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Writer's Contact Information

November 15, 2019

Via Email: ozone@otcair.org

Ozone Transport Commission
800 Maine Avenue, SW, Suite 200
Washington, DC 20024

Re: Regarding the Ozone Transport Commission Recommendation
For Additional Control Measures Pursuant to Section 184(c) of the CAA
Comments of Midwest Ozone Group

Dear Ozone Transport Commission:

Please find attached comments submitted on behalf of the Midwest Ozone Group ("MOG")¹ in response to the Ozone Transport Commission notice of public comment period regarding the "OTC Recommendation for Establishing Daily Limits for Coal-Fired EGU's in Pennsylvania to Ensure that Existing Control Technologies are Optimized to Minimize Nitrogen Oxide Emissions Each Day of the Summer Ozone Season" ["OTC Recommendation"].

MOG's principal concern regarding the OTC Recommendation goes to the fundamental premise of CAA §184(c) – to address the need for additional control measures to bring any area in the OTR into attainment with the ozone NAAQS by the dates required by the Clean Air Act ("CAA"). In these attached comments, MOG has identified many deficiencies related to the OTC Recommendation, including a complete failure to offer any data that there will be any nonattainment or maintenance concerns anywhere in the OTR by the dates required by the CAA. In sharp contrast, MOG demonstrates in these comments that no portion of the OTR will have any modeled ozone nonattainment monitors in 2023, the appropriate attainment date.

¹ MOG is an affiliation of companies, trade organizations, and associations that draw upon their collective resources to seek solutions to the development of legally and technically sound national ambient air quality management programs. The members of and participants in the Midwest Ozone Group include: American Electric Power, American Forest & Paper Association, American Wood Council, Ameren, Alcoa, Appalachian Region Independent Power Producers Association (ARIPPA), ArcelorMittal, Associated Electric Cooperative, Citizens Energy Group, City Water, Light and Power (Springfield IL), Council of Industrial Boiler Owners, Duke Energy, East Kentucky Power Cooperative, ExxonMobil, FirstEnergy, Indiana Energy Association, Indiana Utility Group, LGE / KU, Ohio Utility Group, and Olympus Power.

Accordingly, MOG urges that the OTC not proceed further with the OTC Recommendation under CAA 184(c) related to additional control measures on sources in Pennsylvania.

Very truly yours,



David M. Flannery

Attachments

cc: Ben Grumbles, Secretary, Maryland Department of the Environment
George S. "Tad" Aburn, Air Director, Maryland Department of the Environment
Shawn Garvin, OTC Chair and Secretary, Delaware Department of Natural Resources
and Environmental Control
Katie S. Dykes, Commissioner, Connecticut Department of Energy and Environmental
Protection
Tommy Wells, Director, District of Columbia Department of Energy & Environment
Gerald D. Reid, Commissioner, Maine Department of Environmental Protection
Martin Suuberg, Commissioner, Massachusetts Department of Environmental Protection
Robert R. Scott, Commissioner, New Hampshire Department of Environmental Services
Catherine R. McCabe, Commissioner, New Jersey Department of Environmental
Protection
Basil Seggos, Commissioner, New York Department of Environmental Conservation
Patrick McDonnell, Secretary, Pennsylvania Department of Environmental Protection
Janet Coit, Director, Rhode Island Department of Environmental Management
Emily Boedecker, Commissioner, Vermont Department of Environmental Conservation
David K. Paylor, Director, Virginia Department of Environmental Quality
Elizabeth Palma, U.S. Environmental Protection Agency

MIDWEST OZONE GROUP COMMENTS
REGARDING THE OZONE TRANSPORT COMMISSION
RECOMMENDATION FOR ADDITIONAL CONTROL
MEASURES PURSUANT
TO SECTION 184(c) OF THE CAA

NOVEMBER 15, 2019

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I. EXHIBITS

Exhibit A:

“Good Neighbor” Modeling for the 2008 8-Hour Ozone State Implementation Plans, Final Modeling Report, prepared by Alpine Geophysics, LLC, December 2017; http://midwestozonegroup.com/files/Ozone_Modeling_Results_Supporting_GN_SIP_Obligations_Final_Dec_2017_.pdf

Exhibit B:

Air Quality Modeling Technical Support Document for Midwest Ozone Group’s Updated 4km Modeling Final Technical Support Document, prepared by: Alpine Geophysics, LLC, December 2018; http://www.midwestozonegroup.com/files/Final_TSD_-_Updated_4km_Ozone_Modeling_Dec_2018_.pdf

Exhibit C:

“Good Neighbor” Modeling Technical Support Document for 8-Hour Ozone State Implementation Plans Using MOG’s 4kei Modeling Platform Final Technical Support Document Prepared by: Alpine Geophysics, LLC, March 2019 Revised: June 2019; http://midwestozonegroup.com/files/Final_TSD_-_Ozone_4kei_Modeling_Supporting_GN_SIP_Obligations.pdf

Exhibit D:

“Addressing Maintenance Monitor Flexibilities Using the 2023 Cross-State Air Pollution Rule Closeout Modeling Platform - Revised December 2018,” prepared by Alpine Geophysics, LLC, Revised December 2018.

http://www.midwestozonegroup.com/files/Maintenance_Monitor_Flexibility_Dec_2018_.pdf

Exhibit E:

Stationary and Area Sources Committee; OTC / MANE-VU Joint Committees’ Meeting September 21, 2018;

http://www.midwestozonegroup.com/files/MOG_OTC_SAS_Public_09212018.pdf

Exhibit F:

Stationary and Area Sources Committee; OTC / MANE-VU Joint Committees’ Meeting, June 11, 2019;

http://midwestozonegroup.com/files/OTC_SAS_Presentation_AnnMtg_06112019.pdf

Exhibit G:

Analysis of Ozone Trends in the East in Relation to Interstate Transport Norm Possiel,
EPA/OAQPS, May 14, 2018; [http://midwestozonegroup.com/files/2018-05-14_EPA_OAQPS -
Analysis of O3 Trends in the East in Relation to Interstate Transport.pdf](http://midwestozonegroup.com/files/2018-05-14_EPA_OAQPS_-_Analysis_of_O3_Trends_in_the_East_in_Relation_to_Interstate_Transport.pdf)

MIDWEST OZONE GROUP COMMENTS REGARDING THE OZONE TRANSPORT COMMISSION RECOMMENDATION FOR ADDITIONAL CONTROL MEASURES PURSUANT TO SECTION 184(c) OF THE CAA

November 15, 2019

I. INTRODUCTION.

On May 30, 2019, the State of Maryland filed a petition pursuant to Section 184(c) of the federal Clean Air Act (CAA) requesting that the Ozone Transport Commission (OTC) develop and transmit to U.S. Environmental Protection Agency (EPA) recommendations for additional control measures to be applied to certain sources located in the Commonwealth of Pennsylvania, for the stated - but unsupported purpose – of bringing portions of the Ozone Transport Region (OTR) – namely Maryland and the New York-New Jersey-Connecticut Nonattainment Area (NYNA) - into ozone attainment pursuant to the CAA. Specifically, while the petition acknowledged that CAA Section 184(c) links any request for additional control measures to a demonstration that such measure are necessary to bring an area into attainment by the dates provided in the CAA, the petition did not offer even a single sentence addressing attainment by the required dates.

On August 14, 2019, the Midwest Ozone Group (MOG) submitted extensive comments on the Maryland petition which pointed out the many deficiencies in the petition.

The OTC has now offered for public comment, its own recommendation that EPA require Pennsylvania to revise its SIP to include additional control measures which would establish daily NOx emission limits for all coal-fired EGUs with already installed SCR or SNCR controls [OTC Recommendation]. The deadline for the filing of these comments is November 22, 2019. The OTC Recommendation calls for such additional control measure to be at least as stringent as certain control requirements adapted by Delaware, New Jersey and Maryland. The OTC Recommendation goes on to call for Pennsylvania to adopt and implement daily NOx limits and these controls be implemented in time to reduce ozone levels in 2020 and 2021. In making its recommendation, the OTC states that marginal nonattainment areas in the OTC “are on a path to not attain the 2015 ozone standard by 2021.”

The OTC Recommendation directly targets for additional regulation facilities owned and operated by the members of and participants in the Midwest Ozone Group (MOG) and also raises

several general legal and technical matters of concern to MOG. While MOG will defer to the owners of the individual sources on matters specific to those facilities, these comments¹ are offered to address more general concerns about the legal and technical deficiencies of the Maryland petition.

MOG is an affiliation of companies, trade organizations, and associations that draw upon their collective resources to seek solutions to the development of legally and technically sound national ambient air quality management programs.² MOG's primary efforts are to work with regulators and others in evaluating air quality policies by encouraging the use of sound science. MOG has been actively engaged in a variety of EPA issues and initiatives related to the development and implementation of air quality policy, including the development of transport rules, NAAQS standards, nonattainment designations, petitions under Sections 176A and 126 of the CAA, NAAQS implementation guidance, the development of Good Neighbor state implementation plans and related regional haze issues. MOG members and participants operate a variety of emission sources including more than 75,000 MW of coal-fired and coal refuse-fired electric power generation in more than ten states. They are concerned about the development of technically unsubstantiated interstate air pollution rules and the impacts on their facilities, their employees, their contractors, and the consumers of their products. Significantly, the facilities owned by the Members and Participants in MOG, including those targeted by the OTC Recommendation, have been subject to several new emission control regulations in recent years. These regulations in combination with many unit retirements, curtailments and fuel conversions which have occurred in Pennsylvania have resulted in

¹ Comments or questions about this document should be directed to David M. Flannery, Kathy G. Beckett, Edward L. Kropp, or Laura M. Goldfarb, Legal Counsel, Midwest Ozone Group, Steptoe & Johnson PLLC, 707 Virginia Street East, Charleston West Virginia 25301; 304-353-8000; dave.flannery@steptoe-johnson.com; kathy.beckett@steptoe-johnson.com; skipp.kropp@steptoe-johnson.com; and laura.goldfarb@steptoe-johnson.com, respectively. These comments were prepared with the technical assistance of Alpine Geophysics, LLC.

³ The members of and participants in the Midwest Ozone Group include: American Electric Power, American Forest & Paper Association, American Wood Council, Ameren, Alcoa, Appalachian Region Independent Power Producers Association (ARIPPA), ArcelorMittal, Associated Electric Cooperative, Citizens Energy Group, City Water, Light and Power (Springfield IL), Council of Industrial Boiler Owners, Duke Energy, East Kentucky Power Cooperative, ExxonMobil, FirstEnergy, Indiana Energy Association, Indiana Utility Group, LGE / KU, Ohio Utility Group, and Olympus Power.

a substantial reduction in annual and ozone season nitrogen oxides (NO_x) emissions which have been incurred at very significant cost to those facilities, the communities where they are located and the employees and their families.

MOG's principal concern regarding the OTC Recommendation goes to the fundamental premise of CAA §184(c) – to address the need for additional control measures to bring any area in the OTR into attainment with the ozone NAAQS by the dates required by the CAA.

In these comments, MOG has identified many deficiencies with the OTC Recommendation, including a complete failure to offer any data that there will be any nonattainment or maintenance concerns anywhere in the OTR by the dates required by the CAA. In sharp contrast, MOG will demonstrate in these comments that no portion of the OTR will have any modeled ozone nonattainment monitors in 2023, the appropriate attainment date for the 2015 ozone NAAQS. Specifically, these comments will demonstrate that:

1. EPA's photochemical modeling and independent air quality modeling performed for MOG confirm that in 2023 the OTR will have no modeled nonattainment or predicted maintenance monitors³ related to the 2008 (75 ppb) ozone NAAQS.
2. Utilizing EPA approved modeling protocols MOG modeled the ambient air quality impacts of EPA's 2023 emission inventory using 4km-processed emissions and meteorology. This more refined modeling (as compared with EPA's 12km modeling) demonstrates that in 2023 all monitors in the OTR will attain the 2015 (70 ppb) ozone NAAQS and that in 2023 there will not be any modeled nonattainment monitors in the OTR.
3. Application by MOG of EPA's October 2018 alternative maintenance monitor methodology demonstrates that in 2023 there will not be any predicted ozone monitor maintenance concerns in the OTR.

³ For ease of discussion, we are adopting the shorthand convention throughout these comments of identifying three types of future year ozone monitors: a) those with 2023 model results showing predicted attainment in 2023 are described as monitors with no "modeled nonattainment"; b) those with 2023 model results showing modeled nonattainment are described as monitors with "modeled nonattainment"; and c) those with predicted 2023 model results that would trigger maintenance requirements, rather than nonattainment, in accordance with EPA's alternative maintenance methodology are described as "maintenance monitors."

Accordingly, in the complete absence of any attempt by the OTC to assess ozone attainment by the dates required by the CAA, and for the many more additional reasons set forth in our more detailed comments, MOG submits the OTC Recommendation is fundamentally flawed on both legal and technical bases and should be denied.

II. RELEVANT STATUTORY AUTHORITY.

The CAA provides within CAA Section 184(c) the following:

(c) Additional control measures

(1) Recommendations

Upon petition of any State within a transport region established for ozone, and based on a majority vote of the Governors on the Commission (or their designees), the Commission may, after notice and opportunity for public comment, develop recommendations for additional control measures to be applied within all or a part of such transport region if the commission determines such measures are **necessary to bring any area in such region into attainment by the dates provided by this subpart**. The commission shall transmit such recommendations to the Administrator. (Emphasis added.)

(2) Notice and review

Whenever the Administrator receives recommendations prepared by a commission pursuant to paragraph (1) (the date of receipt of which shall hereinafter in this section be referred to as the "receipt date"), the Administrator shall— (A) immediately publish in the Federal Register a notice stating that the recommendations are available and provide an opportunity for public hearing within 90 days beginning on the receipt date; and (B) commence a review of the recommendations to determine whether the control measures in the recommendations are necessary to bring any area in such region into attainment by the dates provided by this subpart and are otherwise consistent with this chapter.

(3) Consultation

In undertaking the review required under paragraph (2)(B), the Administrator shall consult with members of the commission of the affected States and shall take into account the data, views, and comments received pursuant to paragraph (2)(A).

(4) Approval and disapproval

Within 9 months after the receipt date, the Administrator shall (A) determine whether to approve, disapprove, or partially disapprove and partially approve the recommendations; (B)

notify the commission in writing of such approval, disapproval, or partial disapproval; and (C) publish such determination in the Federal Register. If the Administrator disapproves or partially disapproves the recommendations, the Administrator shall specify—(i) why any disapproved additional control measures are not necessary to bring any area in such region into attainment by the dates provided by this subpart or are otherwise not consistent with the chapter; and (ii) recommendations concerning equal or more effective actions that could be taken by the commission to conform the disapproved portion of the recommendations to the requirements of this section.

