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April 6, 2017

Submitted to the Docket Electronically

Air and Radiation Docket and Information Center
U.S. Environmental Protection Agency
WJC West Boiling, Room 3334
1301 Constitution Avenue, NW
Attn: Docket ID No. EPA-HQ-OAR-2016-0751-0001

Re: Preliminary Interstate Ozone Transport Modeling Data for the 2015 Ozone National Ambient Air Quality Standard.

The Midwest Ozone Group respectfully submits the following comments pursuant to the "Notice of Availability for the Environmental Protection Agency's Preliminary Interstate Ozone Transport Modeling Data for the 2015 Ozone National Ambient Air Quality Standard (NAAQS)" published at 82 Federal Register 1733, January 6, 2017.

Very truly yours,

David M. Flannery
Legal Counsel,
Midwest Ozone Group.

Enclosure

COMMENTS OF THE MIDWEST OZONE GROUP ON THE NOTICE OF AVAILABILITY OF THE ENVIRONMENTAL PROTECTION AGENCY'S PRELIMINARY INTERSTATE OZONE TRANSPORT MODELING DATA FOR THE 2015 OZONE NAAAQS

APRIL 6, 2017

TABLE OF CONTENTS

COMMENTS OF THE MIDWEST OZONE GROUP
ON THE NOTICE OF AVAILABILITY OF THE ENVIRONMENTAL PROTECTION AGENCY'S PRELIMINARY INTERSTATE OZONE TRANSPORT MODELING DATA FOR THE 2015 OZONE NAAAQS[1]

(82 Federal Register 1733, January 6, 2017)

APRIL 6, 2017

On January 6, 2017 (82 Fed. Reg. 1733), EPA published a request for public comment on its preliminary interstate ozone transport modeling data and associated methods relative to the 2015 ozone National Ambient Air Quality Standard (NAAQS). EPA has allowed 90 days from date of publication for the submittal of these comments (April 6, 2017). The Midwest Ozone Group is pleased to have the opportunity to offer these comments EPA's notice of data availability (NODA).

The Midwest Ozone Group (MOG) is an affiliation of companies, trade organizations, and associations that have drawn upon their collective resources to advance the objective of seeking solutions to the development of a legally and technically sound national ambient air quality management program. The primary goal of MOG is to work with policy makers 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 previous transport rules, NAAQS standards, petitions under Sections 176A and 126 of the Clean Air Act and the state-developed alternatives to EPA transport rules. MOG members and participants operate more than 85,000 MW of coal-fired and coal-refuse fired generation in more than ten states.[2] They are concerned about the impact of interstate air pollution rules on their facilities, their employees, their contractors, and the consumers of the energy they produce.

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

[2] The members of and participants in the Midwest Ozone Group include: American Coalition for Clean Coal Electricity, American Electric Power, American Forest & Paper Association, Ameren, Alcoa, ARIPPA, Associated Electric Cooperative, Citizens Energy Group, Council of Industrial Boiler Owners, Duke Energy, East Kentucky Power Cooperative, FirstEnergy, Indiana Energy Association, Indiana Utility Group, LGE / KU, Ohio Utility Group, Olympus Power, and the Springfield (IL) City Water P&L.

As EPA makes clear in its notice, the NODA is directed at the 2015 ozone NAAQS Good Neighbor State Implementation Plan ("SIP") requirements which are due within 3 years of promulgation of the revised NAAQS, or by October 26, 2018. EPA explains that these data are considered preliminary because states may choose to modify or supplement these data in developing their Good Neighbor SIPs and/or EPA may update these data for the purpose of potential future analyses or regulatory actions related to interstate ozone transport for the 2015 ozone NAAQS.

The framework of the Good Neighbor SIP process is the requirement of the Clean Air Act (CAA) which provides that "each State shall, adopt and submit . . .a plan that provides for implementation, maintenance, and enforcement of such primary [and secondary] standard. . ."[3] "Each such plan shall contain adequate provisions prohibiting . . . any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard."[4] The CAA provides that EPA shall promulgate a Federal implementation plan ("FIP") at any time within 2 years after the Administrator finds that a State has failed to make a required submission or finds that the plan or plan revision submitted by the State does not satisfy the minimum criteria . . .or disapproves a State implementation plan in whole or in part.[5] The language of the CAA speaks to EPA filing a FIP that would do that which the State has failed to complete, a plan to eliminate significant contribution from that State. As will be discussed elsewhere in these comments, the statute does not describe a process for EPA to issue a partial solution to that which a state has failed to complete.

We note with interest that EPA has characterized the challenge of implementing the good neighbor SIP provisions as involving three principal factors. In her affidavit dated December 15, 2016 filed in connection with the Sierra Club v. Gina McCarthy litigation pending in the Northern District of California involving challenges to the Kentucky Good Neighbor SIP, the Assistant Administrator Janet McCabe offered the following statement:

> Based on the EPA's and the courts' interpretation of the good neighbor provision, there are three ways in which the EPA can determine that an upwind state has fully addressed the good neighbor provision with respect to the 2008 ozone NAAQS: (1) the downwind air quality problem (both nonattainment and maintenance) to which the state is linked can be resolved from collective, cost-effective emission reductions occurring in both upwind and downwind states; (2) the upwind state's contribution to downwind air quality problems can be reduced, through the implementation of cost-effective emissions

[3] CAA § 110(a)(1).
[4] CAA § 110(a)(2)(D)(i)(I).
[5] CAA § 110(c)(1)(A)-(B).

> reductions, to the 1 percent screening threshold such that the EPA can conclude the state's remaining impact on the downwind air quality problem is insignificant, even if the downwind air quality problem persists; or (3) upwind states have implemented all cost-effective emissions reductions (considering cost, emission reductions, and downwind air quality impacts) that constitute each state's significant contribution to nonattainment or interference with maintenance of the NAAQS downwind, even if the downwind air quality problem persists. [6]

In EPA's brief in the Sierra Club case, the agency explains that the,

> statute requires States to eliminate those "amounts" of pollution that "contribute significantly to nonattainment" or "interfere with maintenance" of the NAAQS in downwind States. 42 U.S.C. § 7410(a)(2)(D)(i)(I). . . Thus, EPA's task is to reduce upwind pollution, but only in 'amounts' that push a downwind State's pollution concentrations above the relevant NAAQS." 134 S. Ct. at 1603-04. The question presented to EPA is: "How should EPA allocate among multiple contributing upwind States responsibility for a downwind State's excess pollution?" *Id.* at 1604. EPA is similarly limited by the second part of the good neighbor provision, 42 U.S.C. § 7410(a)(2)(D)(i), "to reduce only by 'amounts' that 'interfere with *maintenance*,' i.e., by just enough to permit an already-attaining State to maintain satisfactory air quality." *Id.* at 1604 n.18. Moreover, "while EPA has a statutory duty to avoid over-control, the Agency also has a statutory obligation to avoid 'under-control,' *i.e.*, to maximize achievement of attainment downwind." *Id.* at 1609."[7]

EPA's position in the Sierra Club litigation was that pursuant to the Clean Air Act, "EPA must then determine whether the estimated concentration would resolve each receptor's nonattainment or maintenance problem by lowering the average ozone concentration to or below the level of the NAAQS.[8] As required by the Supreme Court's holding in *EPA v. EME Homer City*, EPA must also evaluate the estimated improvement in ozone concentrations at downwind receptors to ensure that the expected ozone improvements would not be greater than necessary to resolve the downwind ozone pollution problem or that the estimated ozone improvements would not reduce Kentucky's ozone contributions to below the screening threshold, i.e., one percent of the ozone NAAQS.[9] These tasks will take one month and could be completed by March 2018." [10]

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[6] Defendant EPA Memorandum in Opposition to Plaintiff's and Plaintiff Intervenor's Motions for Summary Judgment and In Support of EPA's Cross-Motion for Summary Judgment, Declaration of Janet G. McCabe, ¶48, Sierra Club v. Gina McCarthy, Case No. 3:15-cv-04328-JD, (N.D. Cal. Sept. 22, 2015) ECF No. 63.

[7] Memorandum at p. 6.

[8] *Id.* Declaration at ¶16.

[9] *Id.* at ¶161; *see also,* EPA v. EMA Homer City, 134 S. Ct. 1584, 1608 (S.Ct. 2014). (EPA cannot "require[ ] an upwind State to reduce emissions by more than the amount necessary to achieve attainment in *every* downwind State to which it is linked.").

It is with this background that the NODA is offered to meet the obligation of the first steps in (1) identifying the extent to which there will be residual problem areas related to the 2015 ozone NAAQS in the attainment year, (2) identifying states that may be "contribute significantly to nonattainment" or "interfering with maintenance" and (3) reducing emissions from such states only by 'amounts' that eliminate the residual problem or the objectionable contribution or interference through the use of cost effective controls.

These comments will focus principally of the air quality data and modeling offered by EPA in its notice. We will also address critical issues that must be assessed by EPA as it moves forward with the application of those data for the development of guidance to be used by the states in developing their Good Neighbor SIPs to address the 2015 ozone NAAQS.

1. **A review of the recent air quality data for the nonattainment and maintenance monitors identified by EPA indicate the significant improvement in ozone air quality that has occurred in recent years for most monitors involved.**

As reported by EPA, air quality, based on the annual 4th maximum daily 8-hour (MDA8) average, in each eastern state region has improved since 2000 ranging from 11% to 24% (18% nationally), with no region showing less than 90% of its monitors in 2014- 2016 attaining 2008 NAAQS concentrations.[11]

An analysis prepared by Alpine Geophysics summarizes the ambient ozone air quality data and offers the conclusion that EPA's data through 2016 show widespread attainment of the 2008 ozone NAAQS in the eastern United States. Figure A below demonstrates that widespread attainment.

[10] *Id.* at p. 20.
[11] http://www3.epa.gov/airtrends/ozone.html

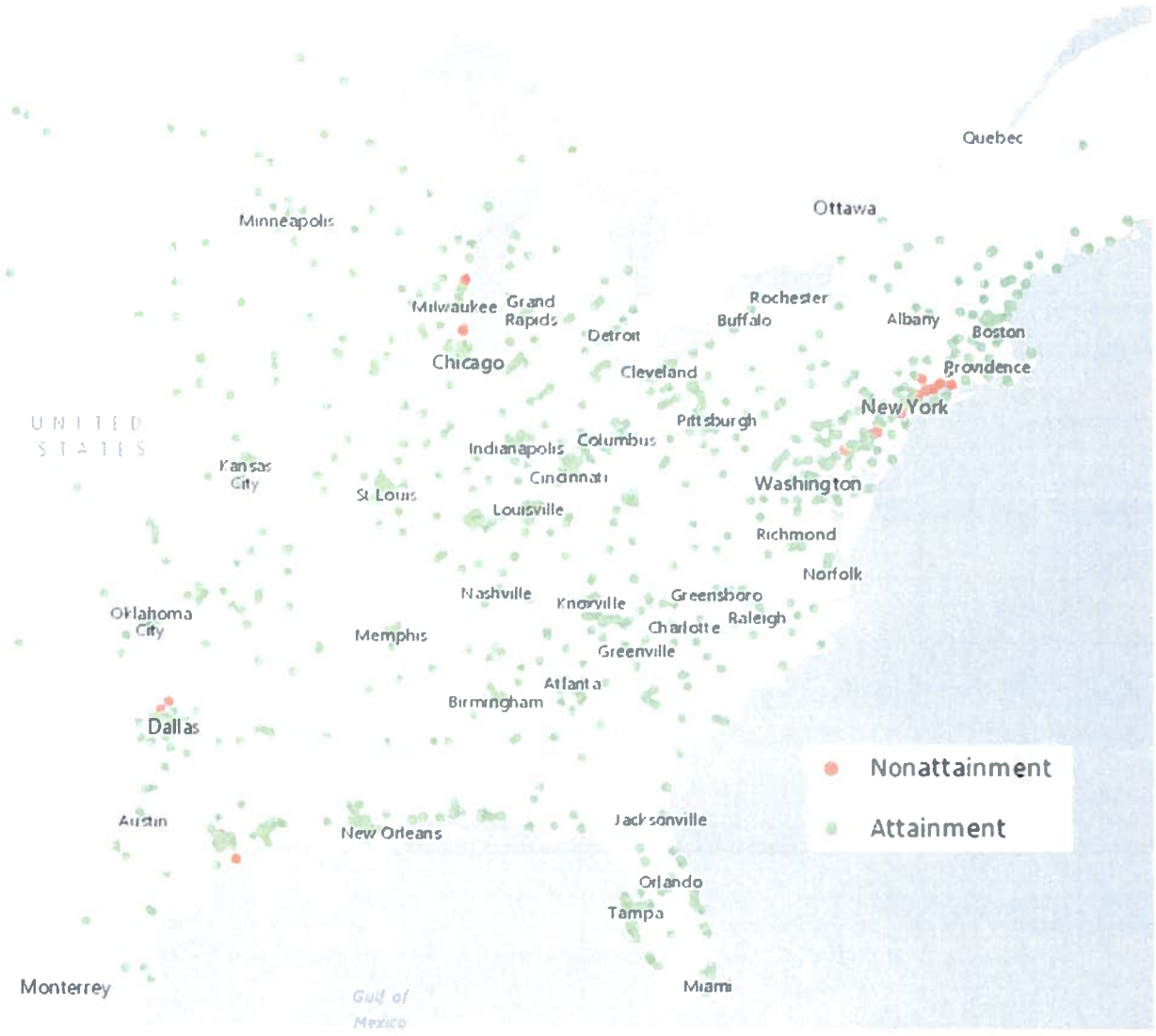

Figure A. Monitor-level compliance with 2008 8-hr ozone NAAQS using 2014-2016 design values.

