devices, and asked for rate increases on customers to pay for the control devices, then the installation and operation of the control device was already determined to be cost effective. EPA did not need to separate SCR control device costs from SNCR control device costs in developing a cost-effective threshold. Electric generating companies have conducted this analysis already; the proof is the installation and operation of the control devices. Therefore, using EPA's own cost data in the CSAPR Update, $3,400 per ton of NOx removed is a more reasonable dollar per ton of NOx figure for determining significant contribution than $1,400.

By combining a more lenient screening threshold to determine upwind states contribution and accountability to downwind states with a lower cost threshold requirement for those upwind states that are deemed significant contributors, EPA has shifted the burden of NOx reduction costs significantly towards downwind states. A $3,400 per ton of NOx removed cost threshold for upwind states is significantly less burdensome when compared to the high costs of controls in downwind OTC states struggling to reach attainment. While Reasonable Available Control Technology (RACT) cost thresholds vary from state to state, many OTC states have implemented regulations enforcing control costs orders of magnitude higher than $3,400 per ton of NOx removed. This economic disparity can be illustrated by comparing the state of Connecticut to upwind states. As required in Connecticut's Reasonably Available Control Technology rules (RCSA 22a-174-22e(h)), Connecticut sources are required to pay more than $13,000 per ton of emissions reduced. This is a nearly 4-fold increase over the $3,400 cost threshold and a 9-fold increase over the current EPA CSAPR-Update $1,400 cost threshold. EPA inequitably utilizes an average cost per ton threshold across a large domain instead of

leveling the economic playing field and using cost per ton thresholds from upwind nonattainment areas. Ultimately, EPA's combination of a more lenient screening threshold (1 ppb) with an unreasonably low cost threshold puts downwind states at a huge economic disadvantage and absolves upwind states of their responsibilities under the Clean Air Act (Good Neighbor) transport provisions.

Conclusion

In conclusion, the OTC has three main major concerns with the way EPA has characterized technical data in the August 31, 2018 Tsirigotis memorandum. To address these concerns EPA needs to:

1. Ensure that the modeling used to support Good Neighbor SIPs is consistent with current conceptual understanding of how ozone is formed and measured by accounting for local meteorology, fine scale topographical features, day and hour specific emissions, accurately representing the aloft transport reservoir and addressing the days when ozone transport is contributing to nonattainment. (For example, EPA should use the average of the maximum four state contribution linkages to areas of concern from the top ten modeled ozone days and control measures included in the modeling should be consistent with the enforceable requirements included in state or federal implementation plans.)
2. Retain the one percent of the NAAQS threshold for significant contribution and interference with maintenance as the one percent threshold provides for a more equitable solution for addressing the overall impact ozone transport.
3. Develop a cost threshold that is equitable for significant contribution and interference with maintenance that considers the cost of additional controls in downwind areas. (The effect of combining a more lenient significant contribution threshold with the extremely low and undervalued marginal cost threshold allows upwind states to determine that their "linked contribution" is not "significant" and absolves the upwind states from any further transport obligations.)

The OTC is asking EPA to re-examine and respond to these three main issues that continue an apparent trend of misrepresenting technical analysis in a way that undermines the need for emission reductions from states upwind of the OTR.