(5) Finding

Upon approval or partial approval of recommendations submitted by a commission, the Administrator shall issue to each State which is included in the transport region and to which a requirement of the approved plan applies, a finding under section 7410(k)(5) of this title that the implementation plan for such State is inadequate to meet the requirements of section 7410(a)(2)(D) of this title. Such finding shall require each such State to revise its implementation plan to include the approved additional control measures within one year after the finding is issued.

III. SPECIFIC COMMENTS.

Set forth in the remainder of these comments are MOG's detailed comments which provide various bases that require the OTC not to proceed further with its Recommendation.

1. While the OTC Recommendation proposes that additional control measures be mandated for the sources it has named, the OTC does not offer any assessment of whether such measures are necessary to bring any of the OTR into attainment by the dates mandated in the CAA.

CAA Section 184(c)(1) makes it explicitly clear that any recommendation for additional control measures must be based upon a determination that such measures “are necessary to bring any area in such region into attainment by dates provided by this subpart.” With this statutory requirement in mind, we noted in the August 14, 2019 MOG comments, that Attachment 1 of the Maryland petition requests that the OTC recommend that additional control measures be put in place by 2020. However, the Maryland petition fails to offer even a single sentence assessing ozone air quality in 2020 or the justification for specifying the attainment of ozone NAAQS requirements by 2020. We also note that the OTC has not offered any assessment of this issue and certainly no

indication of what, if any, impact these additional control measures would have on air quality in the areas cited in the Recommendation.

While the Maryland petition does offer air quality modeling (see Attachment 6 to its petition), that modeling data does not address attainment. Instead, the Maryland modeling assesses the differences that may exist in 8-hour average ozone concentrations when its alternative control measures are modeled without relating those modeling results in any way to attainment.

The OTC Recommendation fails to demonstrate that any additional control measures are necessary to achieve attainment. Even if there were any legitimate residual nonattainment concerns in the OTC, the OTC fails to address whether the controls that are recommended would result in emission reductions greater than would be needed to eliminate those concerns. The OTC Recommendation also fails to address the necessity of imposing new controls on power plants, versus mobile and other local sources in the Northeast which have a much greater impact on air quality measured at monitors in the Northeast.

Inasmuch as the OTC has failed to address the statutorily required assessment of attainment in the appropriate future year, the OTC Recommendation for additional control measures on the selected electrical generating units should not be finalized and presented to EPA.

2. Maryland modeling assumptions used to support its petition to the OTC compromise the validity of key findings in their sensitivity results as related to Pennsylvania EGU contribution at OTC receptors.

Maryland Department of the Environment (MDE) contracted with the University of Maryland, College Park (UMD) Department of Atmospheric & Oceanic Science to perform photochemical sensitivity modeling to demonstrate that emissions from all Pennsylvania coal fired EGUs significantly contribute to ozone formation in Maryland. The sensitivity modeling completed was intended to show the maximum ozone concentration reductions/ozone benefits if Pennsylvania coal-fired EGUs were to be required to maximize the emissions reductions that could be accomplished using existing SCR and SNCR controls. The sensitivity analysis compared “current maximum allowable emission” at Pennsylvania coal-fired EGUs and some coal refuse-fired EGUs to previously achieved emission rates associated with MDE’s “optimization” scenario during the ozone

season. Significantly, this modeling included a series of assumptions that call into question the relative contribution findings of the analysis.

a. UMD’s 2023 EGU base case assumes no PA EGU has any control associated with the promulgated CSAPR Close-Out rule and uses mass percentage adjustments to simulate compliance with CSAPR in other states.

UMD’s documentation indicates that “[t]his scenario consists of starting from the GAMMA 2023 base case (Scenario 5r) and optimized SCR/SNCR controls at all PA coal fired EGUs and some coal refuse-fired and compliance with the CSAPR Update at all other EGUs. The ozone season NO_x mass was adjusted down based on the mass percentage adjustment calculated for each of the units to reflect 2023 ozone season NO_x rates consistent with (1) compliance with the CSAPR Update and (2) optimization of SCR/SNCR controls for the sources named in this petition. This scenario is representative of PA EGU coal units and some coal-refuse-fired EGUs operating their SCR or SCNR controls at optimized rates.”

Instead of using EPA or ERTAC-based projections of CSAPR application directly, UMD calculates mass adjustment factors by which to apply to individual units in their modeling domain. It is also unclear from provided documentation whether UMD captures CSAPR controls at all applicable facilities or states in their modeling domain. More importantly, however, they fail to simulate and compare the application of CSAPR in Pennsylvania to their “optimized” case to determine the relative difference in emissions or adjusted air quality resulting from the application of the promulgated rule. Results presented in the analysis presume no application of CSAPR constraints to Pennsylvania units and therefore likely overestimate the impact of the optimization sensitivity.

b. UMD’s 2023 base case assumes a 50% NO_x reduction in mobile sources associated with their Science Framework⁴.

UMD has applied a 50% NO_x reduction in mobile source emissions consistent with findings published elsewhere. However, MOG has not found that at any time the EPA, nor the OTC, has indicated acceptance of this adjustment in their regulatory modeling efforts. As a result of this downward adjustment in the largest contributing source category to ozone concentrations in the

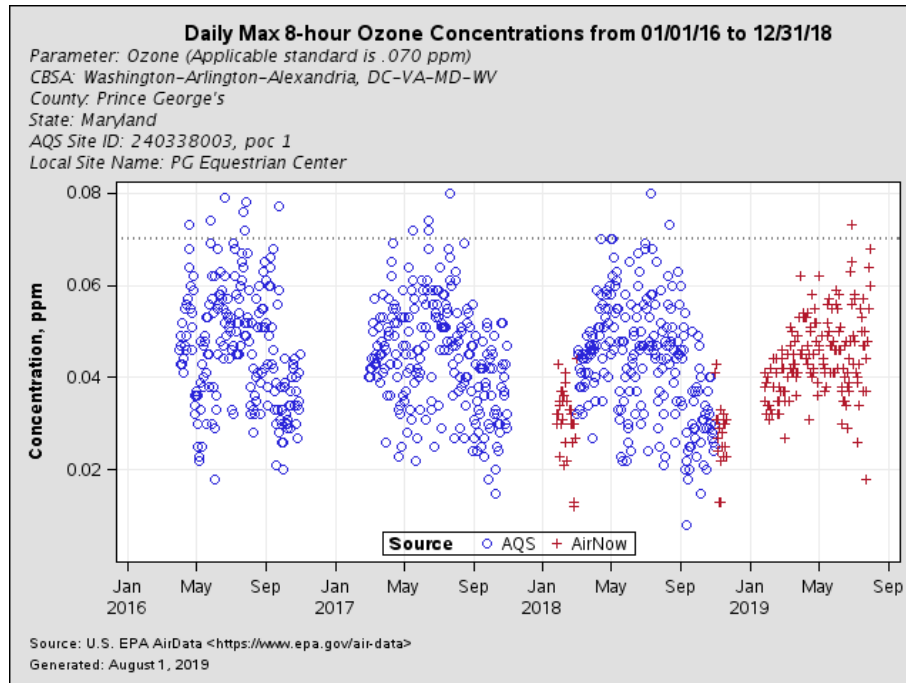
⁴ Anderson, D. C., et al. (2014), Measured and modeled CO and NO_x in DISCOVER-AQ: An evaluation of emissions and chemistry over the eastern US, *Atmospheric Environment*, 96, 78-87.

northeastern states, UMD is artificially lowering the relative contribution of mobile sources to ozone concentrations at downwind receptors. Consequently, all other source sectors will have a greater relative contribution, including EGUs from Pennsylvania, resulting from no other reason than this subjective, speculative scalar adjustment.

c. UMD fails to demonstrate that differences in maximum 8hr average ozone (MDA8) calculated for any receptor occurs on days when the model predicts exceedances of the 2008 or 2015 ozone NAAQS.

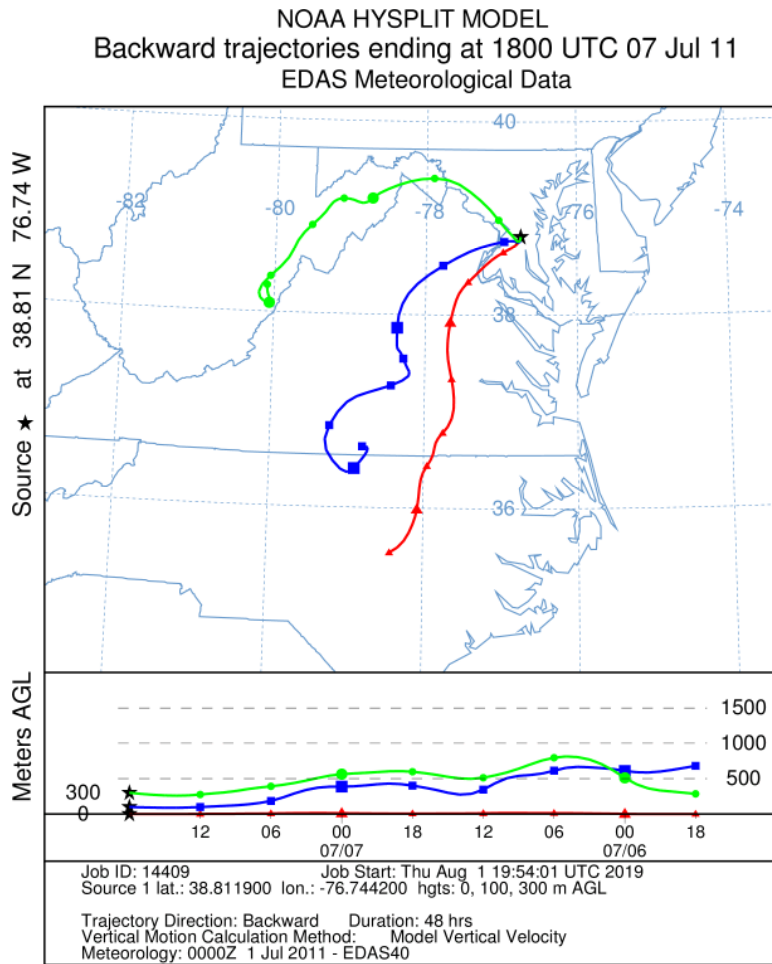
Notwithstanding the emission estimation limitations in the 2023 modeling cases noted above, in the additional attachments presented with the petition, UMD documents results of their sensitivity analysis using maximum ozone benefits (in delta ppb) between the base case (no CSAPR control in PA) and optimized case. What is not detailed in these attachments, however, is whether any of these maximum benefits occur at receptors predicted to be in nonattainment of the 2008 or 2015 ozone NAAQS with their 2023 platform, or whether any of these maximum benefits occur on days when ozone is predicted to exceed either standard or whether the back trajectory associated with the high impact days actually passes over any of the Pennsylvania facilities named in the petition.

As an example, we reviewed the PG Equestrian Center, MD monitor (240338033) with a noted maximum ozone benefit of 4.9 ppb on July 7th. We first note that this receptor has a recent downward trend in MDA8 values between 2016 and current observations. As demonstrated in the figure below, observations of MDA8 values above the 70 ppb threshold have decreased in number for the past four years. The current 3-yr design value for this receptor (2016-2018) is 71 ppb with a 2018 4th high maximum value of 70 ppb.



Even assuming, however, that future year projections of ozone indicate this monitor to be in nonattainment of either the 2008 or 2015 NAAQS, we investigated whether emissions from Pennsylvania coal-fired or coal refuse-fired facilities would have had an impact on the day when the greatest benefit was calculated. To do this, we created a 48 hour back trajectory from the receptor site to determine if ozone concentrations on July 7th would have been the result of “excess daily NO_x” from the day, or even two days, before the maximum impact date.

The plots below indicate that not only did the July 7th 48 hour back trajectory not pass over any coal-fired facility in Pennsylvania, it clearly did not pass over any Pennsylvania facility at all because of the southwesterly influence from over northern Virginia, North Carolina, and parts of West Virginia and Maryland.



These findings alone indicate that the impacts calculated for this receptor are not the result alone of the sensitivity configurations run by UMD and that a source apportionment style (OSAT) analysis would be better suited to determine state or facility level impacts at downwind monitors.

3. 2023 is the appropriate year for assessing whether additional control measures are necessary to bring the areas involved into attainment.

CAA Section 184(c) makes it explicitly clear that any recommendation for additional control measures must be linked to whether those controls are necessary to attain NAAQS requirement by the applicable attainment date. Specifically, CAA Section 184(c)(1) provides that:

Upon petition of any State within a transport region established for ozone, and based on a majority vote of the Governors on the Commission (or their designees), the Commission may, after notice and opportunity for public comment, develop recommendations for additional control measures to be applied within all or a part of such transport region if the commission determines such measures are **necessary to bring any area in such region into attainment by the dates provided by this subpart**. The commission shall transmit such recommendations to the Administrator. (Emphasis added.)

The OTC Recommendation states that all marginal nonattainment areas in OTR are “on a path to not attain the 2015 ozone standard by 2021, the mandated attainment date for marginal nonattainment areas.” However, EPA has appropriately selected 2023 as the future analytic year for the 2015 ozone NAAQS “because it aligns with the anticipated attainment year for the Moderate ozone nonattainment areas”.⁵ Indeed, 2023 aligns with the last full ozone season before the attainment year for Moderate ozone nonattainment areas.

The fact that the OTC Recommendation relies on 2021 as the appropriate analytic year for this analysis ignores that 2023 is the earlier likely time period when any marginal nonattainment areas in the OTR would be required to impose controls on their own sources. This is because marginal nonattainment areas are not typically required to impose controls on local sources relying instead on emission reductions expected through pre-existing regulatory requirements. 42 U.S.C. §7511a(a). EPA may take until 2022 to determine if such an area has scheduled attainment. 42

⁵ See, EPA Response to Clean Air Act Section 126(b) Petition From New York, 84 FR 22787-01 at 22799, May 20, 2019; see also, *Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I)*, prepared by Peter Tsirigotis, March 27, 2018, p. 3. <https://www.epa.gov/airmarkets/march-2018-memo-and-supplemental-information-regarding-interstate-transport-sips-2015>.

U.S.C. §7511(b)(2). If not, the area will be bumped to Moderate nonattainment with a 2024 deadline. 45 U.S.C. §7511. The suggestion by the OTC Recommendation that 2021 should be used as the analytic year to determine whether to impose additional controls on upwind sources, runs afoul of the over-control prohibitions of the CAA because OTC states are under no obligation to impose controls on their own sources by that date to achieve attainment of the 2015 ozone NAAQS.