Set forth in Figure B below are the most recent 4th high observations and 3-yr design values changes (ppb) and slopes (ppb/yr) for maximum daily 8 hour average ozone between 2011 and 2016 for NODA-identified nonattainment and maintenance monitors in the eastern U.S. With the exception of one monitor in Connecticut, each of these monitors has a demonstrated decreasing slope, indicative of improving air quality, in 3-year design values between 2009-11 and 2014-16. Every monitor shows a comparable decreasing slope in 4th high observed concentrations.

		Design Value Change (ppb)		Design Value Slope (ppb/yr)	
Site ID	Name	4th High 2011 to 2016	3-yr 2009/11 to 2014/16	4th High 2011 to 2016	3-yr 2009/11 to 2014/16
240251001	Harford, Maryland	-19.0	-19.0	-3.89	-4.89
360850067	Richmond, New York	-10.0	-7.0	-1.31	-1.91
361030002	Suffolk, New York	-16.0	-12.0	-2.89	-3.06
551170006	Sheboygan, Wisconsin	1.0	-2.0	-1.06	-1.26
90013007	Fairfield, Connecticut	-4.0	2.0	-1.37	-0.03
90019003	Fairfield, Connecticut	0.0	6.0	-0.31	0.71
90099002	New Haven, Connecticut	-12.0	-5.0	-2.94	-1.71
260050003	Allegan, Michigan	-9.0	-3.0	-3.29	-1.29
261630019	Wayne, Michigan	-9.0	-6.0	-2.23	-1.89
360810124	Queens, New York	-13.0	-6.0	-2.86	-2.00

Figure B. NODA-identified nonattainment and maintenance monitors in eastern United States.

2. Recent improvements in air quality have occurred at the same time that significant emission reductions have occurred.

Emission reductions of ozone precursors have been significant in recent years and will continue into the future as the result of on-the-books controls. As published by EPA, annual national and State-level NOx emissions are expected to decline between 2011 and 2017. A recent analysis of CSAPR update inventories prepared by Alpine Geophysics summarizes these data. Figure C set forth below illustrates annual NOx emissions from all anthropogenic categories (mobile, on-road, off-road, non-EGU, manufacturing) for the base year 2011 and projected base case of 2017. As can be seen in this bar chart, NOx emissions from the CSAPR states will have decreased by approximately 1,870,000 tons (24%) from 2011 to 2017. Comparatively, Figure D illustrates that annual NOx emissions from electric generating utilities (EGUs) will have decreased by 569,155 tons, or 40% during this same period. As seen in Figure D, using 2016 CAMD CEM data, EGU emissions in the 22 State CSAPR domain are actually on-track to be reduced to a much greater level than EPA has projected.

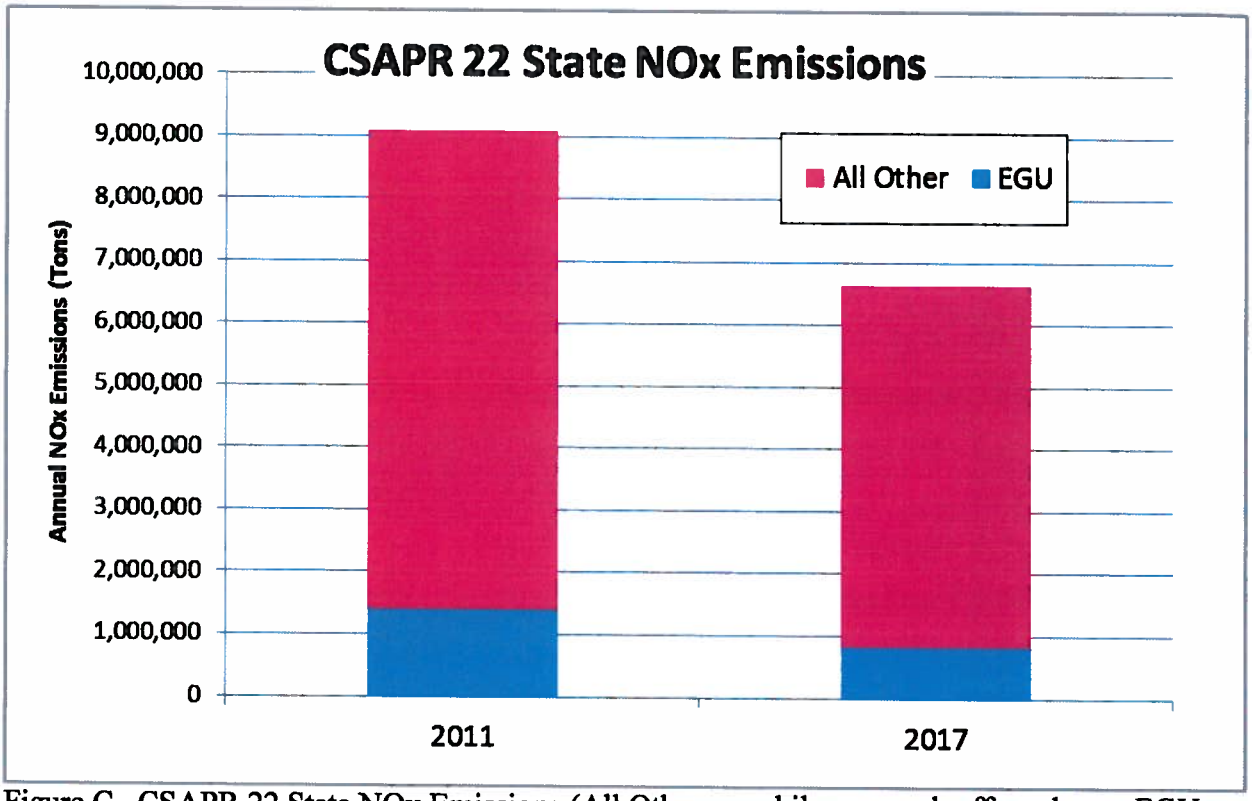

Figure C. CSAPR 22 State NOx Emissions (All Other = mobile, on-road, off-road, non-EGU, manufacturing).

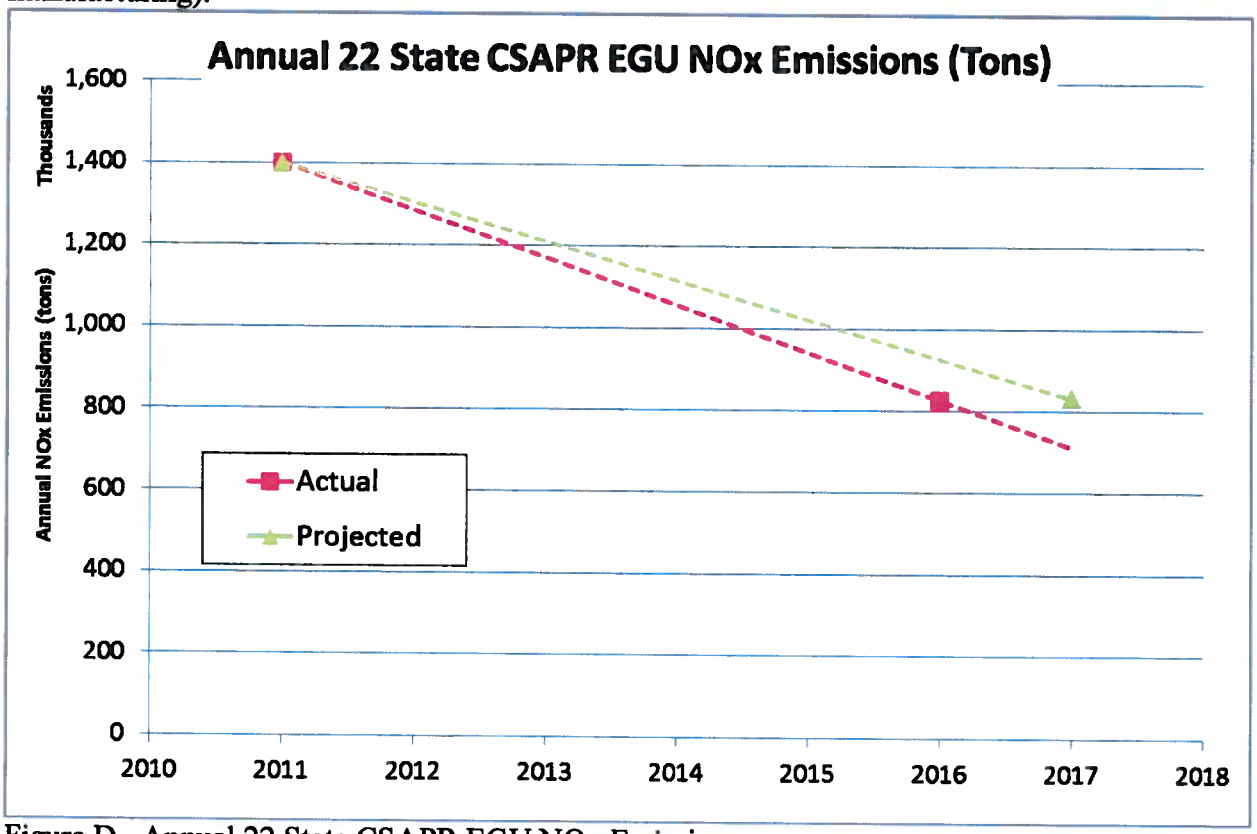

Figure D. Annual 22 State CSAPR EGU NOx Emissions.

3. EPA's selection of nonattainment and maintenance monitors is based on erroneous modeling.

a. EPA's modeling fails to take into consideration significant on-the-books regulatory programs that will further reduce ozone precursors over the next several years and result in additional improvements in ozone air quality.

The EPA notes in the emissions inventory technical support document for the NODA that the "2023 "base case" scenario, represent[s] the best estimate for 2023 that incorporates estimates of the impact of current "on-the-books" regulations."[12] However, similar to the emission projections developed for the 2017 projection year under the CSAPR update, a significant amount of emission reduction associated with "on-the-books" regulations has been omitted from the files. Following are summaries of some of these programs that directly impact NODA identified nonattainment and maintenance monitors and details of their applicability and implementation timelines.

Pennsylvania RACT II

The final Pennsylvania Reasonably Available Control Technology II ("PA RACT II)[13] requirements apply to major NOx or VOC emitting facilities in existence on or before July 20, 2012. The applicability threshold for the RACT II rule is 100 and 50 tons per year for NOx and VOC, respectively, including the five-county Philadelphia region (i.e., Bucks, Chester, Delaware, Montgomery, and Philadelphia counties).

The RACT II rule specifies RACT standards and defines specific RACT work practice standards. Facilities will also have the option to prepare and submit case-by-case RACT analyses for affected emissions units that cannot meet specific numeric standards under the rule.

Facilities may also propose facility-wide or common owner or common operator systems-wide RACT averaging plans for approval by the Pennsylvania Department of Environmental Protection.

OTC Model Rules

The State of Maryland has recently provided a list of incremental NOx and VOC emission reduction programs that are scheduled to be implemented in the OTC prior to calendar year 2017. These nine programs apply to multiple non-EGU source categories and will result in ozone season NOx emission reductions totaling nearly 27,000 tons and ozone season VOC emission reductions exceeding 22,000 tons.