Aligning implementation of emission reductions in upwind states with the applicable attainment dates in downwind areas is an integral part of the directive of the D.C. Circuit. Specifically, the court holding *North Carolina v. EPA*⁶ directed EPA to assure alignment of the implementation of the closely related Good Neighbor SIPs with the date by which states are required to demonstrate attainment with the applicable NAAQS. There must be continued recognition that air quality will improve between the due date for Good Neighbor SIPs and the 2023 attainment deadline as a result of additional local controls in nonattainment areas as well as CAA programs including Federal measures, federally mandated state RACT rules, nonattainment infrastructure SIPs, and Good Neighbor SIPs. While the Federal measures, state RACT rules, nonattainment infrastructure SIPs, and other control programs will all significantly improve air quality in many nonattainment areas, those programs will all be implemented after the Good Neighbor SIPs are due, which means that states will need to carefully consider how best to address those air quality improvements as part of their Good Neighbor SIP submittals. The failure to include the benefits of these programs will result in over-control of upwind states, which is, of course, illegal given the Supreme Court decision in *E.P.A. v. EME Homer City Generation, L.P.*, 572 U.S. 489, (2014).

4. State-of-the science 12km air quality modeling performed by both EPA and MOG demonstrate that in 2023 all monitors located in the OTR will show attainment with the 2008 (75 ppb) ozone NAAQS.

On October 27, 2017, EPA issued guidance and supporting data describing how states should develop approvable Good Neighbor SIPs related to the 2008 ozone NAAQS.⁷ EPA's modeling data

⁶ *North Carolina v. EPA*, 531 F.3d 896, 911-12 (D.C. Cir. 2008).

⁷ Memorandum "Supplemental Information on the Interstate Transport State Implementation Plan Submissions for the 2008 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I) from Stephen Page, October 27, 2017. https://www.epa.gov/sites/production/files/2017-10/documents/final_2008_o3_naaqs_transport_memo_10-27-17b.pdf.

relating to the 2008 ozone NAAQS that was submitted as part of that guidance has been validated by modeling performed for MOG by Alpine Geophysics. That modeling performed by Alpine Geophysics has been incorporated into a report attached to these comments and identified as Exhibit A.⁸ The data from the EPA 12km grid modeling results related to the Maryland monitors are displayed in the following table:

Monitor	State	County	DVb (2011)	DVf (2023) Ave	DVf (2023) Max
240030014	Maryland	Anne Arundel	83.0	63.4	66.4
240051007	Maryland	Baltimore	79.0	63.9	66.3
240053001	Maryland	Baltimore	80.7	64.9	67.6
240090011	Maryland	Calvert	79.7	64.2	66.9
240130001	Maryland	Carroll	76.3	58.8	60.9
240150003	Maryland	Cecil	83.0	64.5	66.8
240170010	Maryland	Charles	79.0	61.6	64.7
240199991	Maryland	Dorchester	75.0	60.7	60.7
240210037	Maryland	Frederick	76.3	59.6	61.8
240230002	Maryland	Garrett	72.0	55.1	57.4
240251001	Maryland	Harford	90.0	71.4	73.8
240259001	Maryland	Harford	79.3	61.8	63.9
240290002	Maryland	Kent	78.7	61.2	63.7
240313001	Maryland	Montgomery	75.7	60.0	61.0
240330030	Maryland	Prince George's	79.0	60.5	62.8
240338003	Maryland	Prince George's	82.3	63.2	66.8

⁸ “Good Neighbor” Modeling for the 2008 8-Hour Ozone State Implementation Plans, Final Modeling Report, prepared by Alpine Geophysics, December 2017
http://midwestozonegroup.com/files/Ozone_Modeling_Results_Supporting_GN_SIP_Obligations_Final_Dec_2017_.pdf

Monitor	State	County	DVb (2011)	DVf (2023) Ave	DVf (2023) Max
240339991	Maryland	Prince George's	80.0	61.0	61.0
240430009	Maryland	Washington	72.7	56.0	57.8
245100054	Maryland	Baltimore (City)	73.7	59.9	61.0

In addition, EPA's 12km grid modeling results related to monitors in the NYNA are displayed in the following table:

Monitor	State	County	DVb (2011)	DVf (2023) Ave	DVf (2023) Max
90010017	Connecticut	Fairfield	80.3	66.8	69.0
90011123	Connecticut	Fairfield	81.3	65.2	66.6
90013007	Connecticut	Fairfield	84.3	69.2	73.1
90019003	Connecticut	Fairfield	83.7	68.3	71.0
90070007	Connecticut	Middlesex	79.3	63.8	65.2
90090027	Connecticut	New Haven	74.3	61.8	64.9
90099002	Connecticut	New Haven	85.7	68.9	71.5
340030006	New Jersey	Bergen	77.0	65.5	66.4
340130003	New Jersey	Essex	78.0	63.4	66.7
340170006	New Jersey	Hudson	77.0	65.3	66.2
340190001	New Jersey	Hunterdon	78.0	60.8	62.4
340230011	New Jersey	Middlesex	81.3	64.5	67.4
340250005	New Jersey	Monmouth	80.0	65.4	67.9
340273001	New Jersey	Morris	76.3	62.6	64.0
340315001	New Jersey	Passaic	73.3	59.9	61.3
340410007	New Jersey	Warren	66.0	50.9	50.9
360010012	New York	Albany	68.0	55.4	57.0

Monitor	State	County	DVb (2011)	DVf (2023) Ave	DVf (2023) Max
360050133	New York	Bronx	74.0	68.0	69.9
360150003	New York	Chemung	66.5	54.9	55.3
360270007	New York	Dutchess	72.0	58.6	60.2
360530006	New York	Madison	67.0	55.0	55.0
360610135	New York	New York	73.3	65.3	67.8
360671015	New York	Onondaga	69.3	57.8	60.1
360715001	New York	Orange	67.0	55.3	56.9
360750003	New York	Oswego	68.0	55.7	57.3
360790005	New York	Putnam	70.0	58.4	59.2
360810124	New York	Queens	78.0	70.1	71.9
360850067	New York	Richmond	81.3	71.9	73.4
360870005	New York	Rockland	75.0	62.0	62.8
361030002	New York	Suffolk	83.3	72.5	74.0
361030004	New York	Suffolk	78.0	66.3	68.0
361030009	New York	Suffolk	78.7	68.5	69.7
361111005	New York	Ulster	69.0	57.4	57.4
361192004	New York	Westchester	75.3	68.1	68.8

It is therefore obvious that based upon EPA's 12km modeling, that no portion of the OTR would have any nonattainment or maintenance monitors in 2023 with respect to the 2008 ozone NAAQS.

5. State-of- the-science 4km air quality modeling performed by the MOG demonstrates that in 2023 all monitors located in the OTR will be in attainment with the 2015 (70 ppb) ozone NAAQS.

The OTC has failed to demonstrate that additional controls measures are necessary for attainment of either the 2008 ozone NAAQS or the 2015 ozone NAAQS. Alpine Geophysics, at the

request of MOG, has modeled using EPA's 2011/2023en modeling platform on MOG's 4km domain using 4km-processed emissions. This was done as an effort to further refine modeled ozone concentrations at and near land-water interface receptors. Alpine Geophysics has completed the model performance evaluation upon these domains and at key receptors to assure the results are in strict compliance with EPA modeling protocols. This model performance evaluation is attached to these comments and identified as Exhibit B and are also available on the MOG website.⁹ Modeling of this type, using a finer grid, is specifically recommended under existing EPA guidance that states:

The use of grid resolution finer than 12 km would generally be more appropriate for areas with a combination of complex meteorology, strong gradients in emissions sources, and/or land-water interfaces in or near the nonattainment area(s).¹⁰

Based upon this evaluation performed by Alpine Geophysics, there is consistent performance with the earlier 4km results and therefore this updated platform substantiates the scientific robustness for these 4km domains. These results provide confidence in the ability of the modeling platform to provide reasonable projections of expected future year ozone concentrations and contributions. The results of the updated 4km modeling have been incorporated into an Alpine Geophysics/MOG Technical Support Document (TSD) "Good Neighbor" Modeling Technical Support Document for 8-Hour Ozone State Implementation Plans Using MOG's 4kei Modeling Platform" attached to these comments and identified as Exhibit C.¹¹

When EPA's air quality modeling platform is modeled using a 4km grid, rather than a 12km grid, predicted ozone concentration at monitors in Maryland, the NYNA and the remainder of the OTR are demonstrated as being in attainment with the 2008 ozone NAAQS as well as the more stringent 2015 ozone NAAQS.

Accordingly, when state-of-the-science modeling is used to assess air quality in the OTR on the appropriate attainment dates, all receptors – without exception - are in attainment with the 2015

⁹http://www.midwestozonegroup.com/files/Final_TSD_-_Updated_4km_Ozone_Modeling_Dec_2018_.pdf

¹⁰ https://www3.epa.gov/ttn/scram/guidance/guide/O3-PM-RH-Modeling_Guidance-2018.pdf

¹¹ A copy of this TSD can also be found at: http://midwestozonegroup.com/files/Final_TSD_-_Ozone_4kei_Modeling_Supporting_GN_SIP_Obligations.pdf

ozone NAAQS, EPA's air quality modeling analysis was conducted only at 12km and in doing so it failed to account for the significantly improved air quality that becomes apparent with the more refined modeling as EPA recommends in its own modeling guidance.

These results establish that there are no air quality monitors located in the OTR that are predicted to demonstrate nonattainment with the 2015 ozone NAAQS in 2023. This conclusion and the remaining data presented in these comments, compel the conclusion that the OTC Recommendation lacks technical or legal basis. Consequently, MOG urges that the OTC not finalize its recommendation for submission to U.S. EPA.

6. Application of EPA's alternative maintenance monitor methodology demonstrates there will not be any maintenance monitors located in the OTR in 2023.

On October 19, 2018, EPA issued guidance in the form of a memorandum entitled "Considerations for Identifying Maintenance Receptors 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" ("EPA's Memo").¹² That guidance recognized an alternative methodology for making a determination of the monitor's status as a maintenance monitor.

MOG requested Alpine Geophysics to review EPA's Memo and to apply its updated 4km modeling results and observed ozone concentrations, to relevant monitors to determine whether there are any monitors in Maryland that would qualify as maintenance monitors under EPA's alternative methodology. A report of the results of this review is attached and identified as Exhibit D and is offered as additional support for finalization by the OTC to deny the Maryland CAA §126 petition.¹³

¹² "Considerations for Identifying Maintenance Receptors 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," from Peter Tsirigotis, October 19, 2018, <https://www.epa.gov/airmarkets/considerations-identifying-maintenance-receptors-memo>

¹³ "Addressing Maintenance Monitor Flexibilities Using the 2023 Cross-State Air Pollution Rule Closeout Modeling Platform - Revised December 2018," prepared by Alpine Geophysics, LLC, Burnsville, NC. December 2018.
http://www.midwestozonegroup.com/files/Maintenance_Monitor_Flexibility_Dec_2018_.pdf.

EPA's Memo provides that to qualify for this new flexibility, a modeled demonstration would first need to show that using an alternative base-year period would lead to a projected future year design value at or below a concentration of 70.9 ppb, which is necessary to demonstrate modeled attainment of the 2015 ozone NAAQS of 70 ppb. If that demonstration is successful, EPA's Memo states the following technical criteria would need to be satisfied:

- a. meteorological conditions in the area of the monitoring site were conducive to ozone formation during the period of clean data or during the alternative base period design value used for projections;
- b. ozone concentrations have been trending downward at the site since 2011 (and ozone precursor emissions of nitrogen oxide (NO_x) and volatile organic compounds (VOC) have also decreased); and
- c. emissions are expected to continue to decline in the upwind states out to the attainment date of the receptor.

Based upon MOG's 4km modeling, the Harford Maryland monitor in Maryland and the Richmond and Suffolk monitors in New York are the only monitors in the East that are candidates to be considered as a maintenance monitors with maximum 2023 ozone design values exceeding levels of the 2015 NAAQS. However, as is illustrated below, application of EPA's criteria to these three monitors demonstrate **they should not be considered maintenance monitors.**

a. Utilization of alternative base period design values results in a projection of clean data for the candidate maintenance monitors in question.

A first step in applying the flexibility guidance set forth in EPA's Memo is to determine whether these three monitors should be properly characterized as maintenance receptors under the alternative methodology. Alpine Geophysics reviewed 2023 ozone design values using alternate base-year concentrations (specifically the three consecutive three-year time periods from 2009 through 2013) for these monitors.

The data, presented in the following table, demonstrate the Harford monitor has at least one alternate base year period design value resulting in a 2023 projection equal to or lower than the 70.9 ppb threshold, satisfying this condition of EPA’s alternative methodology for the demonstration of “clean data.”

Alternate Base Year Projections of 2023 Ozone Design Values (ppb) from Alpine 4kei Modeling for Key Monitors in the 4km Domains.

				2023 Ozone Design Value (ppb)		
Monitor	State	County	DVb (2011)	DVf (Ave)	DVf (Max)	DVf (Max 2011/13)
240251001	Maryland	Harford	90.0	70.9	73.3	67

The data, presented in the following table, demonstrate that each of the monitors in Richmond and Suffolk have at least one alternate base year period design value resulting in a 2023 projection equal to or lower than the 70.9 ppb threshold, satisfying this condition of EPA’s alternative methodology for the demonstration of clean data.

Alternate Base Year Projections of 2023 Ozone Design Values (ppb) from Alpine 4km Modeling for Key Monitors in the 4km Domains.

				2023 Ozone Design Value (ppb)		
Monitor	State	County	DVb (2011)	DVf (Ave)	DVf (Max)	DVf (Max 2011/13)
360850067	New York	Richmond	81.3	69.6	71.0	66.7
361030002	New York	Suffolk	83.3	70.6	72.0	68.7

b. Meteorological conditions of the candidate maintenance monitors were conducive to ozone formation.

As stated above, one of the criteria established in EPA’s Memo for approving an alternative demonstration of a monitor’s maintenance status is that the “meteorological conditions in the area of the monitoring site were conducive to ozone formation during the period of clean data or during the alternative base period design value used for projections.” Significantly, the alternative demonstrations set forth in this memorandum for these three monitors is based upon alternative base-year periods involving the years 2010 through 2013. **EPA has recognized, with one limited exception relevant to this analysis (the summer of 2013 in the Upper Midwest), the meteorology in these years was conducive to ozone formation. These three monitors are not located in the Upper Midwest; therefore, it is appropriate to conclude the alternative base-period design values stated above for these monitors reflect meteorology in ozone conducive years. By basing model projections for the attainment year of 2023 on alternative base-period design values for ozone conducive years, all three monitors meet the meteorological threshold of EPA’s Memo.**

c. Ozone concentrations are trending downward.

As an additional supporting case to the flexibility in identifying maintenance monitors, EPA guidance suggests a state needs to show that “ozone concentrations have been trending downward at the site since 2011.” The first table below presents 4th high ozone concentration data measured at each noted receptor and a calculated slope between 2011 and the most recently EPA-approved 4th high concentrations from 2017.¹⁴ The second table below presents a count of the number of ozone exceedance days per monitor per year relative to the 2015 70 ppb ozone NAAQS.

¹⁴ Appendix, “Addressing Maintenance Monitor Flexibilities Using the 2023 Cross-State Air Pollution Rule Closeout Modeling Platform - Revised December 2018,” prepared by Alpine Geophysics, LLC, Burnsville, NC. December 2018.
http://www.midwestozonegroup.com/files/Maintenance_Monitor_Flexibility_Dec_2018_.pdf.

4th High Ozone Concentrations (ppb) and Slope Calculation for Key Monitors in the 4km Domains.

			4th High Ozone Concentration (ppb)							
Monitor	State	County	2011	2012	2013	2014	2015	2016	2017	Slope (2011-2017) (ppb/yr)
240251001	MD	Harford	98	86	72	67	74	79	76	-2.79

4th High Ozone Concentrations (ppb) and Slope Calculation for Key Monitors in the 4km Domains.

			4th High Ozone Concentration (ppb)							
Monitor	State	County	2011	2012	2013	2014	2015	2016	2017	Slope (2011-2017) (ppb/yr)
360850067	New York	Richmond	87	78	71	72	79	77	72	-1.39
361030002	New York	Suffolk	89	83	72	66	78	73	77	-1.79

Daily Ozone Exceedance Counts and Slope Calculation for Key Monitors in the 4km Domains.

			Daily Ozone Exceedance Counts							
Monitor	State	County	2011	2012	2013	2014	2015	2016	2017	Slope (2011-2017)
240251001	MD	Harford	22	17	5	3	5	9	6	-2.29

Daily Ozone Exceedance Counts and Slope Calculation for Key Monitors in the 4km Domains.

Monitor	State	County	Daily Ozone Exceedance Counts							Slope (2011-2017)
			2011	2012	2013	2014	2015	2016	2017	
360850067	New York	Richmond	17	14	4	6	10	10	7	-1.14
361030002	New York	Suffolk	16	12	5	0	7	4	7	-1.46

In the case of each of these Maryland and New York monitors, negative slopes for both 4th high ozone concentrations and daily ozone exceedance counts demonstrate the downward trend in ozone concentrations necessary to satisfy this requirement of EPA’s Memo.

- d. Emissions of ozone precursors have been trending downward since 2011 and are expected to continue to decline out to the attainment date of the receptor.**

NOx and VOC emissions across the CSAPR region have been dramatically reduced across all source categories in recent years. These emissions reductions will continue as the result of various deactivated curtailed and fuel switched units, “on-the-books” regulatory programs already required by states for their own sources; “on-the-way” regulatory programs already identified by state regulatory agencies as efforts that they must undertake; as well as from the reductions imposed by a variety of EPA programs including the CSAPR Update Rule.

As presented in the Alpine Geophysics report (Exhibit D to these comments) are tables developed from EPA modeling platform summaries illustrating the estimated total anthropogenic emission reduction in the CSAPR States.¹⁵ **These tables show that the estimated total annual anthropogenic NOx emissions are predicted to decline by 29% between 2011 and 2017 over the CSAPR domain and by 43% (an additional 1.24 million tons) between 2011 and 2023.**

¹⁵ EPA Air Pollutant Emissions Trends Data available at <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>.

However, it is important to understand that these estimated 2017 emissions used by EPA in its modeling effort are inflated as compared to the actual 2017 CEM-reported EGU emissions. As is shown in EPA's trends found in Exhibit D to these comments, when the CSAPR-modeled 2017 annual EGU emissions are compared to the actual CEM-reported 2017 annual EGU emissions, it becomes apparent there is a significant domain-wide overestimation (129,000 annual tons NO_x) of the predicted emissions for this category. The modeled values from state-to-state vary between over- and under-estimated, domain-wide, **CEM-reported annual NO_x ranging from 158% overestimation (2017 actual emissions are 61% of modeled emissions) for Pennsylvania** to 54% underestimation (2017 actual emissions are 118% of modeled emissions) for Virginia with a domain-wide overestimation of 18% (129,553 tons) of annual NO_x emissions from EGUs. Exhibit D also shows total annual anthropogenic VOC emissions are predicted to decline by 9% between 2011 and 2017 over the CSAPR domain and by 15% (an additional 1.43 million tons) between 2011 and 2023.

Having demonstrated that ozone precursors have been trending down and are expected to continue to do so, the Alpine Geophysics report (Exhibit D) clearly establishes that all alternative maintenance monitor criteria set forth in EPA's October 19, 2018, guidance memo have been satisfied for all three monitors. When current data are applied to the various criteria identified by EPA, all three monitors should be considered as a maintenance monitor for purposes related to the 2015 ozone NAAQS. This analysis of maintenance monitors in combination with MOG's 4km modeling, confirm that in 2023 there will be no nonattainment or maintenance monitors in the OTR.

- 7. If Maryland or any other states in the OTR believes there are remaining ozone air quality concerns in the OTR those concerns must first be addressed with controls on local sources rather than those sources named in the petition.**

As we have established, state-of-the-science air quality modeling shows that that there will not be any nonattainment or maintenance concerns with respect to either the 2008 or 2015 ozone NAAQS in 2023. Should the OTC believe otherwise, the CAA requires the effects and benefits of local controls on all source sectors be considered first, prior to pursuing controls of sources in upwind states.

- a. Portions of OTR are subject to additional local control requirements which must be implemented prior to the pursuit of control measures on any other state's emissions sources.**

CAA §107(a) states “[e]ach State shall have the primary responsibility for assuring air quality within the entire geographic area comprising such State.” In addition, CAA §110(a)(1) requires a state SIP “provides for implementation, maintenance, and enforcement” of the NAAQS “in each air quality control region . . . within such State.” Moreover, by operation of law, pursuant to the CAA, additional planning and control requirements are applicable to areas designated to be in nonattainment.

Current ongoing state non-attainment programs are important first steps to assess the merit of the OTC Recommendation and to provide a legal basis to pursue additional control measures on other state's sources. Even though EPA's current interstate transport modeling platforms, relied upon by both EPA and MOG, do not include the air quality benefits of these legally mandated controls, the results nevertheless show attainment throughout the OTC in 2023. The fact that these additional were not assessed in the EPA and MOG modeling results makes those results overly conservative. Before being able to make the case that additional control measures are needed to achieve attainment, it would be necessary to account for the legally mandated controls. Only through a full assessment of these legally mandated local emissions reductions can a full and complete picture of the status of air quality in the appropriate attainment year be obtained.

The CAA addresses the affirmative obligations of the states to meet the deadlines for submittal and implementation of SIPs designed to specifically address their degree of nonattainment designation. Review of Section 172(c)(1) of the CAA provides that SIPs for nonattainment areas shall include “reasonably available control measures,” including “reasonably available control technology” (RACT), for existing sources of emissions. CAA §182(a)(2)(A) requires that for Marginal Ozone nonattainment areas, states shall revise their SIPs to include RACT. CAA §182(b)(2)(A) requires that for Moderate ozone nonattainment areas, states must revise their SIPs to include RACT for each category of VOC sources covered by a CTG document issued between November 15, 1990, and the dates of attainment. CAA §182(c) through (e) applies this requirement to States with ozone nonattainment areas classified as Serious, Severe and Extreme.

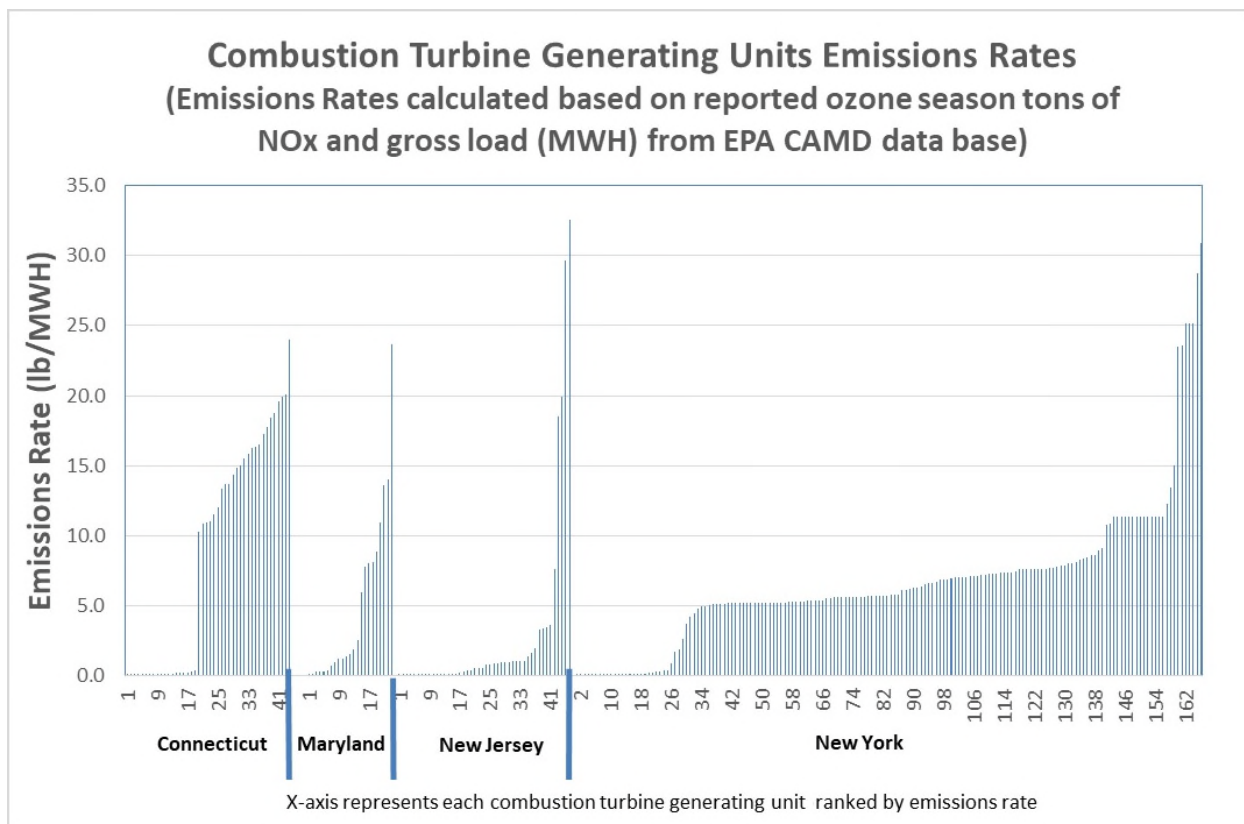
The CAA also imposes the same requirement on States in ozone transport regions (OTR). Specifically, CAA §184(c)(b) provides that a state in the OTR must revise its SIP to implement RACT with respect to all sources of VOCs in the state covered by a CTG issued before or after November 15, 1990.

In conclusion, it is essential that the OTC have an effective local non-attainment control program prior to seeking additional controls from sources in an upwind state.

b. Need for additional control on certain older simple cycle combustion turbines as part of local requirements.

On September 21, 2018 a report of the OTC Stationary and Area Source Committee identified many emission units of concern in the OTR and called for additional controls on those sources to reduce their impact on ozone air quality concentrations. This report is attached and identified as Exhibit E.¹⁶ Data from this report are set out in the following chart and demonstrate that states within the OTC and specifically Maryland, New York, New Jersey, and Connecticut have a much greater reliance on the use of simple cycle combustion turbines with very high emissions rates during High Electric Demand Days (HEDDs) which are typically the days during which ambient conditions are most conducive to ozone formation. MOG has not had the opportunity to obtain and review the stated basis for the OTC conclusion that control or replacement of “old” units is “cost effective.” Such a strategy may be cost-effective within the OTC. Such a strategy would not be cost-effective for other states that do not have the same degree of reliance on high emitting combustion turbines during HEDD periods. A comparison between units in these OTC states is illustrated in the following chart:

¹⁶ The report can also be found at http://www.midwestozonegroup.com/files/MOG_OTC_SAS_Public_09212018.pdf.



Significantly, the September 18, 2018 OTC report reached the following conclusion:

- Simple cycle turbines operate on high ozone days.
- Control of NO_x or replacement of old units is cost effective based on ozone day benefit.
- There are 200 simple cycle units in OTR with very high NO_x emissions – approximately 10 times most boiler NO_x rates and greater than 100 times most combined cycle NO_x rates.
- Simple cycle units significantly increase and can dominate EGU NO_x emissions on high ozone days.
- Approximately 40% of simple cycle units have low NO_x rates, showing that much lower NO_x from simple cycle units is readily achievable and is already occurring.¹⁷

¹⁷ *Id.* at slide 15.

In a follow-up presentation offered by the OTC Stationary and Area Sources Committee on June 11, 2019 (attached to these comments and identified as Exhibit F) the OTC offered the following statement on slide 3 with respect to cost effectiveness:

An SCR on a gas or oil fired SC turbine can be ~10X more cost effective than an SCR on a coal fired power plant.¹⁸

Shortly following the issuance of the OTC report, the New York State Department of Environmental Conservation proposed 6 NYCRR Subpart 227-3, "Ozone Season Oxides of Nitrogen (NO_x) Emission Limits for Simple Cycle and Regenerative Combustion Turbines." The emissions limits in this proposed rule would phase in beginning in 2023 with full implementation in 2025. The primary goal of this proposal is to lower allowable NO_x emissions from simple cycle and regenerative combustion turbines during the ozone season. According to the proposal, the lower emissions from these sources will help to address CAA requirements, ozone nonattainment, and protect the health of New York State residents.

The following are some highlights from the Regulatory Impact Statement NY DEC offered in support of its proposed rule:

Simple cycle and regenerative combustion turbines (SCCTs) sometimes referred to as peaking units, run to meet electric load during periods of peak electricity demand. They typically run on hot summer days when there is a higher demand for air conditioning and when there is a strong likelihood of high ozone readings. Many peaking units in New York have very high NO_x emission rates, are inefficient and are approaching 50 years of age. It is difficult to install after-market controls on most of these units because of their age and site limitations. Some sources are located on barges where control equipment would physically not fit.

Older SCCTs have adverse impacts on NYMA air quality and make it difficult, if not impossible, for New York to meet air quality goals and CAA requirements. SCCTs are generally located in communities of low to moderate income that are populated predominantly by people of color. The emissions generated by SCCTs can have both regional (ozone) and local nitrogen dioxide impacts. These older sources emit significantly more NO_x than new, efficient modern SCCTs. The

¹⁸ http://midwestozonegroup.com/files/OTC_SAS_Presentation_AnnMtg_06112019.pdf

emissions from these units typically occur during high ozone days and are concentrated in the NYMA which, as described above, does not attain the 2008 or 2015 ozone NAAQS.

This rulemaking proposes to lower allowable emission rates for SCCTs during the ozone season with the intention to lower NO_x emissions from these sources, especially on high ozone days. To better understand the impact of SCCTs on the ambient air DEC used the Community Multiscale Air Quality Modeling system (CMAQ) to model one high ozone day. The high ozone day modeled was July 23, 2011 and the results demonstrated that old SCCTs located in New York State contributed 0.0048 ppm (4.8 ppb) to downwind monitors that currently show nonattainment. With a protective ozone NAAQS, set at a level of 0.070 ppm (70 ppb), it is clear that these sources alone have the ability and potential to significantly impact attainment of the ozone NAAQS.¹⁹ (Emphasis added.)