[12]EPA-HQ-OAR-2016-0751-0009, p 2.
[13] 25 PA. Code §§129.91-129.95

A list of the OTC control programs, as documented in the Maryland presentation can be seen in Figure E below.

OTC Model Control Measures	Regional Reductions (tons per year)	Regional Reductions (tons per day)
Aftermarket Catalysts	14,983 (NOx) 3,390 (VOC)	41 (NOx) 9 (VOC)
On-Road Idling	19,716 (NOx) 4,067 (VOC)	54 (NOx) 11 (VOC)
Nonroad Idling	16,892 (NOx) 2,460 (VOC)	46 (NOx) 7 (VOC)
Heavy Duty Inspection & Maintenance	9,326 (NOx)	25 (NOx)
Enhanced SMARTWAY	2.5%	
Ultra Low NOx Burners	3,669 (NOx)	10 (NOx)
Consumer Products	9,729 (VOC)	26 (VOC)
AIM	26,506 (VOC)	72 (VOC)
Auto Coatings	7,711 (VOC)	21 (VOC)

Figure E. "On-The-Books" OTC Model Control Measures not included in NAAQS NODA projections.

Connecticut RACT and High Energy Demand Days

The Connecticut Department of Energy and Environmental Protection (DEEP) in a recent RACT analysis under the 2008 8-Hour Ozone NAAQS identified that municipal waste combustors and EGUs together are responsible for more than 70% of the stationary source NOx emissions in Connecticut. DEEP acknowledged that emissions limitations required of these sources in other states are more stringent than those required in Connecticut. DEEP committed in their analysis to evaluate additional NOx reductions appropriate to fuel-burning sources now regulated under RCSA section 22a-174-22 and additional NOx emissions reductions from the municipal waste combustors regulated by RCSA section 22a-174-38, and to work to adopt regulatory requirements, as may be appropriate, based on the results of the evaluation.

As a marginal nonattainment area, Connecticut is required to attain the 2008 ozone NAAQS by December 31, 2015. New requirements necessary to update RACT in Connecticut must be effective in the state by January 1, 2017 pursuant to the draft Implementation Rule.

In the same RACT analysis, DEEP notes that

> [i]n the eastern United States, high electric demand days (HEDD) occur on the hottest days in summer. The demand for electricity increases primarily as a result of air conditioning. To meet the peak demand, the regional system operators call on additional electric generating units to operate. Both as a result of the operation of additional electric generating units, and due to the nature of the typical peak day generating unit, NOx emissions increase. This elevation in NOx emissions is a significant concern because the HEDD coincide with the highest monitored ozone levels, which often exceed the ozone NAAQS. The additional NOx emissions on these days exacerbate the ozone problem and are one of the keys, in conjunction with limitations on upwind state emissions, to solving Connecticut's resistant ozone problem.

DEEP also concludes that "[t]o reach attainment in the NY-NJ-CT nonattainment area, HEDD emissions need to be addressed in all three state portions of the area" and "to address Connecticut's ozone nonattainment, and Connecticut's good neighbor obligations to downwind states, peak day emissions must be reduced."

Boiler MACT

In separate comments on the NODA being filed by the American Forest & Paper Association and others, EPA is being provided with data which points out that boiler closures and fuel switching due to the boiler MACT have resulted in at least 5,000 tons on NOx reductions not accounted for by EA in its modeling.

b. EPA continues to rely on IPM modeling as the basis for determining future emissions even though its results are erroneous.

Emission projections for EGUs were developed using IPM version 5.16 and include the Final Mercury and Air Toxics (MATS) rule announced on December 21, 2011, the Cross-State Air Pollution Rule (CSAPR) issued July 6, 2011, and the CSAPR Update Rule issued October 26, 2016. EPA also indicates that the Clean Power Plan (CPP) is included in the 2023 base case.

As MOG has noted, EPA has used multiple versions of IPM, each providing a different level of generation distribution and resulting NOx emissions, in attempting to simulate an "on-the-books" base case projection.[14] In its use of IPM for the NAAQS NODA, it appears that once again EPA has failed to include the significant emission reductions and associated generation impact of the PA RACT II and other Northeastern State EGU regulation. Additionally, as part of

[14] EPA-HQ-OAR-2015-0500-0327

the CSAPR proposed and final rule simulations, other, multiple commenters have made clear that IPM does not accurately or adequately simulate the application of emission controls currently existing or planned at facilities included in the model. [15] Other comments have noted that EPA has incorrectly retired or mothballed certain coal-fired units that have no intention of closing before the 2023 projection year.[16]

Furthermore, notwithstanding the February 9, 2016, the Supreme Court stay of implementation of the Clean Power Plan pending judicial review or the President's Executive Order of March 28, 2017 noting "The Administrator shall review and, if appropriate, as soon as practicable, take lawful action to suspend, revise, or rescind, as appropriate and consistent with law, the "Legal Memorandum Accompanying Clean Power Plan for Certain Issues," which was published in conjunction with the Clean Power Plan", the Agency has maintained this program in its emission projections base case for the EGU sector.

c. EPA failed to conduct model performance evaluation for the critical days selected for the proposed rule particularly for receptors at a land/water interface.

MOG believes very strongly that EPA must conduct a model performance evaluation for the individual days that were used in calculating projected 2023 ozone design values and projected 2023 ozone contributions. This model analysis is necessary, to ensure that the model performance is acceptable on all of these days. Such analysis would also identify cases where model performance on these individual days is poor, and to determine the impact of the poor performance on projected concentrations and contributions. With the model performance evaluation results it would be possible to investigate and assess the final results by removing or adjusting certain days to account for model biases.

Alpine has prepared a report entitled "Model Performance Review at Monitors with Complex Meteorology Land-Water Interfaces."[17] Alpine's report notes that EPA ozone attainment modeling guidance states that

> [t]he most important factor to consider when establishing grid cell size is model response to emissions controls. Analysis of ambient data, sensitivity modeling, and past modeling results can be used to evaluate the expected response to emissions controls at various horizontal resolutions for both ozone and PM2.5 and regional haze. If model response is expected to be different (and presumably more accurate) at higher resolution, then higher resolution modeling should be considered. If model response is expected to be similar at both high and low(er) resolution, then high resolution modeling may not be necessary.

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[15] EPA, HQ-OAR-0500-0572

[16] *Id.*

[17] http://www.midwestozonegroup.com/files/ModelPerformanceReviewatMonitorswithComplexMeteorologyLand-WaterInterfaces.pdf)

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).[18] (emphasis added)

In its modeling, EPA simulated a national domain using a 12km grid resolution domain wide. While this makes performing a national, regional simulation easier from a technical perspective, the result is to neglect the important issue of the complex meteorology and/or land-water interfaces in or near the nonattainment or maintenance monitors of interest. Photochemical modeling along coastlines is complex. First, the temperature gradients along land/water interfaces can lead to localized on-shore/off-shore flows. Secondly, the photochemical model formulation spreads the emissions in a grid cell throughout the full grid volume of the cell.

Given the importance of certain monitors located in areas of complex meteorology, an analysis was conducted by Alpine to examine the performance of the model when compared against observations. Alpine also examined how the model results are used in the attainment test calculation and used to determine estimated future attainment status. Figures F and G set forth below, present two unique areas in the eastern U.S. that are challenged by these complex meteorology land-water interfaces. For each monitor, Alpine has reviewed the EPA published model performance evaluation (MPE) metrics for ozone and compared them to additional MPE metrics from the same modeling platform.

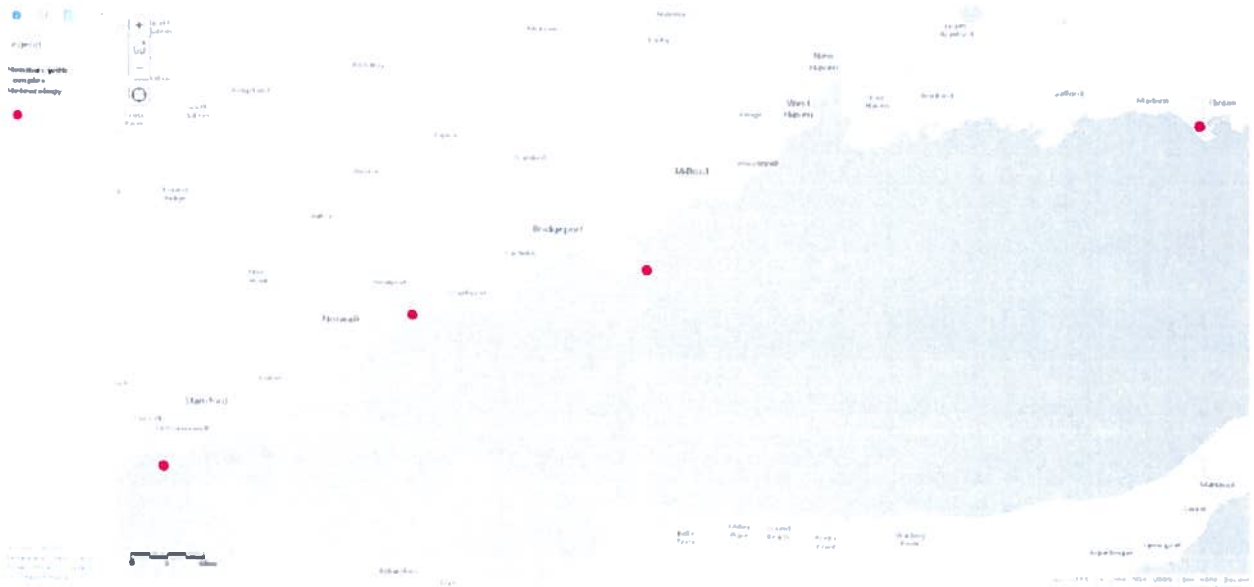

Figure F. Connecticut monitors located on land/water interface.

[18] *Id.*

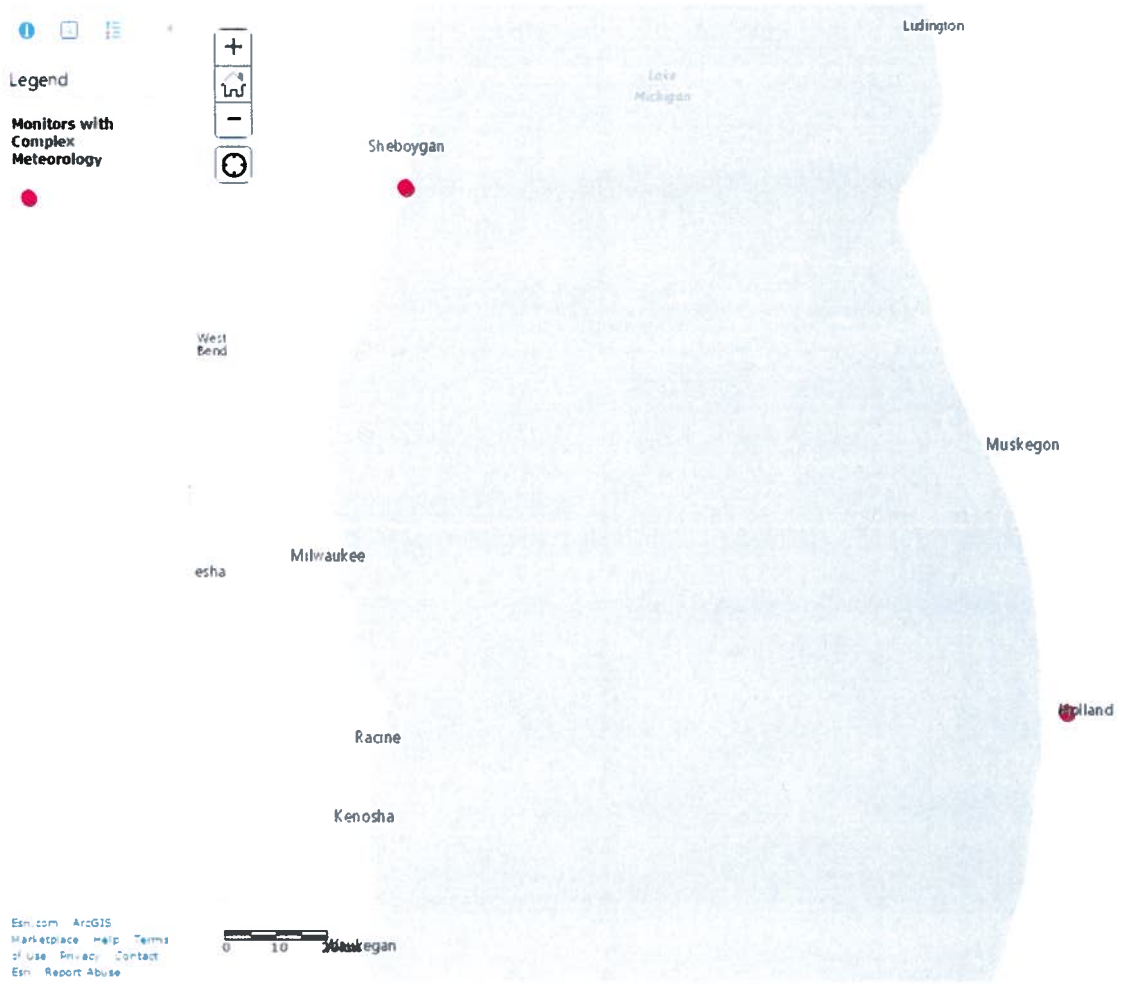

Figure G. Wisconsin and Michigan monitors located on land/water interface.