These types of emission reduction programs must be implemented and taken into consideration first by the OTC prior to any recommendation of additional control measures on sources in upwind states. The failure of Maryland to address these legally mandated local control measures is another important reason to deny its CAA §184(c) petition.

c. Mobile sources have the largest impact on monitored air quality in the OTR.

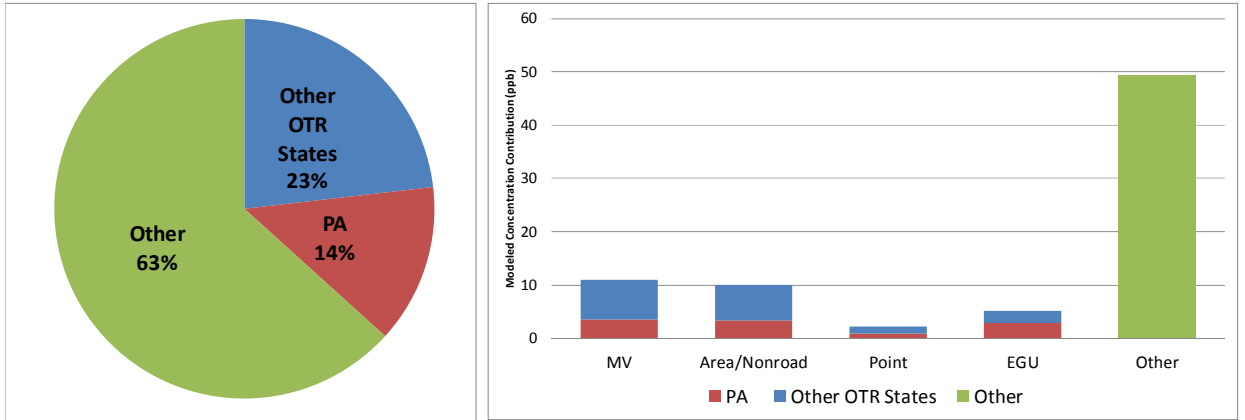
The OTC Recommendation erroneously implies that major stationary sources, including EGUs, in Pennsylvania are causing ozone air quality concerns in the OTR.

From the ozone source apportionment analysis using the 2017 EPA CSAPR platform, it is clear that even with considerably overestimated emissions levels for EGUs, the largest contribution to ozone impacts on OTR problem monitors are from motor vehicles and area and non-road mobile sources.²⁰ The following charts are from the 2017 EPA CSAPR platform.

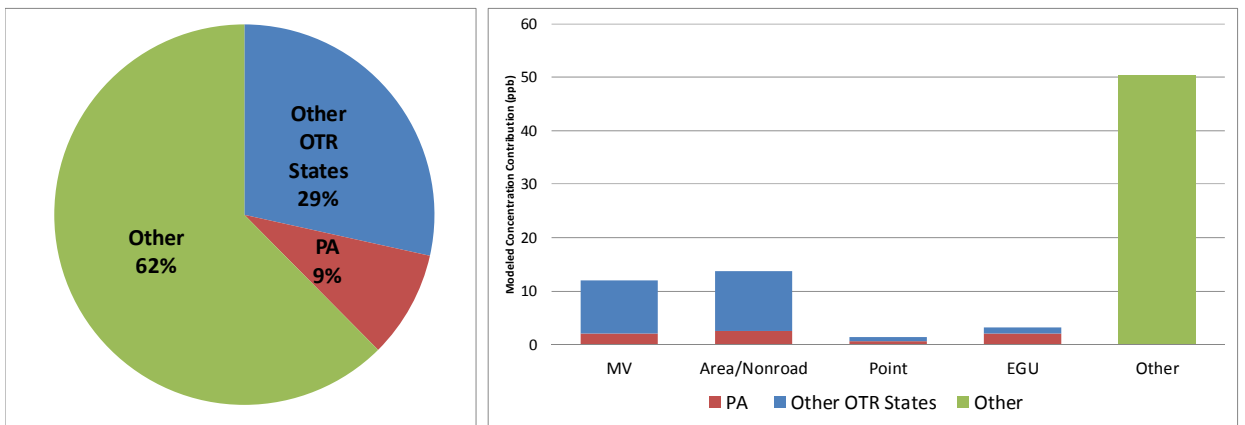
¹⁹ The full proposal and supporting documents can be found at:
<https://www.dec.ny.gov/regulations/116131.html>.

²⁰ Relative Contribution of Upwind Sources on Key Monitors 176A Petitioning and Petitioned States Using CSAPR 2017eh Modeling Platform, prepared by Alpine Geophysics, LLC,
http://www.midwestozonegroup.com/files/Relative_Contribution_of_Upwind_Sources_on_Key_Monitors.pdf

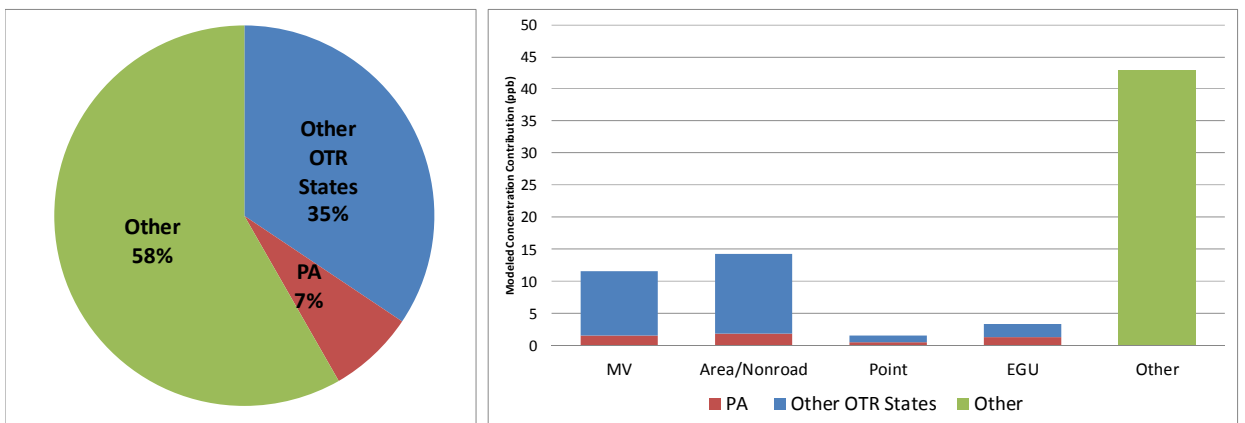
360850067 - Susan Wagner HS, NY - 2017 OSAT Results



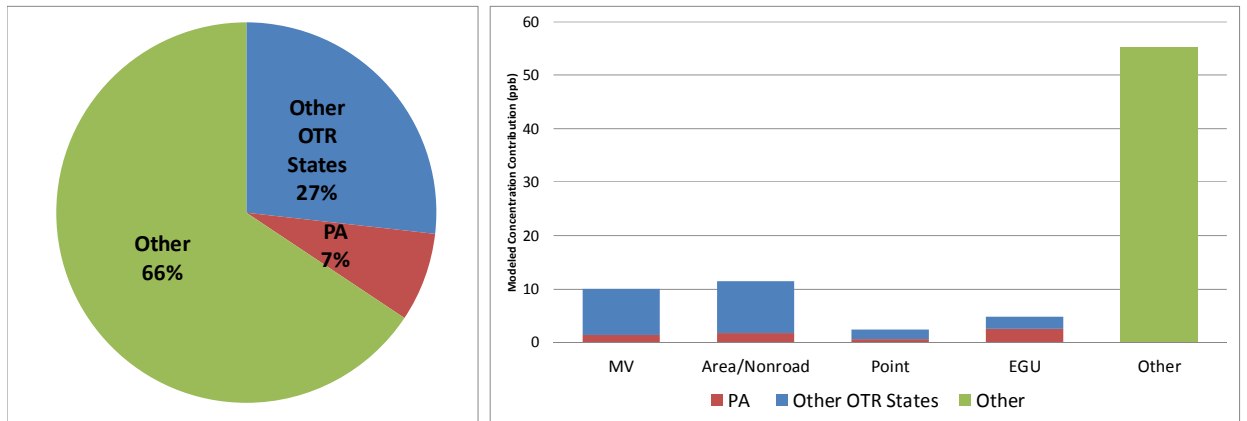
361030002 - Babylon, NY - 2017 OSAT Results



361030004 - Riverhead, NY - 2017 OSAT Results



240251001 - Harford, MD - 2017 OSAT Results



Regulatory action has been taken by EPA to address mobile sources. On November 13, 2018 EPA announced its Cleaner Truck Initiative.²¹ As Administrator Wheeler stated in his January 16, 2019 response to questions from the U.S. Committee on Environment and Public Works:

EPA expects that heavy-duty trucks will be responsible for one-third of NO_x emissions from transportation in 2025. Updating these standards will result in NO_x reductions from mobile sources and could be one important way that allows areas across the U.S. to meet National Ambient Air Quality Standards for ozone and particulate matter. Updating the standards will also offer opportunities to reduce regulatory burden through smarter program design.

Accordingly, it is essential that these and other mobile source emission reduction programs be assessed relative to air quality improvement prior to invoking CAA §184(c) as the basis for the imposition of additional controls on sources in upwind states.

8. EPA's analysis confirms that any current ozone problems in the OTR are more related to local sources than to sources in upwind states.

EPA addressed the question of whether any current air quality concerns in the Northeast are related to local sources as opposed to broad regional sources. This study was reflected in a

²¹ <https://www.epa.gov/regulations-emissions-vehicles-and-engines/cleaner-trucks-initiative>

presentation by Norm Possiel of U.S. EPA OAQPS dated May 14, 2018 attached and identified as Exhibit G.²² Principal among the conclusions reached in the study are the following points:

From an Eastern US perspective, the current ozone levels appear to be more of a “local” problem (i.e., home state and adjacent neighboring states) compared to the larger regional ozone problem for (sic) that was evident back in 2010-2012.

The magnitude of net ozone available for transport into the NE Corridor and the Lake Michigan area from more distant upwind states appears to have declined by 5 to 10 ppb based on 2010-2012 vs 2015-2017 avg ranked ozone values.

Ozone levels have also declined substantially at the traditionally high ozone sites in the southern and central portions of the NE Corridor and at the traditionally high ozone sites along Lake Michigan.²³

In addressing possible causes for High Ozone at Sites in the Northeast, the EPA study identified various source sectors within the Northeast Corridor including the following:

- The NYC area has higher mobile source emissions than other parts of the OTR, (onroad and non-road sources).
- A unique mix of local (Tri-State area) contributions from other sources such as EGU, non-EGU point, nonpoint, and commercial marine.
- “Behind the meter” generation (diesel generators that are not controlled and not in the emissions inventory that operate on hot summer days).
- Peaking units (HEDD) within the OTR that may operate on mostly on high ozone days.²⁴

While several of these hypotheses are discussed elsewhere in the comments, it is significant that EPA has identified this changing development with its implications for addressing any

²² This document can also be found here: http://midwestozonegroup.com/files/2018-05-14_EPA_OAQPS_-_Analysis_of_O3_Trends_in_the_East_in_Relation_to_Interstate_Transport.pdf

²³ *Id.* at slide 4.

²⁴ *Id.* at slide 17.

remaining ozone concerns though controls on local sources rather than upwind sources. This study clearly provides an additional basis for not proceeding further with the OTC Recommendation.

9. Emission trends have been decreasing for many years and will continue to do so for the foreseeable future.

Pennsylvania and other upwind states have, in fact, experienced a significant reduction in NO_x emissions over recent years. These reductions not only reflect the good faith of these upwind states in regulating their own sources but also the effectiveness of EPA programs.

Set forth below is a table developed from EPA modeling platform summaries illustrating total anthropogenic emission reduction and EGU-only emission reduction.²⁵

State	Annual Anthropogenic NO _x Emissions (Tons)			Emissions Delta (2017-2011)		Emissions Delta (2023-2011)	
	2011	2017	2023	Tons	%	Tons	%
Illinois	506,607	354,086	293,450	152,521	-30%	213,156	-42%
Indiana	444,421	317,558	243,954	126,863	-29%	200,467	-45%
Kentucky	327,403	224,098	171,194	103,305	-32%	156,209	-48%
Maryland	165,550	108,186	88,383	57,364	-35%	77,167	-47%
Michigan	443,936	296,009	228,242	147,927	-33%	215,694	-49%
Ohio	546,547	358,107	252,828	188,439	-34%	293,719	-54%
Pennsylvania	562,366	405,312	293,048	157,054	-28%	269,318	-48%
Virginia	313,848	199,696	161,677	114,152	-36%	152,171	-48%
West Virginia	174,219	160,102	136,333	14,117	-8%	37,886	-22%
Sec 126 Total	3,484,895	2,423,153	1,869,107	1,061,742	-30%	1,615,788	-46%
New York	388,350	264,653	230,001	123,696	-32%	158,349	-41%
State	Annual EGU NO _x Emissions (Tons)			Emissions Delta (2017-2011)		Emissions Delta (2023-2011)	
	2011	2017	2023	Tons	%	Tons	%
Illinois	73,689	31,132	30,764	42,557	-58%	42,926	-58%
Indiana	119,388	89,739	63,397	29,649	-25%	55,991	-47%
Kentucky	92,279	57,520	42,236	34,759	-38%	50,043	-54%
Maryland	19,774	6,001	9,720	13,773	-70%	10,054	-51%
Michigan	77,893	52,829	33,708	25,064	-32%	44,186	-57%
Ohio	104,203	68,477	37,573	35,727	-34%	66,630	-64%
Pennsylvania	153,563	95,828	49,131	57,735	-38%	104,432	-68%
Virginia	40,141	7,589	20,150	32,553	-81%	19,992	-50%
West Virginia	56,620	63,485	46,324	(6,865)	12%	10,296	-18%
Sec 126 Total	737,551	472,600	333,003	264,952	-36%	404,549	-55%
New York	27,379	10,191	16,256	17,188	-63%	11,123	-41%

²⁵ <https://www.epa.gov/air-emissions-modeling/2011-version-63-platform>

As can be seen from this table, Pennsylvania is projected to reduce its annual anthropogenic NO_x emissions by 28% (157,054 tons) through 2017 and 48%, from 562,366 tons to 293,048 tons, between 2011 and 2023. Comparatively, Pennsylvania is projected to reduce EGU-only annual NO_x emissions by 38% (57,735 tons) through 2017. The 2017 actual NO_x emissions reductions from EGUs are even greater than the predicted reductions as shown by the CEM-reported emissions presented in earlier sections of this document and Exhibit D as compared to the modeled 2017 EGU emissions. Furthermore, a 68% reduction in annual EGU NO_x emissions from Pennsylvania, or 104,432 tons, is projected by EPA between 2011 and 2023. Emission trends for this state has been decreasing for many years and will continue to decrease for the foreseeable future as the result of nothing more than on-the-books controls.