In examining each of these monitors Alpine notes that a portion of the grid cell is located over or adjacent to a water body. Studies indicate that air quality forecast models typically predict large summertime ozone abundances over water relative to land in the Great Lakes region. Studies also indicate that meteorology around the Long Island Sound is distinctly unique. Both areas warrant individualized attention and the fine grid resolution to best account for these issues.

Of note is the fact that the 3x3 neighborhood of grid cells used in determining the design values of the relative response factor (RRF) extends into the water bodies. Under current guidance, the top ten modeled days within this 3x3 matrix are used to determine the RRF for each monitor. Alpine has reviewed the performance on the days selected for use in the RRF calculation for the grid cells determined to have been used in the attainment test.

Six monitors were initially identified for this review and are listed in the report with EPA's performance metrics for days observed at or above 60 ppb as documented in the Air Quality Technical Support Document (AQTSD). EPA notes that the performance evaluation was

conducted comparing observed concentration data with the modeled concentration data simulated in the grid cell in which the monitor was located. Considering all days observed at or above 60 ppb, both the normalized mean bias (NMB) and normalized mean error (NME) fall within the thresholds identified above. Based on this broad indicator of model performance (all days observed at or above 60 ppb) the model appears to be performing adequately.

It is also important to understand how the model is performing on the days that are being used in the attainment demonstration. As suggested in the draft EPA modeling guidance, and used in the CSAPR Update proposed rule, only the top 10 days with the highest modeled concentration in the vicinity of the monitoring site are considered.

In its study, Alpine has generated the performance metrics for these three example monitors using the days selected in the modeled attainment test software (MATS) attainment test, and for days selected for the MATS attainment test with the associated grid cell concentration actually used in the RRF calculation (max concentration in the 3x3 grid).

Performance metrics have also been calculated for the 10 RRF days revealing that the over-land sited concentrations have much lower bias and error values than the over-water sited concentrations. And while it is recognized that the base year grid cell and future year grid cell will be paired (as used in the relative sense), the resulting RRF could show more or less responsiveness in emissions changes relative to the ozone concentrations at each associated location. The report also notes that, while the EPA performance evaluation and metrics are based on the ability of the model to simulate observed concentrations where the measurement is taken, in each example presented, the highest concentrations are dominantly selected from over-water locations.

Based on these results and on EPA's own guidance related to finer grid cell size selection for areas demonstrating a combination of complex meteorology, strong gradients in emissions sources, and/or land-water interfaces in or near the nonattainment area(s), Alpine finds that the ozone concentrations selected at these land/water boundary locations are insufficiently accurate, in both bias and error, to be considered as representative of the daily concentrations observed and for the ten days selected for the RRF calculation.

It is Alpine's conclusion that this poor performance will have a direct impact on the future year attainment demonstration and significant contribution calculations that use these values as their basis.

In its response to this comment offered in connection with the CSAPR Update, EPA recognized that MOG offered a comment that "the relative response factors for coastal sites should be based on modeled ozone in the grid cell containing the monitoring site or 'land' cells only, rather than the grid cell with the highest 2011 base case modeled value from among the 3

by 3 matrix of grid cells surrounding the monitoring site (i.e., the 3 x 3 matrix approach)."[19] EPA also recognized that "[s]ome commenters said that using the 3 x 3 approach for coastal sites can result in the use of modeled data from grid cells over-water, which the commenters claim are not representative of the location of the monitor. EPA published a lengthy response to those comments, principally noting that EPA's comparison of "land" versus "water" cells found that, of the 8 coastal sites examined, half had water cell values lower than or within 0.5 ppb of the corresponding land cell. EPA concluded that it would not be appropriate to use different approaches in coastal areas. This conclusion is problematic from a regulatory perspective because 0.5 ppb is more than enough to eliminate several of the areas of concern.

MOG strongly urges EPA to reconsider its approach to assessing locations affected by a land/water interface.

4. EPA should reassess its assumption that the CPP will necessarily be implemented in the near future.

The Clean Power Plan has been stayed by the Supreme Court and is the subject of an Executive Order directing that it be reviewed and, if appropriate, as soon as practicable, suspend, revise or rescind the rule.[20] MOG urges that EPA reconsider its assumption about the effect of this program on emission inventory predictions for 2023.

5. EPA has an obligation to align the dates for development of Good Neighbor SIPs with the date for the imposition of legally mandated controls.

We note with interest the affidavit submitted by Assistant Administrator McCabe in the litigation involving the challenge to the Kentucky Good Neighbor SIP in which Assistant Administrator McCabe stated:

> In order to establish the appropriate future analytic year for purposes of the EPA's analysis, including the air quality modeling, the EPA considers several factors related to anticipated compliance timing of the rulemaking. It is essential to consider how best to align the future analytic year with compliance timing in order for the assessment of significant contribution to nonattainment and interference with maintenance to align with the identified air quality challenge. Compliance timing is informed by the D.C. Circuit's decision in *North Carolina*, where the court held that the EPA should align implementation of its interstate transport rules with a date by which states are required to demonstrate attainment with the applicable NAAQS. 531 F.3d at 911-12. However, the determination as to how to align implementation with the attainment is not ready-made. Rather, the EPA considers several factors including the relevant

[19] 81 Fed. Reg. 74534 (January 27, 2016).
[20] Executive Order: Promoting Energy Independence and Economic Growth, March 28, 2017, §4.

> attainment dates for the NAAQS, timelines necessary for installing appropriate control technologies, whether or not emission reductions preceding the relevant attainment dates (if possible) would further assist downwind areas in demonstrating attainment and maintenance of the NAAQS, or in the event that emission reductions are not feasible by the relevant attainment deadline, what date is as soon as practicable for EPA to require reductions following the relevant attainment deadline.[21]

Equally significant is the following statement appearing in EPA's brief in the same litigation:

> Nonetheless, EPA is mindful of the need to align implementation of emission reductions in upwind states with the applicable attainment dates in downwind areas, as instructed by the court in *North Carolina v. EPA*, 531 F.3d 896, 911-12 (D.C. Cir. 2008).[22]

MOG strongly urges the agency to follow the court holding *North Carolina v. EPA*, 531 F.3d 896, 911-12 (D.C. Cir. 2008), and to align implementation of Good Neighbor SIPs with the date by which states are required to demonstrate attainment with the applicable NAAQS. As the focus on attainment of the 2015 ozone NAAQS continues, there must be an official recognition that air quality will continue to improve between the 2018 due date for Good Neighbor SIPs and the 2023 attainment deadline as a result of CAA programs including Federal Measures, federally mandated state RACT rules, nonattainment infrastructure SIPs, and Good Neighbor SIPs. While the Federal measures, state RACT rules, and nonattainment infrastructure SIPs will all significantly improve air quality in the Ozone Transport Region (OTR), 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 in Good Neighbor SIPs will result in over-control of upwind states, which MOG asserts is illegal given the Supreme Court decision in *EPA v. EME Homer City Generation* in which stands for the proposition that EPA cannot require an upwind state to reduce its output of pollution by more than necessary to achieve attainment in every downwind state. The Good Neighbor SIP is a "down payment" on attainment and not a stand-alone attainment program. Numerous control programs will take effect now and between the 2018 Good Neighbor SIP due date and the 2023 attainment deadline. The Good Neighbor SIPs that are due in 2018 must take into account the impact of legally mandated controls on air quality by the attainment date to avoid violating the CAA prohibition against over-control.

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[21] Declaration of Janet D. McCabe, at ¶81.

[22] Defendant EPA's Reply to Plaintiff's Opposition to EPA's Cross-Motion for Summary Judgment, Sierra Club v. EPA, Case No. 3:15-cv-JD, Sept. 22, 2015) ED No. 68, p. 7.

As discussed elsewhere in these comments, the OTC is currently addressing a number of significant sources of ozone precursor emissions, including HEDD, RACT, Tier 3, aftermarket catalysts, lightering, and SmartWay, among others. MOG urges EPA to convert the results of these programs to quantified ozone precursor reductions so the subsequent air quality benefits can be developed and accounted for in Good Neighbor SIP submittals.

6. **EPA's methodology for selection and management of impact on maintenance receptors is fatally flawed.**

EPA's reliance on the CSAPR methodology to address "interference with maintenance" is not only inconsistent with the CAA, but also inconsistent with both the U.S. Supreme Court and D.C. Circuit decisions on CSAPR. Upon consideration of the reasonableness test, EPA's emphasis upon the single maximum design value to determine a maintenance problem for which sources (or states) must be accountable creates a default assumption of contribution. A determination that the single highest modeled maximum design value is appropriate for the purpose to determining contribution to interference with maintenance is not reasonable either mathematically, in fact, or as prescribed by the Clean Air Act or the U.S. Supreme Court. The method chosen by EPA must be a "permissible construction of the Statute." The CSAPR methodology proposed for use in this NODA is not reasonable in its application, resulting in requirements beyond the CAA and therefore must be revised.

As noted previously in these comments, the U.S. Supreme Court in EPA v. EME Homer City, explains the maintenance concept set forth in the Good Neighbor Provision as follows:

> Just as EPA is constrained, under the first part of the Good Neighbor Provision, to eliminate only those amounts that "contribute…to *nonattainment*," EPA is limited, by the second part of the provision, to reduce only by "amounts" that "interfere with *maintenance*," *i.e.* by just enough to permit an already-attaining State to maintain satisfactory air quality."[23].

Relative to the reasonableness of EPA's assessment of contribution, the U.S. Supreme Court also provides,

> The Good Neighbor Provision . . . prohibits only upwind emissions that contribute significantly to downwind nonattainment. EPA's authority is therefore limited to eliminating . . . the overage caused by the collective contribution . . ."[24] (Emphasis added.)
>
> . . . the Good Neighbor Provision . . . requires EPA to eliminate amounts of upwind pollution that "interfere with maintained" of a NAAQS by a downwind State. §7410(a)(2)(D)(i). This mandate contains no qualifier analogous to "significantly," and

[23] 134 S. Ct. at 1064, Ftn 18.
[24] *Id.* at 1604.

yet it entails a delegation of administrative authority of the same character as the [the nonattainment language of the Good Neighbor Provision]. Just as EPA is constrained, under the first part of the Good Neighbor Provision, to eliminate only those amounts that "contribute . . . to *nonattainment*," EPA is limited, by the second part of the provision, to reduce only by "amounts" that "interfere with *maintenance*," *i.e.*, by just enough to permit an already-attaining State to maintain satisfactory air quality. (Emphasis added.) With multiple upwind States contributing to the maintenance problem, however, EPA confronts the same challenge that the "contribute significantly" mandate creates: How should EPA allocate reductions among multiple upwind States, many of which contribute in amounts sufficient to impede downwind maintenance? Nothing in *either* clause of the Good Neighbor Provision provides the criteria by which EPA is meant to apportion responsibility."[25]

The Supreme Court provides that lacking a dispositive statutory instruction to guide it, EPA's decision on the designation of significant contribution must meet the reasonableness test of the *Chevron* decision for filling the gap left open by Congress.[26] Upon consideration of the reasonableness test, EPA's emphasis upon the single maximum design value to determine a maintenance problem for which sources (or states) must be accountable, creates a default assumption of contribution. A determination that the single highest modeled maximum design value is appropriate for the purpose to determining contribution to interference with maintenance is not reasonable either mathematically, as policy, or as prescribed by the Clean Air Act or the U.S. Supreme Court. The method chosen by EPA must be a "permissible construction of the Statute." [27]

EPA's use of a modeled maximum design value, when the average design value is below the NAAQS, to define contribution, results in a conclusion that any modeled contribution is deemed to be a significant interference with maintenance. This concept is inconsistent with the Clean Air Act and the U.S. Supreme Court's assessment of its meaning.

As noted by the D.C. Circuit in the 2012 lower case of EME Homer City v. EPA, "The good neighbor provision is not a free-standing tool for EPA to seek to achieve air quality levels in downwind States that are *well below* the NAAQS."[28] "EPA must avoid using the good neighbor provision in a manner that would result in unnecessary over-control in the downwind States. Otherwise, EPA would be exceeding its statutory authority, which is expressly tied to achieving attainment in the downwind States."[29] EPA has not justified its proposal as necessary to avoid interference with maintenance.

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[25] *Id.* at 1604, Ftn 18.
[26] *Id.* at 1604.
[27] *Id.* at 1606.
[28] EME Homer City v. EPA, 696 F.3d 7, 22 (D.C. Cir 2012).
[29] *Id.*

It is significant to MOG and should be instructive to EPA that a careful process has existed for many years related to the identification and management of maintenance areas.

Indeed, Section 175A of the Clean Air Act provides:

(a) Plan revision

> Each State which submits a request under section 7407 (d) of this title for redesignation of a nonattainment area for any air pollutant as an area which has attained the national primary ambient air quality standard for that air pollutant shall also submit a revision of the applicable State implementation plan to provide for the maintenance of the national primary ambient air quality standard for such air pollutant in the area concerned for at least 10 years after the redesignation. The plan shall contain such additional measures, if any, as may be necessary to ensure such maintenance.

Moreover, the agency's principal guidance on the management of maintenance areas is set forth in "Procedures for Processing Requests to Redesignate Areas to Attainment," which contains the following statement,

> A State may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory, or by modeling to show what the future mix of source and emission rates will not cause a violation of the NAAQS. Under the Clean Air Act, many areas are required to submit modeled attainment demonstrations to show that proposed reductions in emissions will be sufficient to attain the applicable NAAQS. For these areas, the maintenance demonstration should be based upon the same level of modeling. In areas where no such modeling was required, the State should be able to rely on the attainment inventory approach. In both instances, the demonstration should be for a period of 10 years following the redesignation.[30]

This guidance has been applied in several specific circumstances including the Denver Metropolitan Area where the submitted plan offered the following statement:

> As required by CAA Section 175A(a), each request for redesignation shall be accompanied by a SIP revision which provides for maintenance of the NAAQS for at least 10 years after redesignation. Following EPA guidance and policy (September 4, 1992 EPA memorandum from John Calcagni to EPA regional offices), this maintenance demonstration is made by comparing projected 2006 and 2013 emissions with the

[30] Memorandum from John Calcagni to EPA Regional Offices, "Procedures for Processing Requests to Redesignate Areas to Attainment," (Sept. 4, 1992).

attainment year 1993 emissions. If 2006 and 2013 emissions are less than 1993 emissions, then maintenance is demonstrated.[31]

Similarly the plan submitted for Washoe County offered the following statement:

> A key element of this maintenance plan is the demonstration of how Washoe County will remain in compliance with the 8-hour ozone standard for the 10-year period following the effective date of designation as attainment. Washoe County's effective date of designation is June 15, 2004, therefore this maintenance plan projects attainment through 2014.[32]

Given the clear statutory and regulatory directive for the management of maintenance areas, we urge EPA to apply the same approach to the development of this data and to the development of any SIP or new transport rule. As is set forth in Figure H, we have provided the current design values for all problem monitors along with EPA's future year project for each area identified in the proposal. [33]

		Ozone DV (ppb)	
		3-yr Avg	2023 NODA
Site ID	Name	2014-16	Avg
240251001	Harford, Maryland	73	71.3
360850067	Richmond, New York	76	71.2
361030002	Suffolk, New York	72	71.3
551170006	Sheboygan, Wisconsin	79	71.0
90013007	Fairfield, Connecticut	81	69.4
90019003	Fairfield, Connecticut	85	70.5
90099002	New Haven, Connecticut	76	69.8
260050003	Allegan, Michigan	75	68.8
261630019	Wayne, Michigan	72	69.6
360810124	Queens, New York	69	69.9

Figure H. Design Values for Maintenance Monitors.

[31] Ozone Redesignation Request and Maintenance Plan for the Denver Metropolitan Area, January 2001.
[32] Maintenance Plan for the Washoe County 8-Hour Ozone Attainment Area, April 2007.
[33] See Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone, September 2015, p. 2A-42 which can be found at: http://www3.epa.gov/ozonepollution/pdfs/20151001ria.pdf.

Given the near and longer term attainment status of the maintenance monitors relative to the 70 ppb standard, any additional emission reductions to address maintenance monitors would result in over-control and be prohibited.

EPA's stated approach to identifying maintenance areas is fundamentally different from that used to identify nonattainment areas.[34] Specifically, EPA offers the following explanation of how it will identify maintenance areas:

> Using the approach in the final CSAPR Update, EPA evaluated the 2023 projected average and maximum design values in conjunction with the most recent measured ozone design values (i.e., 2013-2015) to identify sites that may warrant further consideration as potential nonattainment or maintenance sites in 2023. If the approach in the CSAPR Update is applied to evaluate the projected design values, those sites with 2023 average design values that exceed the NAAQS (i.e., 2023 average design values of 71 ppb or greater)11 and that are currently measuring nonattainment would be considered to be nonattainment receptors in 2023.
>
> Similarly, with the CSAPR Update approach, monitoring sites with a projected 2023 maximum design value that exceeds the NAAQS would be projected to be maintenance receptors in 2023. In the CSAPR Update approach, maintenance-only receptors include both those monitoring sites where the projected 2023 average design value is below the NAAQS, but the maximum design value is above the NAAQS, and monitoring sites with projected 2023 average design values that exceed the NAAQS, but for which current design values based on measured data do not exceed the NAAQS.

By comparison, EPA properly proposes to identify nonattainment areas taking into account monitoring data. Consequently, MOG very strongly asserts that monitoring data is vital to the assessment of maintenance areas. MOG urges EPA to incorporate monitoring data in the identification of maintenance areas, as well.

In sum, MOG requests that EPA reconsider its approach for identifying and managing maintenance receptors.

7. In the development of its guidance to the states, EPA should not give maintenance areas the same weight and status as to nonattainment areas.

EPA should avoid its past practice of giving the same weight to the development of controls programs for maintenance areas as nonattainment areas as it considers the guidance it will give to the states to address the 2015 ozone NAAQS. Maintenance areas should not be subject to the same "significance" test as is applied to nonattainment areas. Maintenance areas

[34]EPA-HQ-OAR-2016-0751-0036, p. 8.

do not require the same emission reduction requirements as nonattainment areas, and therefore, require different management.

In the CSAPR Update rule, EPA again applied the nonattainment area significance test to maintenance areas. The CSAPR Update applies the same weight to the development of control programs to address maintenance areas as it does nonattainment areas. This approach is objectionable both because maintenance areas are not subject to the same "significance" test as applies to nonattainment areas and because maintenance areas do not require the same emission reduction requirement as nonattainment areas.

The U.S. Supreme Court opinion in EPA v. EME Homer City offered the following on "interference with maintenance,"

> The statutory gap identified also exists in the Good Neighbor Provision's second instruction. That instruction requires EPA to eliminate amounts of upwind pollution that "interfere with maintenance" of a NAAQS by a downwind State. §7410(a)(2)(D)(i). This mandate contains no qualifier analogous to "significantly," and yet it entails a delegation of administrative authority of the same character as the one discussed above. Just as EPA is constrained, under the first part of the Good Neighbor Provision, to eliminate only those amounts that "contribute . . . to *nonattainment*," EPA is limited, by the second part of the provision, to reduce only by "amounts" that "interfere with *maintenance,*" i.e., by just enough to permit an already-attaining State to maintain satisfactory air quality. (Emphasis added). With multiple upwind States contributing to the maintenance problem, however, EPA confronts the same challenge that the "contribute significantly" mandate creates: How should EPA allocate reductions among multiple upwind States, many of which contribute in amounts sufficient to impede downwind maintenance" Nothing in *either* clause of the Good Neighbor Provision provides the criteria by which EPA is meant to apportion responsibility.[35]

The D.C. Circuit opinion in EME Homer City v. EPA, also sheds light upon the maintenance issue:

> The statute also requires upwind States to prohibit emissions that will "interfere with maintenance" of the NAAQS in a downwind State. "Amounts" of air pollution cannot be said to "interfere with maintenance" unless they leave the upwind State and reach a downwind State's maintenance area. To require a State to reduce "amounts" of emission pursuant to the "interfere with maintenance" prong, EPA must show some basis in evidence for believing that those "amounts" from an upwind State, together with amounts from other upwind contributors, will reach a specific maintenance area in a downwind State and push that maintenance area back over the NAAQS in the near future. Put simply, the "interfere with maintenance" prong of the statute is not an open-ended

[35] 134 S. Ct. at 1064, Ftn 18.

invitation for EPA to impose reductions on upwind States. Rather, it is a carefully calibrated and commonsense supplement to the "contribute significantly" requirement.[36]

MOG urges EPA to abandon use of an appropriate test for "interference" with maintenance and develop an alternative emission reduction approach that accounts for the fact that maintenance areas are already in attainment. EPA cannot reasonably justify the same level of emission reductions as might be called for with respect to nonattainment areas for maintenance areas. EPA does not address the fact that the CAA uses different terms to address maintenance and nonattainment, i.e., "significant contribution to non-attainment versus "interfere with maintenance." EPA improperly implements the terms "significant" and "interference" as being the same and in doing so offers no rationale or legal justification.

While both maintenance and nonattainment areas are subject to the protection of 110(a)(2)(D)(i) there is an open question about what level of control may be necessary to avoid "significant contribution" versus "interference with maintenance." MOG therefore requests that EPA reconsider the weight it has historically given to maintenance versus nonattainment areas for the control program analysis to arrive at a reasonable program.

8. EPA's selection of 2011 as the base year for its analysis is inappropriate and outdated.

On December 2016, EPA released an up-to-date, state-of science, National Emission Inventory (NEI) for calendar year 2014 (2014 NEI). According to the Technical Support Document (TSD) associated with this release, "The NEI is created to provide the EPA, federal, state, local and tribal decision makers, and the national and international public the best and most complete estimates of CAP and HAP emissions."[37]

Historically, EPA has used the most current emission inventory in the development of a modeling platform as the basis of emission projections used in regulatory analyses. EPA should not retain a 2011 base year emission inventory and associated modeling platform. A more current and updated emission inventory is available in the form of the 2014 NEI includes state inventory updates and emission model outputs (e.g., MOVES and NONROAD). In fact, in the TSD, when describing file availability for the 2014 NEI, EPA notes that "[t]hese flat files are the emissions for the 2014 NEI and can be input into SMOKE for processing for air quality modeling."

Using this most current version of emission estimates removes any uncertainty involved with control technology or strategy implementation between the previous base year of 2011 and the currently available base year of 2014. The updated NEI reduces the uncertainty involved with emission projections developed from that historical base year.

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[36] EME Homer City v. EPA, 96 F.3d 7, 27 Ftn. 25 (D.C. Cir 2012).
[37] https://www.epa.gov/sites/production/files/2016-12/documents/nei2014v1_tsd.pdf

In its draft modeling guidance for demonstrating attainment for ozone, EPA states that "In most cases, the most recent NEI year will be the most appropriate year to use for base case modeling." Since the 2014 NEI has been made available by EPA, it can be argued that this is the most appropriate base year available and should be used. [38]

Meteorological conditions also need to be taken into consideration when selecting a base year and as has been documented by NOAA.[39] 2011 was identified as one of the hottest and driest years on record to date. By comparison, 2014 represents more "average" conditions (by historical rank) for both temperature and precipitation. The abnormal conditions in 2011 across much of the eastern U.S., while conducive to generating significantly elevated ozone concentration, fail to adequately represent normal meteorology that would provide significantly different ozone concentration and transport patterns. Figure I below provides historical State level ranking of temperature and precipitation for the months of April through September 2011 and 2014.