Additional review of recent EPA emission trends reporting²⁶ shows significant reduction in annual Pennsylvania NO_x emissions through 2017, especially in the Electric Utility Fuel Combustion category. Additional reductions are also likely to occur as the result of the new initiative in Pennsylvania to develop PA RACT 3.

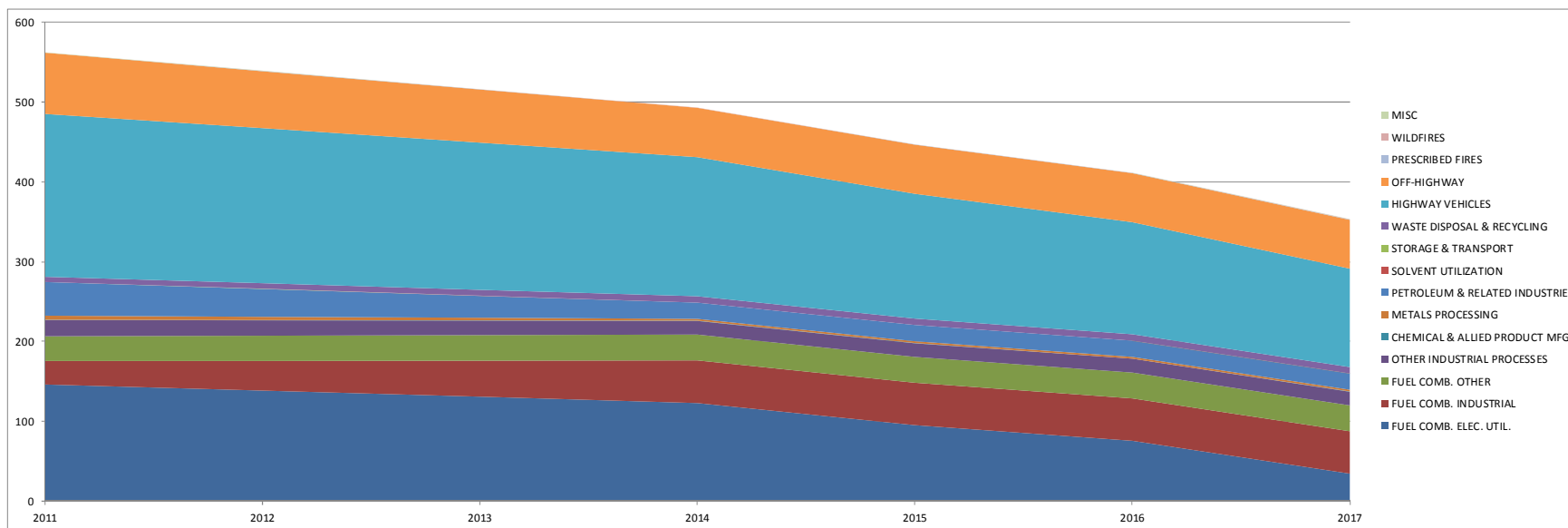
²⁶ https://www.epa.gov/sites/production/files/2018-07/state_tier1_caps.xlsx

State PA
Pollutant NOX

Category

Annual Tons (Thousands)

Year	FUEL COMB. ELEC. UTIL.	FUEL COMB. INDUSTRIAL	FUEL COMB. OTHER	OTHER INDUSTRIAL PROCESSES	CHEMICAL & ALLIED PRODUCT MFG	METALS PROCESSING	PETROLEUM & RELATED INDUSTRIES	SOLVENT UTILIZATION	STORAGE & TRANSPORT	WASTE DISPOSAL & RECYCLING	HIGHWAY VEHICLES	OFF-HIGHWAY	PRESCRIBED FIRES	WILDFIRES	MISC
2011	146.17	29.45	31.07	20.48	0.27	4.91	42.30	0.06	0.09	6.48	204.07	76.40	0.27	0.02	0.17
2012	138.50	37.41	31.49	19.41	0.24	4.01	34.95	0.06	0.08	6.96	194.13	71.51	0.28	0.10	0.13
2013	130.82	45.37	31.90	18.34	0.21	3.11	27.60	0.07	0.06	7.44	184.18	66.62	0.28	0.18	0.10
2014	123.15	53.33	32.31	17.27	0.18	2.21	20.25	0.07	0.05	7.91	174.23	61.73	0.29	0.25	0.06
2015	95.19	53.33	32.31	17.27	0.18	2.21	20.25	0.07	0.05	7.91	156.25	61.57	0.29	0.25	0.06
2016	75.67	53.33	32.31	17.27	0.18	2.21	20.25	0.07	0.05	7.91	140.27	61.41	0.29	0.25	0.06
2017	34.46	53.33	32.31	17.27	0.18	2.21	20.25	0.07	0.05	7.91	123.29	61.25	0.29	0.25	0.06



10. The issues being raised by the OTC Recommendation have already been considered and rejected by EPA in other proceedings.

It is significant that the issues associated with the need for additional control measure to address residual attainment with the 2008 and 2015 ozone NAAQS are being addressed by EPA in several other proceedings, making it unnecessary to do so under the OTC Recommendation. These other proceeding include the CAA §126 petitions filed by Maryland, Delaware, Connecticut and New York seeking to impose similar control requirements on many of the same sources that are subject of the OTC Recommendation. Most recently EPA has cited numerous legal and technical reasons for its denial of these similar requests that Maryland included in its §126 petition.²⁷

The Delaware §126 petitions named the following sources located in Pennsylvania and Conemaugh, Homer City, Brunner Island. EPA denied those petitions based on its findings that there were no additional cost - effective control measures available for these sources.²⁸ EPA found that Delaware's petition seeking additional control measures similar to those proposed in the §184(c) petition was not sufficient on its own merit leading EPA to deny it.²⁹

Similarly, the Maryland §126 petition sought to impose similar control measures on many of the same sources named in its §184(c) petition – specifically: Bruce Mansfield Units 1, 2 and 3; Cambria CoGen Units 1 and 2; Cheswick Unit I; Homer City Units 1, 2 and 3, Keystone Units 1 and 2; Montour Units 1 and 2. As with the Delaware §126 petition, EPA denied the Maryland §126 petition on the grounds that there were no additional cost-effective emission control measures available for the named sources.

Inasmuch as many of the points made by Maryland in its §126 petition are the same as the points being raised in its §184(c) petition, the relief requested in the OTC Recommendation should fail.

²⁷ Response to Clean Air Act Section 126(b) Petitions From Delaware and Maryland, 83 Fed. Reg. 50,444 (Oct. 5, 2018).

²⁸ Id. at 50,445.

²⁹ Id. at 50,456

11. The OTC Recommendation to have emission control limits set on a daily basis has been previously considered and rejected by EPA and should also be rejected here.

The OTC Recommendation calls for coal-fired EGU's in Pennsylvania run their existing controls in accordance with emission limits imposed on a daily rather than ozone season basis. Not only is the basis for such a proposal incorrect, the proposal itself has previously been considered and rejected by EPA.

As will be shown in this comment, NO_x emissions controls are in fact “optimized” from a control and economic standpoint to inject ammonia during high load periods such that higher emission rates during the low load operations can be accounted for in achieving shorter-term and ozone season limits.

Many of the SCRs installed on named EGU sources were designed and constructed as retrofit equipment specifically for purposes of achieving overall ozone season reductions under the various NO_x budget programs, and the design of many of these SCRs is not compatible with achieving continuous compliance with a short-term emission rate limit under all operating conditions. Typical retrofit SCRs are designed to achieve vendor guaranteed performance levels in the range of 80 to 90% NO_x removal with the unit operating at full load, steady state conditions consistent with the design criteria. These criteria were established based on projections on how the units would be operating at the time the SCRs were installed. However, there have been significant changes in the electric utility industry over the past 10 years, with the result that many units that were previously operated to meet base-load generation are now subject to cycling operation and significantly more time at minimum load conditions.

As one example of the impacts of these changes in operation, many retrofit units are not able to operate SCRs at minimum load conditions because the flue gas temperature falls below the minimum temperature specified by the vendor. Operating below those temperatures can result in severe fouling of the SCR catalyst and downstream components due to formation of ammonium bisulfate. However, when the units are operating at higher loads that occur during the high electric demand days, ammonia is injected to control NO_x emissions. As a consequence, even using an ozone season limit, NO_x is most controlled at the times when the control of NO_x is most important. The OTC has not assessed the feasibility and cost impact of the significant upgrades that would be

required for EGUs to demonstrate compliance with a short-term limit, nor has it demonstrated that this increased stringency is necessary.

This is not to downplay the performance of these retrofit SCRs, and in fact, EGUs regulated under PA RACT 2 have demonstrated that the installed controls are very effective at achieving emissions reductions in terms of total tons of NO_x, which is the critical objective to addressing ozone.

Significantly, the PA RACT 2 regulations which are based on a 30-operating day limit inherently include a HEDD component that sets lower allowable emissions rates at higher loads. Operation at higher loads is weighted more heavily in determining compliance and therefore units must assure that the NO_x controls are operating effectively at all times when conditions allow the controls to operate (that is, above minimum permissive SCR operating temperatures). In effect, the operational process to demonstrate compliance with a 30-day limit requires actions that must take place on a continuous basis, and a shorter-term standard would reduce the necessary flexibility to address variations in operating conditions with little or no impact on actual emissions. Similarly, while the CSAPR Update Rule sets compliance based on ozone season NO_x budgets, the rule greatly reduced the state-by-state budgets and also contains restrictions (the Compliance Assurance provisions) which constrain the statewide level of emissions in order to avoid severe economic penalties for emissions greater than the statewide budget. The constraints incentivize effective control of NO_x emissions particularly when units are operating at higher loads with high heat input that would otherwise consume a disproportionate share of the NO_x budget. This is evident in the significant statewide reductions in NO_x emissions in the CSAPR Update-affected states following implementation of the rule.

EPA squarely addressed the issue of short-term limits and SCR performance in denying the Maryland and Delaware CAA §126 petitions. The following is a part of EPA's explanation of the basis for its denial:

To the extent the petitions have alleged that short-term limits are necessary to prevent units from turning controls off intermittently on days with high ozone, the EPA examined the hourly NO_x emissions data reported to the EPA and did not observe many instances of units selectively turning down or turning off their

emissions control equipment during hours with high generation. SCR-controlled units generally operated with lower emissions rates on high generation hours, suggesting SCRs generally were in better operating condition—not worse, let alone idling—on those days/hours. In other words, the EPA compared NO_x rates on hours with high demand and compared them with seasonal average NO_x rates and found very little difference. The data do not support the notion that units are reducing SCR operation on high demand days...The EPA, therefore, concludes that increases in total emissions on days with high generation are a result of additional units coming online and units increasing hourly utilization, rather than units decreasing the functioning of control equipment. The petitions have not presented information that would contradict this conclusion.³⁰

MOG urges that EPA's action in connection with the denial of these §126 petitions be relied upon by the OTC in deciding not to proceed with its recommendation.

12. Consideration of Exceptional Events that occurred in 2016 would result in all New York monitors measuring attainment with the 2008 Ozone NAAQS. Failure by New York to invoke EPA's exceptional events rule or otherwise to exclude certain Canadian wildfire events from 2016 ambient monitoring data provides an additional basis for denial of the Maryland 184(c) petition.

The CAA and EPA recognize that Exceptional Events can result in higher design values for many monitors in both the upwind and downwind states. If Exceptional Events are not accounted for, use of the resulting higher design values will not only result in inaccurate nonattainment designations, but also in ultimately higher future year predictions of ozone concentrations and the inaccurate representation that additional control measures are necessary.

The importance of the need to exclude data influenced by Exceptional Events is recognized by Congress in the provisions of Clean Air Act §319(b)(3)(B) which provides as follows:

Regulations promulgated under this section shall, at a minimum, provide that

- (i) the occurrence of an exceptional event must be demonstrated by reliable, accurate data that is promptly produced and provided by Federal, State, or local government agencies;
- (ii) a clear causal relationship must exist between the measured exceedances of a national ambient air quality standard and the exceptional event to demonstrate

³⁰ 83 Fed. Reg. 26,679.

that the exceptional event caused a specific air pollution concentration at a particular air quality monitoring location;

(iii) there is a public process for determining whether an event is exceptional; and

(iv) there are criteria and procedures for the Governor of a State to petition the Administrator to exclude air quality monitoring data that is directly due to exceptional events from use in determinations by the Administrator with respect to exceedances or violations of the national ambient air quality standards.

EPA's regulations on Exceptional Events provide the framework for addressing Exceptional Events.³¹ The regulations include requirements related to demonstrating (a) that a clear, causal relationship exists between the event and monitored exceedance(s), (b) the event was of human origin and not likely to recur or was natural in origins and (c) the occurrence was not reasonably controllable or preventable.

In addition, EPA also offered guidance related to Exceptional Events that, among other things, requires demonstrations include:

- A narrative conceptual model that describes the event(s) causing the exceedance or violation and a discussion of how emissions from the event(s) led to the exceedance or violation at the affected monitor(s);
- A demonstration that the event affected air quality in such a way that there exists a clear causal relationship between the specific event and the monitored exceedance or violation;
- Analyses comparing the claimed event-influenced concentration(s) to concentrations at the same monitoring site at other times. The Administrator shall not require a State to prove a specific percentile point in the distribution of data;
- A demonstration that the event was both not reasonably controllable and not reasonably preventable;
- A demonstration that the event was caused by human activity that is unlikely to recur at a particular location or was a natural event; and
- Documentation that the submitting air agency followed the public comment process.³²

³¹ 40 CFR 50.14 (81 Fed. Reg. 68,216, October 3, 2016).

³³ Guidance on the Preparation of Exceptional Events Demonstrations for Wildfire Events that May Influence Ozone Concentrations, Final, EPA, September 2016: https://www.epa.gov/sites/production/files/2016-09/documents/exceptional_events_guidance_9-16-16_final.pdf

A number of states have already made requests to have the air masses caused by the Canadian wildfires that occurred in 2016 be declared Exceptional Events – thus allowing monitored data influenced by those events to be excluded from the calculation of the design value for the affected monitor. Among the states submitting these requests are several of New York’s neighboring states including:

Connecticut - The Connecticut demonstration related to the May 2016 event was submitted on May 23, 2017.³³ In addition to showing that Canadian wildfire caused the event, the demonstration noted that “. . . the exceedances of May 25-26th cannot be attributed to EGUs operating on high electric demand days as is more typically the case later in the ozone season.” EPA concurred in that demonstration on July 31, 2017.

New Jersey - The New Jersey demonstration related to the May 2016 was submitted on May 31, 2017.³⁴ In addition to showing that Canadian wildfire caused the event in New Jersey, the demonstration also noted that the event had had a similar impact on many other states including Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania and New York. EPA concurred in that demonstration on October 24, 2017.

Massachusetts - The Massachusetts demonstration related to the May 2016 event was submitted on May 25, 2017.³⁵ EPA concurred in that demonstration on September 19, 2017.