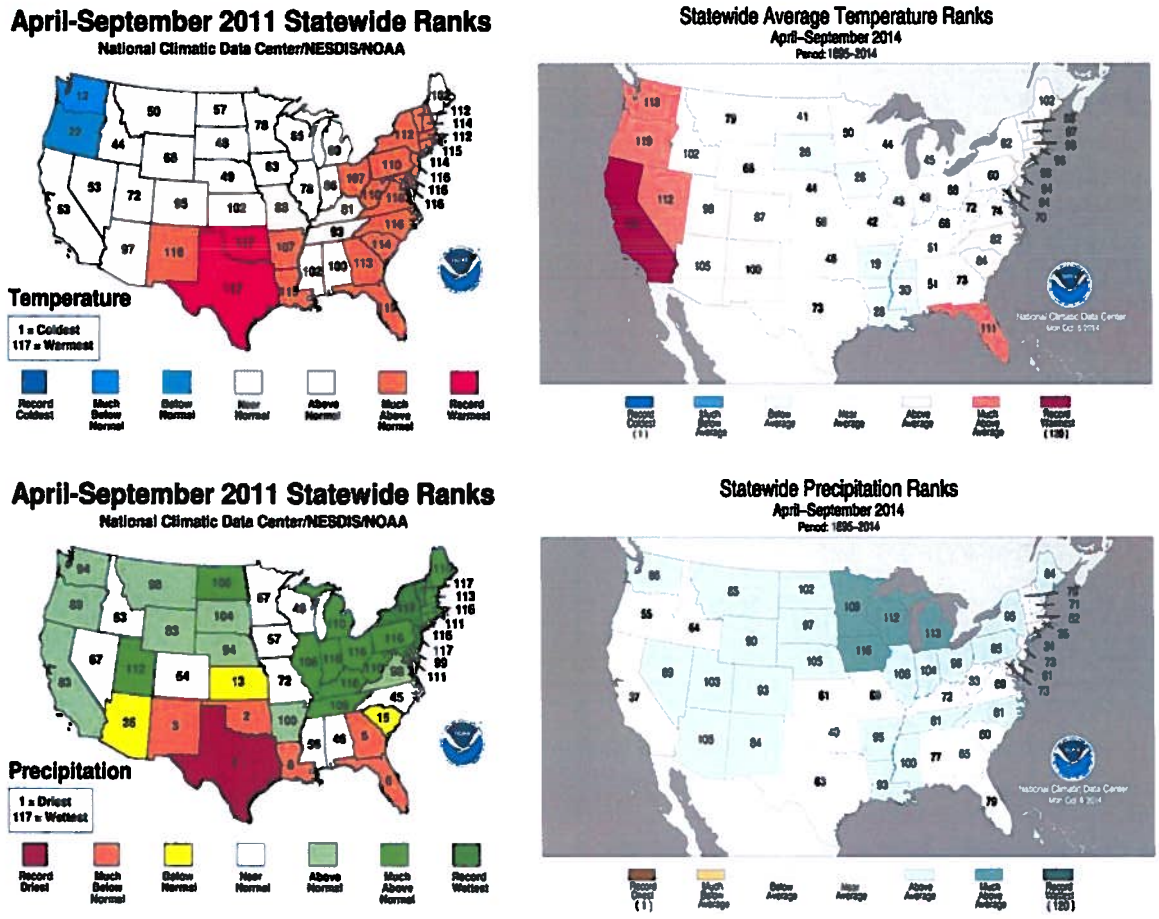

Figure I. State level ranking of April-September 2011 and 2014 temperature and precipitation.

[38] https://www3.epa.gov/ttn/scram/guidance/guide/Draft_O3-PM-RH_Modeling_Guidance-2014.pdf
[39] https://www.ncdc.noaa.gov/temp-and-precip/us-maps /

Also, EPA should not use a deterministic approach to modeling (using a single base year and associated meteorology). EPA should instead use an ensemble approach (multiple years, meteorological conditions, and emission inventories) to be consistent with design value calculation methods. By linking a single base year to an historically averaged design value (weighted across five years), EPA is failing to account for potentially significant emission changes locally, regionally, and/or nationally that occur in that time period and that could impact calculated future year design values and contribution calculations.

Additionally, as EPA has noted, EPA must choose the appropriate modeling platform in order to avoid over- or under-controlling upwind state emissions.[40] Using a more recent modeling platform than the 2011 base year used in the CSAPR Update would allow EPA to "re-anchor" the projected design values and contributions to more recently monitored data. Re-anchoring to a more recent base year will allow the EPA to include the more updated emissions inventories from the 2014 NEI and more accurate data on non-EGU emissions.[41]

EPA summaries of national and state level Tier 1 category 2011 and 2014 emissions and emission trends demonstrate the magnitude and direction in emissions between these two years.[42] Figure J below shows the significant national, annual reduction of NOx emissions by category between 2011 and 2014.

[40] Declaration of Janet D. McCabe at ¶¶135-36.
[41] Defendant EPA Memorandum in Opposition to Plaintiff's and Plaintiff Intervenor's Motions for Summary Judgment and In Support of EPA's Cross-Motion for Summary Judgment, Declaration of Dunham, Sierra Club v. Gina McCarthy, Case No. 3:15-cv-04328-JD, (N.D. Cal. Sept. 22, 2015) ECF No. 63, ¶15.
[42] https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data

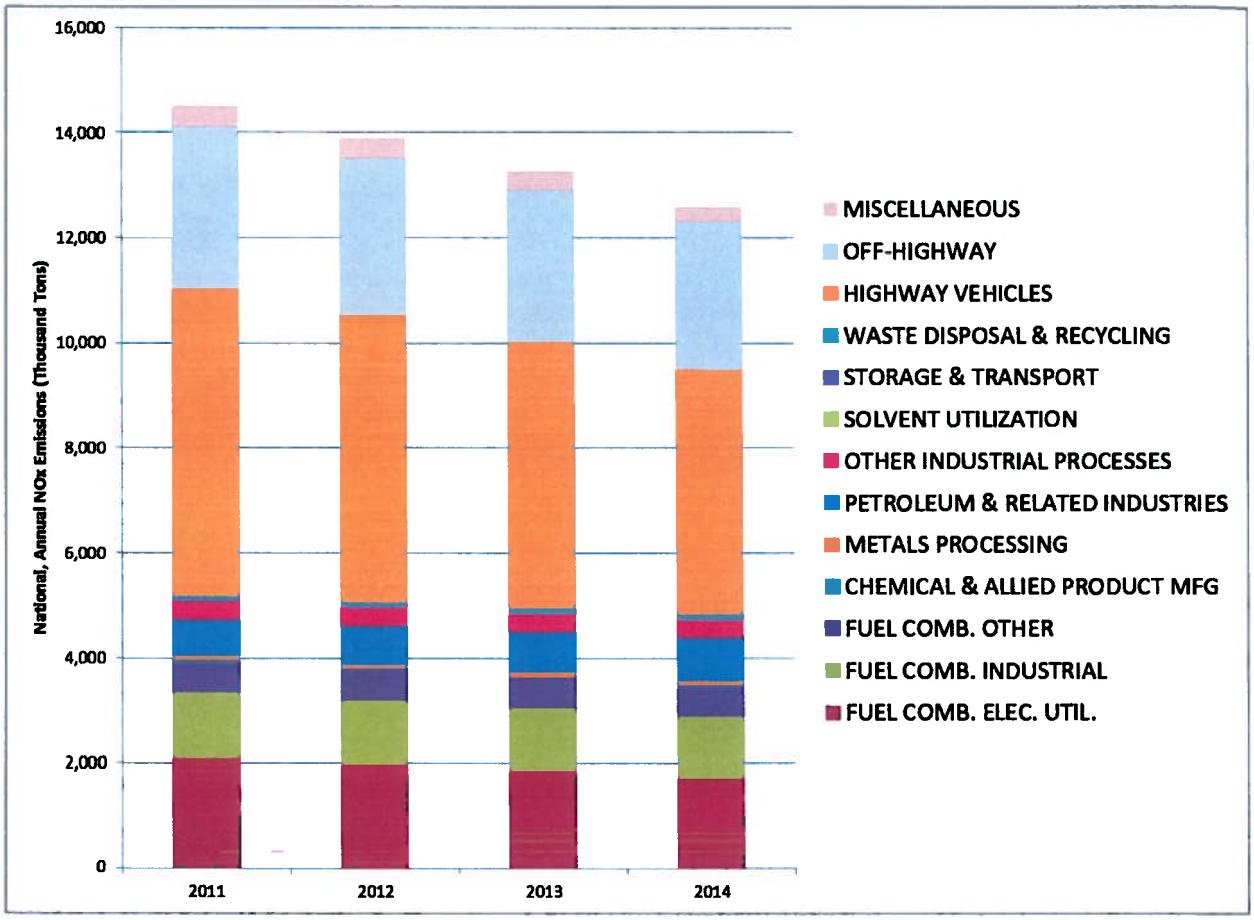

Figure J. EPA published national, annual NOx emission trends, 2011 through 2014.

By failing to acknowledge this change in emissions and the controls installed to accomplish these reductions, EPA is consciously deciding not to incorporate state-of-knowledge information. The trends data plays an important role in the significant contribution calculations both when these data are projected to a future year, and when used to identify potential emissions reduction requirements options. Absent the information available in the 2014 inventories, states, in attempts to reach a non-significant threshold of contribution may under- or over-control their sources.

Given the facts that a newer, more recent, nationally consistent emission inventory and modeling files are available for use in modeling and that 2011 was considered to be an abnormal year for temperature and precipitation across much of the eastern continental U.S., MOG strongly urges EPA to use a 2014 base year modeling platform for air quality and transport analyses for the imminent modeling associated with the 2015 ozone NAAQS.

9. EPA's assessment of which states are significant contributors to downwind nonattainment areas is flawed.

According to EPA's air quality modeling technical support document, EPA performed nationwide, state-level ozone source apportionment modeling using the comprehensive Air Quality Model with Emissions ("CAMx") Ozone Source Apportionment Technology/Anthropogenic Precursor Culpability Analysis (OSAT/APCA) technique to provide information on the expected contribution of 2023 base case NOX and VOC emissions from all anthropogenic sources in each state to projected 2023 ozone concentrations at each air quality monitoring site.[43] EPA also footnotes the fact that "[a]s part of this technique, ozone formed from reactions between biogenic VOC and NOx with anthropogenic NOx and VOC are assigned to the anthropogenic emissions."

The CAA includes no specifics regarding establishment of a significance level applicable to interstate transport. There is no further guidance under the CAA to define "amounts [of emissions] which will contribute significantly to nonattainment in, or interfere with maintenance by, any other state with respect to any such primary or secondary ambient air quality standard ...." EPA established the 1% significance level in its June 11, 2011 promulgation of CSAPR and has done so again in this notice.

As explained below, these EPA decisions generate a flawed significant contribution calculation for upwind states on downwind monitors.

10. EPA's use of the APCA technique to determine significant contribution is inappropriate because it improperly includes sources other than anthropogenic.

Source apportionment technology is used to estimate the contribution of source regions, and the emission categories within those regions, to receptor sites at downwind locations. Within the air quality model used by EPA in calculating future year nonattainment, there exist two alternate techniques that can be used in developing source attribution results; the Ozone Source Apportionment Technology (OSAT) and the Anthropogenic Precursor Culpability Assessment (APCA). These two source apportionment techniques are complementary, but are not interchangeable.

In their brief of February 22, 2017, EPA states that "ozone contribution levels are based on the modeled impacts from all anthropogenic (man-made) emissions sources in the state, including EGUs, non-EGUs, and mobile sources."[44] No mention is given to ozone formed from reactions between biogenic and anthropogenic NOx and VOC.

According to the CAMx model documentation, the OSAT technique provides a more robust picture of which emissions sources are contributing to ozone formation because it specifically apportions ozone individually to all source categories, including the "uncontrollable"

[43] EPA-HQ-OAR-2016-0751-0036.

[44] Defendant EPA Reply to Plaintiff's and Plaintiff-Intervenor's Opposition to EPA's Cross-Motion for Summary Judgment, Sierra Club v. Gina McCarthy, Case No. 3:15-cv-04328-JD, (N.D. Cal. Sept. 22, 2015) ECF No. 68.

(e.g., biogenics in EPA's modeling) component. This allows for a separation of attribution for anthropogenic and biogenic contribution to a downwind monitor's modeled concentration.

The APCA technique, according to CAMx documentation, is better used in the development of control strategies because it apportions some biogenic emissions to anthropogenic sources in the case where biogenic emissions react with anthropogenic sources. If the modeling were to be used exclusively for the development of a control strategy or regulation to address nonattainment, APCA may be the more appropriate technique. However, because the main purpose of the modeling documented in the NAAQS NODA is the calculation and assignment of relative contribution and not control strategy development for attainment of the NAAQS and EPA's own statements indicate that ozone contribution levels are to be based on anthropogenic emissions only, the OSAT method is the preferred and more accurate approach.

11. If a 1% significance level for the 70 ppb NAAQS were to be finalized, it should be set at 0.71ppb and not 0.70 ppb as proposed by EPA.

Even if EPA elects to stay with a 1% significance level, EPA has incorrectly determined what the significance level should be to implement the applicable NAAQS. While EPA acknowledges that for there to be a violation of the applicable NAAQS, design values must be "greater than or equal to 71.0 ppb," EPA proposes to set that significance level in this rule-making at a level of 0.70 ppb.[45] This proposal is incorrect in that a concentration of 70.9 ppb would be considered attainment under the applicable NAAQS and 1% of that concentration is 0.709 ppb. EPA itself truncates ozone values. For example, for a design value of 70.9 for the 8-hour ozone NAAQS, EPA truncates that to 70 ppb which is attainment, whereas design values at or above 71.0 ppb are considered to exceed the NAAQS.[46] In recognition of the fact that DVs up to and including 70.9 ppb demonstrate attainment of the 2015 ozone NAAQS, a proper application of a 1% of the NAAQS threshold for that NAAQS would have to reflect that any contribution below 0.71 ppb. – i.e., any contribution up to and including 0.709 ppb – would, by definition, not be significant. Thus, if EPA were to apply a one-percent-of-NAAQS contribution threshold with respect to the 2015 ozone NAAQS – which, for the reasons described above EPA should not do – the Agency should establish that threshold at 0.71 ppb rather than at 0.70 ppb.

12. The 1% significant threshold is inappropriate given modeling accuracy.

MOG opposes the use of the proposed one percent threshold, because EPA has not technically demonstrated that continued use of the one percent screening metric is appropriate for linking an upwind state to a downwind nonattainment or maintenance receptor. Dispersion models simply cannot calculate air quality within that range of accuracy and the costs at stake are too high to allow a level of significance that is within the capability of the models.

[45] 82 Fed. Reg. 1733, 1737 and 1740 (January 6, 2017).
[46] 82 Fed. Reg. at 1731, ftn. 11.

The CAA includes no specifics regarding establishment of a significance level applicable to interstate transport. CAA Section 110(a)(2)(d) requires that:

> "(2) Each implementation plan submitted by a State under this chapter shall be adopted by the State after reasonable notice and public hearing. Each such plan shall—
> ...
> (D) contain adequate provisions—
> (i) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will—
> (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or
> (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C of this subchapter to prevent significant deterioration of air quality or to protect visibility,
> (ii) insuring compliance with the applicable requirements of sections 7426 and 7415 of this title (relating to interstate and international pollution abatement);..."

EPA's initial interpretation of the Clean Air Act Section 110(a)(2)(D) test for significant contribution to nonattainment appeared in its 1998 NOx SIP call. In both the proposed and final NOx SIP Calls, EPA went to great lengths to explain that technical limitations, including the numerous different factors impacting transport, precluded it from establishing a "bright line" beyond which it could state that an upwind state's contribution to a downwind state's nonattainment constituted a "significant contribution" subject to regulation.[47]

Subsequently, in its 2005 CAIR, EPA began using a "1% of the total average contribution to exceedance of ozone in the downwind area of nonattainment" test. EPA explained that using both UAM-V and CAMX modeling platforms, the upwind states' contributions to downwind states' nonattainment could be grouped into three groups, with the contributions of the first group states all being above 1% of the downwind states nonattainment. In that rulemaking, EPA affirmatively stated that, if either the maximum contribution was less than 2 ppb from either of the two modeling techniques or the total average contribution to exceedance of ozone in the downwind area was less than 1 percent, "then the linkage was not considered significant."[48] The "1% of nonattainment" interpretation of significance test was in effect through the CAIR litigation.

CAIR was initially vacated in *North Carolina v EPA* but, in the initial vacatur decision, the DC Circuit only considered whether EPA's convention of rounding up screening

[47] 63 Fed. Reg. 57356, 57383 (October 27, 1998).
[48] 70 Fed. Reg. 25162, 25246 (May 12, 2005).

concentrations less than 1% to 1% was appropriate for the significance test.[49] In upholding EPA, the court stated that "EPA reasonably explained that its use of the rounding convention is 'commonplace' and 'customary' as well as a reasonable means of creating a "conservative" initial indicator that "cast[s] a wider net, with further winnowing to occur in subsequent steps when more detailed analysis is applied."[50]

In 2011, EPA promulgated the CAIR replacement, CSAPR. In the CSAPR rulemaking, EPA slightly revised the interpretation, then using a "1% of the NAAQS" test, which it stated was 0.8 ppb for 8-hour ozone.[51]

As is pointed out in these comments, there are serious concerns about the performance of EPA's model particularly with respect to all of the nonattainment monitors which coincidentally are located on a land-water interface which significantly complicates the accuracy of the model.

Given these and other uncertainties about the accuracy of EPA's modeling, MOG strongly urges that the significance level established in CSAPR and in this proposal be reconsidered and be increased to take account of these modeling limitations. In addition, setting a higher significance level is a useful approach for assurance that there is no over-control of emissions from upwind states.

13. International emissions must be addressed as an integral part of the assessment problem areas and the establishment of linkages with upwind states.

As an integral part of the agency's consideration of transport issues, EPA must assess the impact of natural and manmade international emissions. In doing so, EPA has the opportunity and duty to develop a reasonable and reasoned approach to the issue of international emissions to avoid prohibited over-control of emissions as a result of CAA 110(a)(2)(D) Good Neighbor SIPs.

Figures K and L below depict NAAQS NODA projected 2023 ozone design values (ppb) at monitors determined to be nonattainment or maintenance in the eastern states. These monitor locations are shown by EPA to be in nonattainment of both the 75 and 70 ppb NAAQS in terms of combined U.S. domain contributed emissions (those generated inside the continental U.S. modeling domain) and the initial & boundary conditions.[52]

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[49] North Carolina v. EPA, 531 F.3d 896 (2008).
[50] *Id.* at 913.
[51] 76 Fed. Reg. 48207, 48236 (August 8, 2011).
[52] Note: Conditions which are comprised of anthropogenic and natural sources of ozone and precursors emanating from outside the 36 km modeling domain, e.g., international transported anthropogenic and biogenic emissions, and a small amount of U.S. emissions which exit the regional model domain but get re-imported into the domain via synoptic-scale recirculation.

			2023 Ozone DV (ppb)		
Site ID	State	County	Base	Boundary and International Emissions	36 km Domain U.S. Emissions
240251001	Maryland	Harford	71.3	15.9	55.4
361030002	New York	Suffolk	71.3	18.9	52.4
360850067	New York	Richmond	71.2	18.6	52.6
551170006	Wisconsin	Sheboygan	71	17.4	53.6
90019003	Connecticut	Fairfield	70.5	18.6	51.9
360810124	New York	Queens	69.9	19.4	50.5
90099002	Connecticut	New Haven	69.8	17.6	52.2
261630019	Michigan	Wayne	69.6	25.8	43.8
90013007	Connecticut	Fairfield	69.4	16.9	52.5
260050003	Michigan	Allegan	68.8	11.6	57.2

Figure K. NAAQS NODA Projected Ozone Design Values for Nonattainment or maintenance monitors in the eastern states.

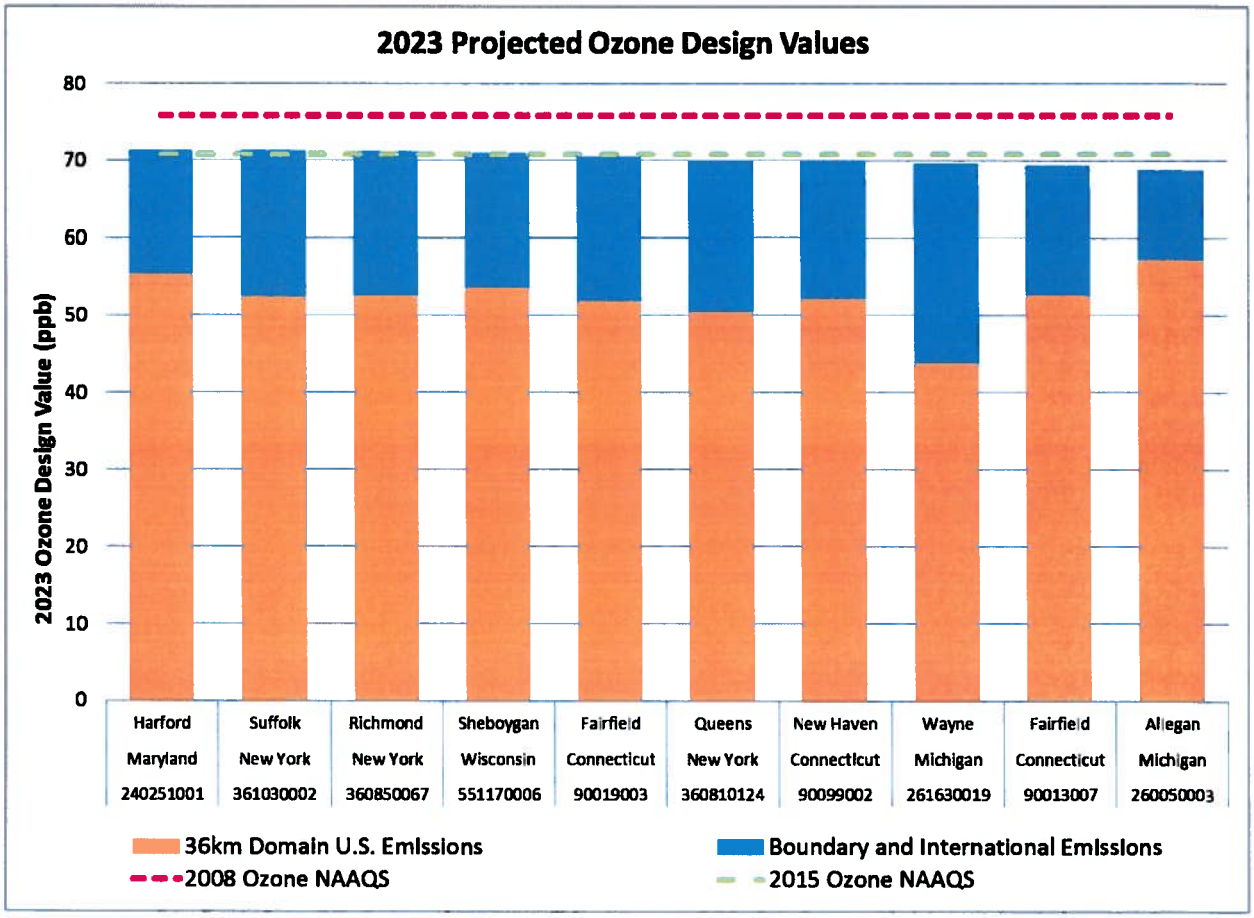

Figure L. 2020 Projected Ozone Design Values.

However, EPA's modeling data also show that "but for" boundary conditions and their international component, these critical monitors in the Northeast would be in attainment of both the 2008 and 2015 ozone NAAQS.

The CAA addresses international emissions directly. Section 179(B) subsection (a) states that:

> "Notwithstanding any other provision of law, an implementation plan or plan revision required under this chapter shall be approved by the Administrator if the submitting State establishes . . .that the implementation plan of such . . . would be adequate to attain and maintain the relevant [NAAQS] . . ., but for emissions emanating from outside of the United States.

If a state is able to demonstrate attainment "but for" international transport after adopting all reasonably available control measures, CAA Section 179(B) requires that EPA approve the CAA-required state implementation plan.

Addressing international emissions is important not only to downwind states such as the ones shown in these Figures K and L but also upwind states that are obligated to submit under CAA Section 110(a)(2)(D) Good Neighbor SIPs. As the U.S. Supreme Court in the Homer City case has ruled, 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... "EPA cannot require a State to reduce its output of pollution by more than is necessary to achieve attainment in every downwind State. . ."[53]

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." Slip op at 11 (2012). However, this "mess" seems to be related to international emissions for which upwind states have no responsibility.[54]

Figure M below was prepared by Alpine Geophysics for MOG and depicts projected 2023 8-hour ozone Design Values across the US excluding the international emissions sector. The exclusion of international emissions was executed for all such emissions whether from international border areas or beyond. Note that this projection shows all monitors in the continental US with a design value equal to or less than 57 ppb when international emissions are excluded. Modeling the US emissions inventory projected to 2023 but without the impact of uncontrollable international emissions demonstrates that the CAA programs in the US are performing as intended.