Maryland – While the Maryland demonstration dated May 26, 2017, nominally addresses July 2016 event, the demonstration report itself includes data which assesses how the design values for Maryland’s monitors are affected by both the May and July 2016 events.³⁶ EPA responded by letter on December 26, 2017, concurring with Maryland on 17 monitor days, deferring action on 16 monitor days, and non-concurring on 10 monitor days.³⁷

³⁴ <https://www.epa.gov/air-quality-analysis/exceptional-events-documents-ozone-connecticut>

³⁵ <https://www.epa.gov/air-quality-analysis/exceptional-events-documents-ozone-new-jersey>

³⁶ <https://www.epa.gov/air-quality-analysis/exceptional-events-documents-ozone-massachusetts>

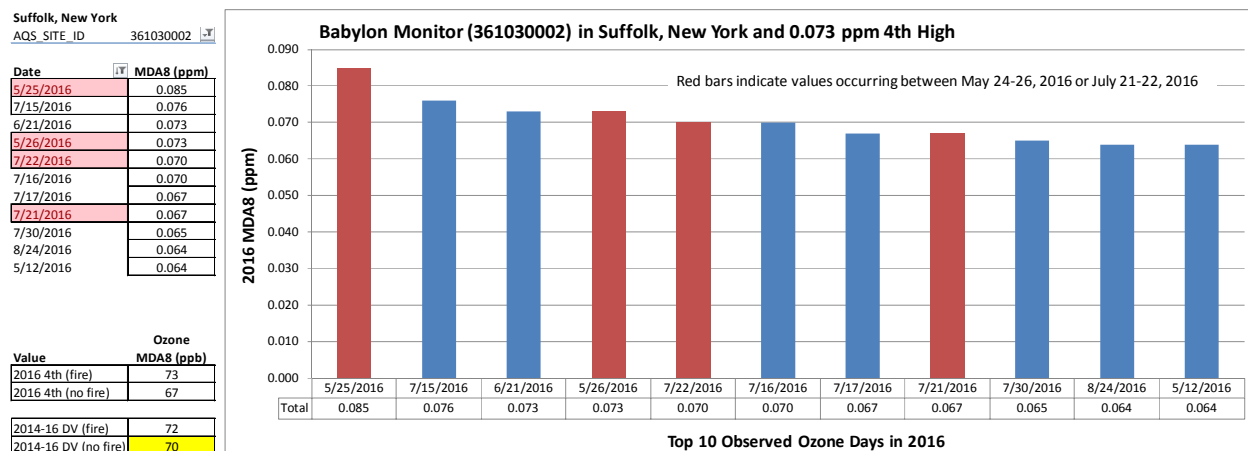
³⁷ http://www.mde.state.md.us/programs/Air/AirQualityMonitoring/Documents/MDE_JUL_21_22_2016_E_demo.pdf

³⁸ EPA Response Letter to MDE, December 26, 2017, available at https://www.epa.gov/sites/production/files/2018-07/documents/epa_response_mde_exceptional_events_package_12-26-17.pdf

Pennsylvania – Pennsylvania has also made a demonstration related to the May 2016 event dated November 2017.³⁸ By letter on March 6, 2018, EPA concurred with Pennsylvania on 8 monitor days, defers action on 41 monitor days, and non-concurs on 78 monitor days.³⁹

The Maryland 184(c) petition asserts in part that it is air quality in the NYNA that adds support for its petition. However, MOG’s analysis of the 2016 design values of all the monitors in the NYNA indicate the implications of accounting for this exceptional event as it relates to any assessment of attainment.

To illustrate the process used to assess these monitors, MOG offers the following graphics related to the Suffolk (361030002) and Richmond (360850067) monitors in New York. In the case of each monitor MOG has graphically identified the 10 highest ozone concentrations that occurred in 2016 and have highlighted in red those readings that occurred on dates related to the May 2016 and July 2016 Canadian wildfire events. These graphics demonstrate the significance of the exclusion of those data points affected by the two Exceptional Events identified.



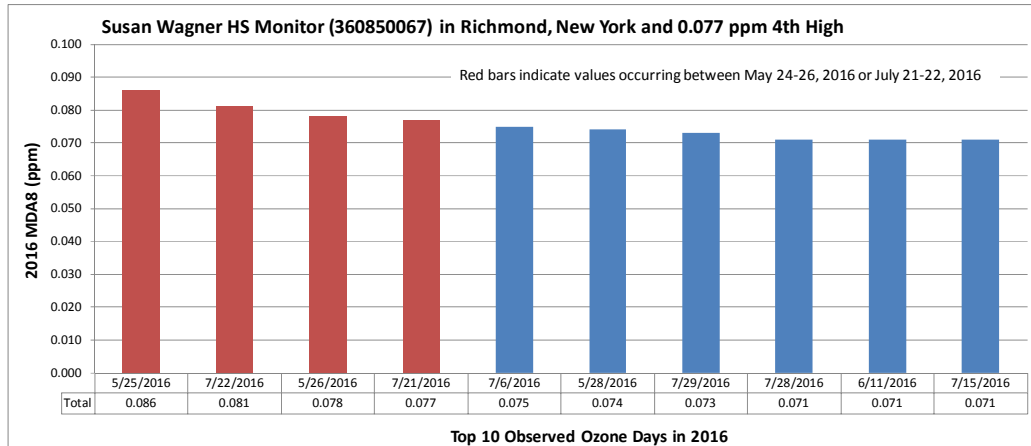
³⁹ <http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-117484/Ozone%20EE%20Analysis%20May%2024-26-2017.pdf>

³⁹ See, EPA PADEP approval letter March 6, 2018 available at https://www.epa.gov/sites/production/files/2018-08/documents/epa_padep_approval_ltr_030618.pdf

Richmond, New York
AQS SITE ID 360850067

Date	MDA8 (ppm)
5/25/2016	0.086
7/22/2016	0.081
5/26/2016	0.078
7/21/2016	0.077
7/6/2016	0.075
5/28/2016	0.074
7/29/2016	0.073
7/28/2016	0.071
6/11/2016	0.071
7/15/2016	0.071

Value	Ozone MDA8 (ppb)
2016 4th (fire)	77
2016 4th (no fire)	71
2014-16 DV (fire)	76
2014-16 DV (no fire)	74



While Connecticut, Massachusetts, New Jersey, Pennsylvania, Maryland and several other states requested consideration of Exceptional Events designation for the 2016 Canadian wildfire event, New York made no such request. However, as can be seen in the following data, if the May and July events been excluded, the design values for 25 of New York's monitors (highlighted in green) would be significantly lower.⁴⁰ In the case of each monitor, the measurements collected during on the days in May and July 2016 impacted by the Canadian wildfire for which Exceptional Events analysis should have been filed, resulted in new 4th high values and new 3-year design values for each monitor for comparison to the 2008 and 2015 ozone NAAQS.

AQS Site ID	State Name	County Name	2014-2016 Design Value (ppm)	Fire Excluded 2014-2016 Design Value (ppm)
360010012	New York	Albany	0.064	0.063
360050110	New York	Bronx	0.067	0.066
360050133	New York	Bronx	0.070	0.070
360130006	New York	Chautauqua	0.068	0.067
360270007	New York	Dutchess	0.068	0.067
360290002	New York	Erie	0.069	0.068

⁴¹ New York-Northern New Jersey-Long Island, NY-NJ-CT Nonattainment Area Intended Area Designations for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document (TSD) available at https://www.epa.gov/sites/production/files/2017-12/documents/ny_nj_ct_new_york-northern_new_jersey-long_island_120d_tsd_final.pdf

AQS Site ID	State Name	County Name	2014-2016 Design Value (ppm)	Fire Excluded 2014-2016 Design Value (ppm)
360310002	New York	Essex	0.062	0.061
360310003	New York	Essex	0.065	0.063
360319991	New York	Essex	0.058	0.058
360337003	New York	Franklin	0.058	0.057
360410005	New York	Hamilton	0.060	0.059
360430005	New York	Herkimer	0.063	0.058
360450002	New York	Jefferson	0.063	0.062
360551007	New York	Monroe	0.063	0.063
360610135	New York	New York	0.069	0.068
360631006	New York	Niagara	0.066	0.065
360671015	New York	Onondaga	0.064	0.062
360715001	New York	Orange	0.066	0.065
360750003	New York	Oswego	0.060	0.060
360790005	New York	Putnam	0.068	0.068
360810124	New York	Queens	0.069	0.067
360850067	New York	Richmond	0.076	0.074
360870005	New York	Rockland	0.072	0.071
360910004	New York	Saratoga	0.063	0.062
361010003	New York	Steuben	0.059	0.059
361030002	New York	Suffolk	0.072	0.070
361030004	New York	Suffolk	0.072	0.070
361030009	New York	Suffolk	0.066	0.065
361099991	New York	Tompkins	0.063	0.061
361173001	New York	Wayne	0.064	0.063
361192004	New York	Westchester	0.074	0.072

With respect to three of the more significant monitors New York, MOG also recalculated what the preliminary 2017 design value for each monitor would be if the Exceptional Events are considered. Significantly, all three of the New York monitors with preliminary design values above the 2008 ozone NAAQS, would be below the 2008 standard if only the 2016 Canadian wildfire related exceptional events were addressed.

AQS Site ID	Local Site Name	2017 DV With wildfire	2017 DV Without wildfire
360850067	Susan Wagner HS	76	74
361030002	Babylon	76	74
361030004	Riverhead	76	74

New York’s failure to seek relief from these Exceptional Events has been recognized by EPA as a factor to be considered in assessing the obligation of upwind states to downwind areas. EPA’s March 27, 2018, Good Neighbor SIP guidance memorandum specifically calls into question whether “downwind areas have considered and/or used available mechanisms for regulatory relief.”⁴¹ The fact that New York has not requested relief from the impact of these exceptional events does indeed become an independent basis for denying the Maryland’s petition reliance on New York’s attainment status.

13. International emissions must be addressed as an integral part of the consideration of this petition. Failure by the OTC to account for international emissions provides an additional basis for denial of the OTC Recommendation.

International emissions must be considered as an integral part of any assessment of interstate transport.⁴²

The CAA addresses international emissions directly in Section 179(B)(a) which states:

(a) Implementation plans and revisions

Notwithstanding any other provision of law, **an implementation plan or plan revision** required under this chapter shall be approved by the Administrator if—

(1) such plan or revision **meets all the requirements applicable to it under the chapter other than a requirement that such plan or revision demonstrate**

⁴² EPA Peter Tsirigotis memorandum of March 27, 2018 (<https://www.epa.gov/airmarkets/march-2018-memo-and-supplemental-information-regarding-interstate-transport-sips-2015> at p. A-2).

⁴³ Consideration of alternative approaches to address international emissions is also a central theme of EPA’s Peter Tsirigotis memorandum dated March 27, 2018, p. A-3. (<https://www.epa.gov/airmarkets/march-2018-memo-and-supplemental-information-regarding-interstate-transport-sips-2015>).

attainment and maintenance of the relevant national ambient air quality standards by the attainment date specified under the applicable provision of this chapter, or in a regulation promulgated under such provision, and

(2) the submitting State establishes to the satisfaction of the Administrator that **the implementation plan of such State would be adequate** to attain and maintain the relevant national ambient air quality standards by the attainment date specified under the applicable provision of this chapter, or in a regulation promulgated under such provision, **but for emissions emanating from outside of the United States**. (Emphasis added.)

Addressing international emissions is critically important in connection with the OTC Recommendation. The U.S. Supreme Court has ruled that it is essential that Good Neighbor states be required to eliminate only those amounts of pollutants that contribute to the nonattainment of NAAQS in downwind States. Specifically, the Supreme Court stated, “EPA cannot require a State to reduce its output of pollution by more than is necessary to achieve attainment in every downwind State. . . .”⁴³ In addition, the D.C. Circuit has commented that “. . . the good neighbor provision requires upwind States to bear responsibility for their fair share of the mess in downwind States.”

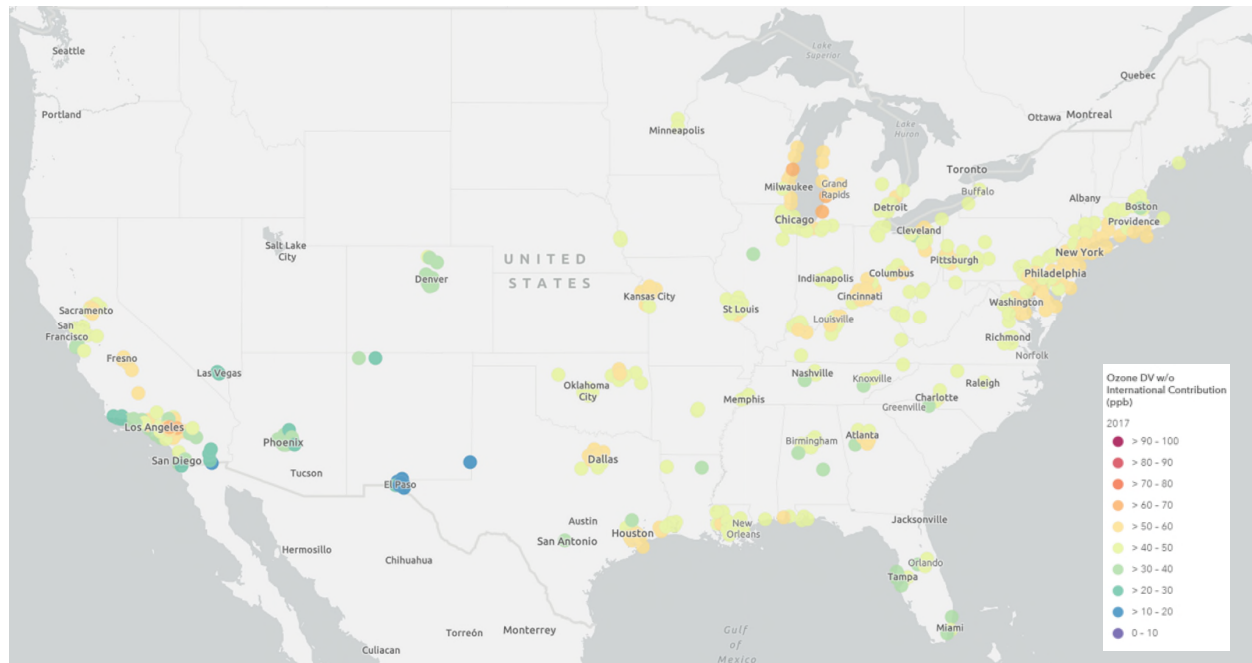
At the request of MOG, Alpine Geophysics employed EPA’s modeling data for 2017⁴⁴ and 2023⁴⁵ to prepare the following graphic which depicts the projected 8-hour ozone Design Values across the U.S. excluding boundary condition contributions and the international emissions sector. Note that the 2017 projections show all monitors in the continental US with design values equal to or less than 66 ppb when these categories are excluded, and 2023 projections show all monitors in the continental US with design values less than 57 ppb.

⁴⁴ *EPA v. EME Homer City Generation*, 134 S. Ct. 1584, 1608 (2014).

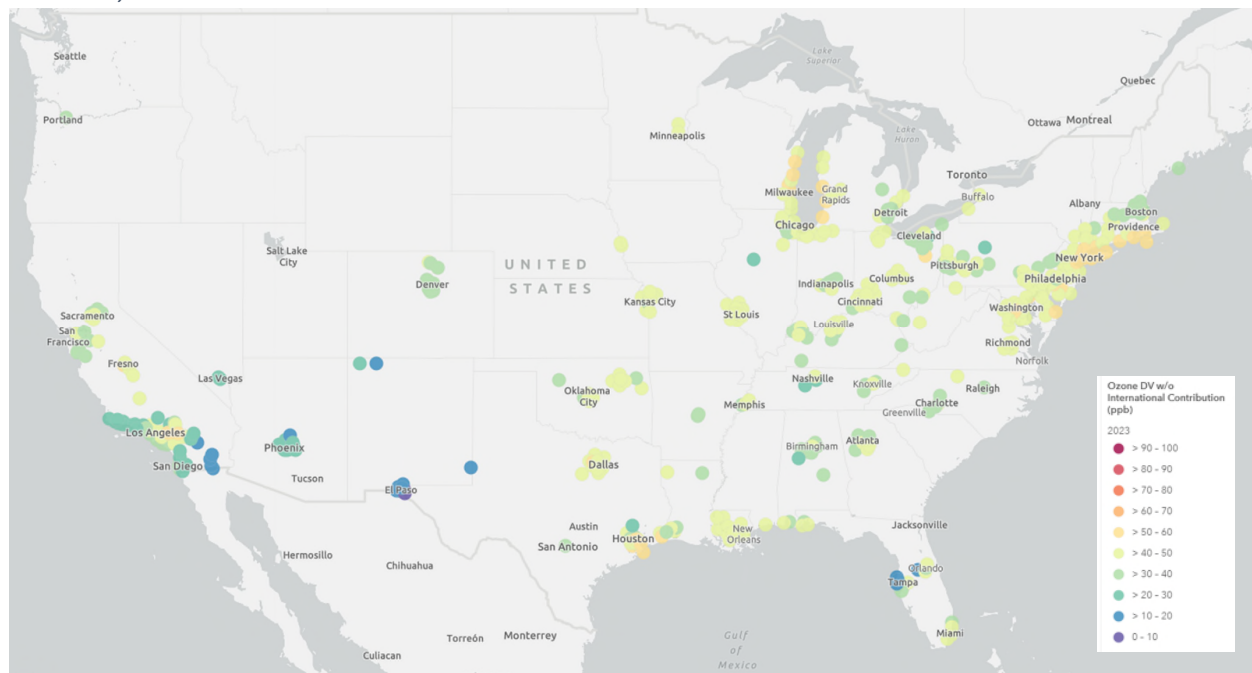
⁴⁴ https://www.epa.gov/sites/production/files/2017-05/final_csapr_update_ozone_design_values_contributions_all_sites.xlsx

⁴⁵ https://www.epa.gov/sites/production/files/2016-12/2015_o3_naaqs_preliminary_transport_assessment_design_values_contributions.xlsx

Projected 2017 ozone design values (ppb) excluding the contribution from boundary condition, initial condition, Canadian and Mexican emission sources.



Projected 2023 ozone design values (ppb) excluding the contribution from boundary condition, initial condition, Canadian and Mexican emission sources.



Focusing only on the monitors in Maryland, Connecticut, New Jersey, and New York and applying EPA modeling data for 2023⁴⁶, the following chart shows that accounting for modeled contributions from boundary conditions and Canada/Mexico emissions brings the worst Maryland monitor to a level of 55.39 ppb. If only the Canada/Mexico portion of international transport were considered, EPA’s 2023 modeling shows that all of New York’s monitors would attain both the 2008 and 2015 ozone NAAQS in 2023 with a maximum value of 69.52 ppb.

				2023 MDA8 Concentrations and Contributions (ppb)				
Monitor	State	County	2009-2013 Ave	2023 Ave	Canada & Mexico	2023 Base Case w/o Can/Mex	Initial & Boundary Condition Contribution	2023 Base Case w/o Can/Mex and IC/BC
90010017	Connecticut	Fairfield	80.3	68.6	1.17	67.43	15.81	51.62
90011123	Connecticut	Fairfield	81.3	64.1	1.19	62.91	14.82	48.09
90013007	Connecticut	Fairfield	84.3	69.4	1.50	67.90	15.41	52.49
90019003	Connecticut	Fairfield	83.7	70.5	1.58	68.92	17.03	51.89
90031003	Connecticut	Hartford	74.3	59.7	0.96	58.74	14.49	44.25
90070007	Connecticut	Middlesex	79.3	63.4	1.39	62.01	15.31	46.70
90090027	Connecticut	New Haven	74.3	60.7	1.30	59.40	13.32	46.08
90099002	Connecticut	New Haven	85.7	69.8	1.40	68.40	16.21	52.19
90110124	Connecticut	New London	80.3	64.4	1.12	63.28	13.18	50.10
90131001	Connecticut	Tolland	75.3	59.5	0.98	58.52	15.01	43.51
90159991	Connecticut	Windham	71.0	55.3	1.23	54.07	14.65	39.42
240030014	Maryland	Anne Arundel	83.0	60.6	1.15	59.45	15.20	44.25
240051007	Maryland	Baltimore	79.0	62.0	1.17	60.83	16.95	43.88
240053001	Maryland	Baltimore	80.7	65.1	0.62	64.48	13.66	50.82
240090011	Maryland	Calvert	79.7	60.5	1.09	59.41	15.40	44.01

⁴⁶ Id.

				2023 MDA8 Concentrations and Contributions (ppb)				
Monitor	State	County	2009-2013 Ave	2023 Ave	Canada & Mexico	2023 Base Case w/o Can/Mex	Initial & Boundary Condition Contribution	2023 Base Case w/o Can/Mex and IC/BC
240130001	Maryland	Carroll	76.3	57.7	1.29	56.41	12.52	43.89
240150003	Maryland	Cecil	83.0	62.0	0.87	61.13	16.52	44.61
240170010	Maryland	Charles	79.3	57.3	1.01	56.29	14.47	41.82
240199991	Maryland	Dorchester	75.0	58.1	0.41	57.69	12.29	45.40
240210037	Maryland	Frederick	76.3	58.5	1.56	56.94	17.86	39.08
240251001	Maryland	Harford	90.0	71.3	0.77	70.53	15.14	55.39
240259001	Maryland	Harford	79.3	60.1	0.62	59.48	14.35	45.13
240290002	Maryland	Kent	78.7	58.7	0.44	58.26	12.25	46.01
240313001	Maryland	Montgomery	75.7	57.6	1.25	56.35	13.26	43.09
240330030	Maryland	Prince George's	79.0	58.1	0.90	57.20	12.52	44.68
240338003	Maryland	Prince George's	82.3	59.7	0.64	59.06	12.73	46.33
240339991	Maryland	Prince George's	80.0	58.6	0.97	57.63	12.73	44.90
245100054	Maryland	Baltimore (City)	73.7	60.4	1.06	59.34	16.86	42.48
340010006	New Jersey	Atlantic	74.3	57.6	0.87	56.73	13.54	43.19
340030006	New Jersey	Bergen	77.0	62.1	0.95	61.15	13.88	47.27
340071001	New Jersey	Camden	82.7	64.3	1.69	62.61	13.40	49.21
340110007	New Jersey	Cumberland	72.0	55.2	1.44	53.76	11.10	42.66
340130003	New Jersey	Essex	78.0	61.9	1.38	60.52	14.85	45.67
340150002	New Jersey	Gloucester	84.3	65.4	2.42	62.98	15.02	47.96
340170006	New Jersey	Hudson	75.3	60.9	0.97	59.93	15.82	44.11

				2023 MDA8 Concentrations and Contributions (ppb)				
Monitor	State	County	2009-2013 Ave	2023 Ave	Canada & Mexico	2023 Base Case w/o Can/Mex	Initial & Boundary Condition Contribution	2023 Base Case w/o Can/Mex and IC/BC
340190001	New Jersey	Hunterdon	78.0	60.3	1.03	59.27	16.24	43.03
340210005	New Jersey	Mercer	78.3	61.2	2.06	59.14	13.68	45.46
340219991	New Jersey	Mercer	76.0	58.8	0.94	57.86	14.80	43.06
340230011	New Jersey	Middlesex	81.3	62.8	2.15	60.65	13.63	47.02
340250005	New Jersey	Monmouth	80.0	63.3	1.79	61.51	15.61	45.90
340273001	New Jersey	Morris	76.3	60.5	1.02	59.48	15.78	43.70
340290006	New Jersey	Ocean	82.0	63.5	2.93	60.57	12.93	47.64
340315001	New Jersey	Passaic	73.3	60.0	0.80	59.20	17.25	41.95
340410007	New Jersey	Warren	66.0	51.4	1.23	50.17	16.95	33.22
360050133	New York	Bronx	74.0	68.0	1.15	66.85	15.89	50.96
360130006	New York	Chautauqua	73.3	59.7	2.73	56.97	15.23	41.74
360270007	New York	Dutchess	72.0	57.0	1.31	55.69	15.08	40.61
360290002	New York	Erie	71.3	59.3	4.50	54.80	13.69	41.11
360551007	New York	Monroe	71.0	58.8	6.20	52.60	16.15	36.45
360610135	New York	New York	73.3	65.4	1.57	63.83	17.91	45.92
360631006	New York	Niagara	72.3	61.8	12.13	49.67	14.97	34.70
360715001	New York	Orange	67.3	55.0	1.01	53.99	16.65	37.34
360790005	New York	Putnam	70.0	55.6	1.64	53.96	14.33	39.63
360810124	New York	Queens	78.0	69.9	1.90	68.00	17.53	50.47
360850067	New York	Richmond	81.3	71.2	1.82	69.38	16.83	52.55
360870005	New York	Rockland	73.7	60.5	1.22	59.28	17.86	41.42
361030002	New York	Suffolk	83.3	71.3	1.78	69.52	17.17	52.35
361030004	New York	Suffolk	78.0	64.9	0.97	63.93	12.56	51.37

				2023 MDA8 Concentrations and Contributions (ppb)				
Monitor	State	County	2009-2013 Ave	2023 Ave	Canada & Mexico	2023 Base Case w/o Can/Mex	Initial & Boundary Condition Contribution	2023 Base Case w/o Can/Mex and IC/BC
361030009	New York	Suffolk	78.7	67.3	1.39	65.91	13.51	52.40
361173001	New York	Wayne	65.0	53.4	5.23	48.17	14.72	33.45
361192004	New York	Westchester	75.3	67.1	1.54	65.56	15.97	49.59

These data demonstrate that but for Canadian and Mexican international emissions, all of the OTC's monitors would be in attainment with the 2008 and 2015 ozone NAAQS. These facts are made all the more important because none of the OTC states has made any attempt to avail themselves of this available mechanism for regulatory relief – a clear factor to be considered in evaluating a request of this kind.⁴⁷ We also note that in its response to comments associated with its April 30, 2018 final rule establishing initial air quality designations for the 2015 ozone NAAQS, EPA offers the following comment on international transport:

The EPA encourages affected air agencies to coordinate with their EPA Regional office to identify approaches to evaluate the potential impacts of international transport and to determine the most appropriate information and analytical methods for each area's unique situation. The EPA will also work with states that are developing attainment plans for which section 179B is relevant, and ensure the states have the benefit of the EPA's understanding of international transport of ozone and ozone precursors. To assist in this effort, EPA is currently developing or has developed guidance on stratospheric ozone intrusion exceptional events implementation, and technical guidance on preparing approvable demonstrations under CAA section 179B.⁴⁸

Failure to seek relief from international transport pursuant to CAA §179(B) has been recognized by EPA as a factor to be considered in assessing the obligation of upwind states to

⁴⁸ EPA Peter Tsirigotis memorandum of March 27, 2018 (https://www.epa.gov/sites/production/files/2018-03/documents/transport_memo_03_27_18_1.pdf).

⁴⁹ https://www.epa.gov/sites/production/files/2018-04/documents/placeholder_2.pdf

downwind areas. EPA's March 27, 2018, Good Neighbor SIP guidance memorandum specifically calls into question whether "downwind areas have considered and/or used available mechanisms for regulatory relief."⁴⁹ The fact that OTC states have not requested relief from the impact of these international emissions does indeed become an independent basis for requesting OTC not to advance its recommendation further.

14. OTC's failure to provide any data addressing the cost effectiveness of the controls that it has proposed provides an additional basis for denial of the petition.

The OTC Recommendation fails to offer any assessment of the potential costs and air quality benefits of the control strategy that it is urging. Neither does it offer any cost/benefit assessment of its recommendation that emission limits be applied on a daily rather than ozone season basis. Failure to do so creates an additional fatal flaw in the recommendation. This very point was addressed directly by EPA in its denial of the Connecticut petition against Brunner Island. In its final determination, EPA offered the following comment:

As discussed in further detail in section III, the state's analysis of Brunner Island's impact on air quality in Connecticut provides insufficient information regarding the source's impact on Connecticut air quality on high ozone days and it does not reflect the facility's current operations. Moreover, the petition does not evaluate the potential costs and air quality benefits that would inform the EPA's evaluation of whether additional emission reductions are cost effective, consistent with the EPA's interpretation of the good neighbor provision.... Accordingly, the EPA denies Connecticut's CAA section 126(b) petition.⁵⁰

As stated in these comments, the OTC Recommendation fails for the reason that there will be no nonattainment or maintenance monitors anywhere in the OTR in 2023. Even if there were any such areas, the recommendation also fails because the OTC failed to provide data assessing potential costs and air quality benefits of the additional control measures it proposes.

⁵⁰ EPA Peter Tsirigotis memorandum of March 27, 2018 (<https://www.epa.gov/airmarkets/march-2018-memo-and-supplemental-information-regarding-interstate-transport-sips-2015> at p. A-2.

⁵¹ <https://www.gpo.gov/fdsys/pkg/FR-2018-04-13/pdf/2018-07752.pdf>

IV. CONCLUSION

The actions requested by Maryland in its CAA §184(c) petition and the OTC Recommendation itself are not justified on either legal or technical bases. Ozone precursor emissions have been and will continue to be reduced absent the recommendation due to various deactivations and fuels conversions, PA RACT 2, and other on-the-books controls. In addition, the Good Neighbor SIP plans currently being developed by upwind states, in conjunction with EPA, will be addressing whether the requirements of CAA §110(a)(2)(D) are being satisfied. Additionally, appropriately accounting for Exceptional Events, international emissions, and local controls also serve to demonstrate compliance with CAA requirements.

Accordingly, the Midwest Ozone Group urges the OTC not to finalize its recommendation to EPA related to these additional controls.