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[53] 134 S. Ct. at 1608.
[54] 696 F.3d at 14.

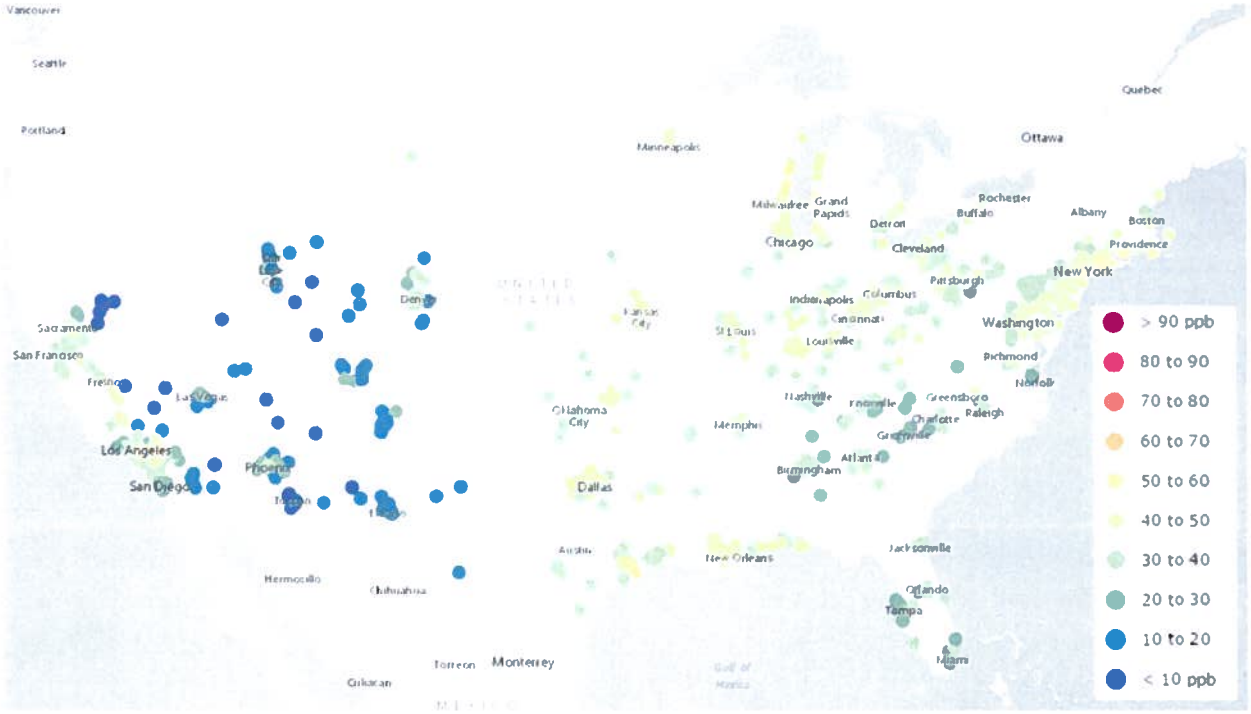

Figure M. Projected 2023 ozone design values (ppb) excluding the contribution from boundary condition, initial condition, Canadian and Mexican emission sources.

In addition to changing emissions resulting from growth and control in the continental U.S., EPA has identified updated projected emissions in both Canada and Mexico that have been integrated into the modeling platform used in this modeling.[55] EPA's modeling boundary conditions, however, have been held constant at 2011 levels. This is inconsistent with recent publications that indicate emissions from outside of the U.S., specifically from international transport, are on the rise. [56]

This figure does not show the full impacts of excluding U.S. background. Consequently, EPA must reconsider its selection of "problem" monitors to be considered as part of any Good Neighbor SIP guidance because any residual nonattainment is demonstrably attributable to international emissions.

14. Using source apportionment modeling, mobile sources are identified as the key contributors to NAAQS NODA identified monitors in downwind States.

EPA generated source apportionment results to obtain upwind state contributions to downwind state monitors. In using this method, they failed to identify the individual upwind and local source categories that were modeled to have the greatest impact on ozone concentrations

[55] EPA-HQ-OAR-2016-0751-0009
[56] Atmos. Chem. Phys., 17, 2943–2970(2017).

for the episodes selected. Under contract to MOG, Alpine Geophysics conducted source category specific source apportionment modeling of the proposed CSAPR and tagged major source categories (EGU, non-EGU point, non-point area, nonroad, and on road mobile) from each upwind state to demonstrate downwind contribution at this more refined level.[57]

This contribution modeling identified contributions to ozone from NOx and VOC emissions in each region and source category as noted above. The results differed from EPA's modeling in that it provided finer category-specific contribution resolution for components in many eastern states compared to the "all-state" contribution method applied in the CSAPR Update. For example, Alpine's modeling determined the relative contribution of Ohio's on road mobile source sector emissions on ozone concentrations at downwind monitors instead of just Ohio's total anthropogenic contribution to that same monitor. In this regard, it was determined what the relative magnitude of category-based emissions is compared to individual monitor concentrations in contrast to just regional or state total contributions. Based on these results, and anticipated to similarly be seen when comparable analysis is undertaken on the 2023 NAAQS NODA platform, 30-50% of downwind ozone concentrations at CSAPR-Update identified nonattainment and maintenance monitors were attributed to mobile (combined on-road and no road) and non-point area source contribution at most monitors. Figure N below provides relative contribution summaries taken from the proposed CSAPR Update modeling for two key monitors identified in the NAAQS NODA. As can be seen in this figure, from the anthropogenic categories, on-road and non-point sources have the highest relative contribution, followed by the point (non-EGU and EGU) source categories.

[57] http://www.midwestozonegroup.com/files/IndependentSector-SpecificSourceApportionmentModelingofthe2017CrossStateAirPollutionRuleModelingPlatform.pdf

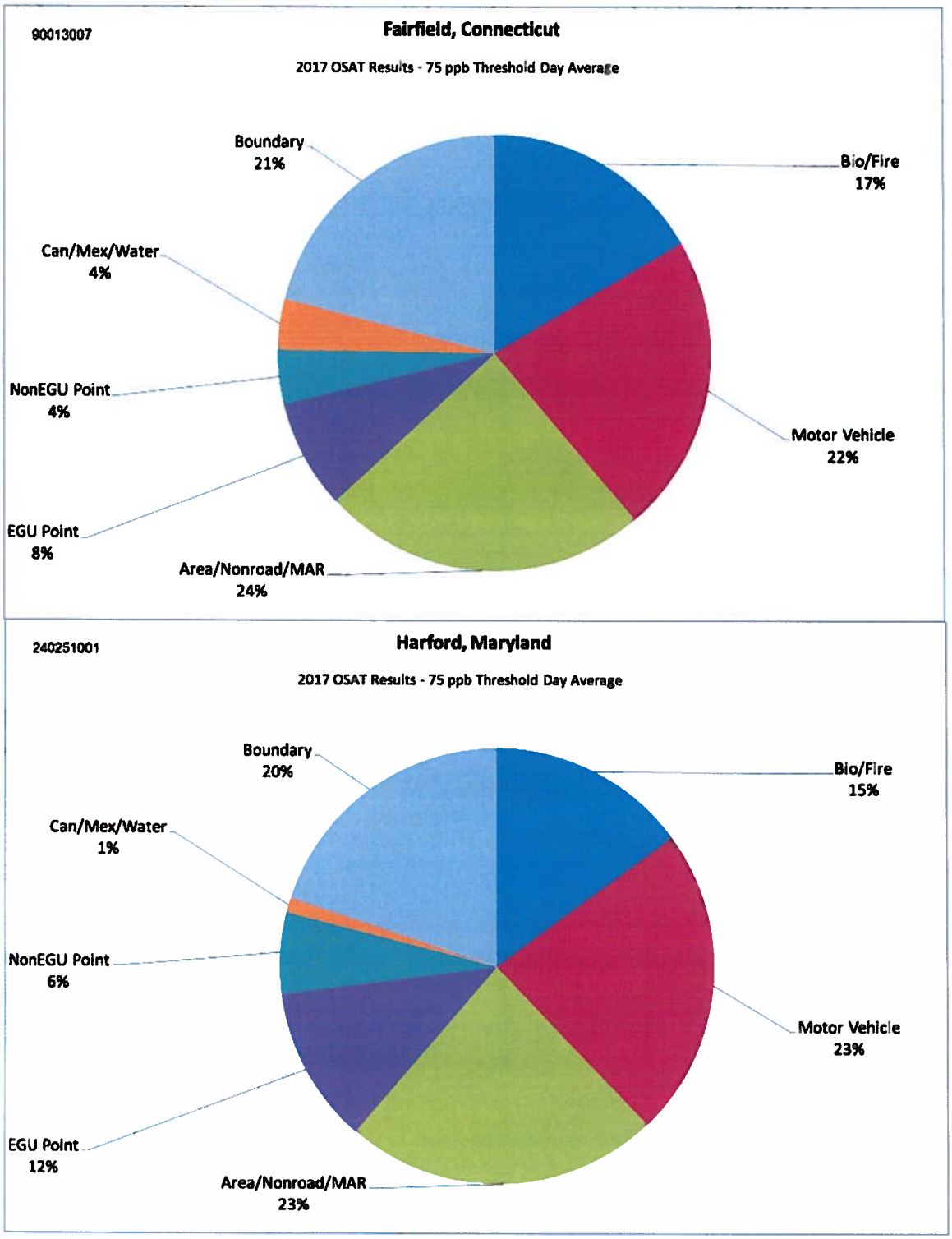

Figure N. Proposed CSAPR source apportionment contribution by source category for key monitors identified in NAAQS NODA.

15. Controls on local sources must be considered first by EPA before emission reductions on upwind states can be imposed through a transport rule.

EPA is required under the CAA to first consider the effects of local emissions in a nonattainment area and nearby areas in state(s) closest to the nonattainment area in question before seeking controls in upwind states. CAA §107(a) states that "[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 that a state SIP "provides for implementation, maintenance, and enforcement" of the NAAQS "in each air quality control region . . . within such State." Moreover, EPA recognized the requirement to look locally in both its 1997 NOx SIP Call and in CAIR. We note that the requirement to consider emission reductions from local controls in downwind states was an element of CAIR (a factor that was not adversely impacted by the *North Carolina v. EPA* decision). EPA must study the impact of local controls and require that such local sources be appropriately controlled before issuing guidance requiring that upwind states apply additional reductions in their Good Neighbor SIPs.

In particular, EPA must determine whether downwind states would experience non-attainment of the NAAQS even if no transport occurred. If local sources in a non-attainment area, or for that matter, local sources within the OTR, are causing the NAAQS to be exceeded four or more times in the critical year, independent of regional transport, then it is imperative that the downwind states control those sources before EPA asks upwind states for further controls as they adopt Good Neighbor SIPs.

The CAA addresses the affirmative obligations of the states to meet the deadlines for submittal and implementation of state implementation plans 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. Section 182(a)(2)(A) requires that for Marginal Ozone nonattainment areas, states shall revise their SIPs to include RACT. Section 182(b)(2)(A) of the CAA 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 date of attainment. CAA section 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 Section 184(b) provides that a state in the Ozone Transport Region (OTR) must revise their SIPs to implement RACT with respect to all sources of VOCs in the state covered by a CTG issues before or after November 15, 1990. CAA Section 184(a) establishes a single OTR comprised of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and the Consolidated Metropolitan Statistical Area (CMSA) that includes the District of Columbia.

The basic SIP components for nonattainment areas include: reasonable further progress (RFP) plan, reasonably available control technology (RACT), reasonably available control measures (RACM), contingency measures, nonattainment new source review program, motor vehicle emissions budget and as applicable a variety of area-wide mobile source and stationary source control programs. EPA's February 26, 2015 PowerPoint presentation entitled, "Final State Implementation Plan (SIP) Requirements Rule for the 2008 Ozone NAAQS" provides a detailed discussion and summary graphics of state SIP development obligations.[58] In addition, EPA's Menu of Control Measures sets forth a myriad of local emission reduction and SIP development options for identifying and evaluating effective control measures all with the goal of achieving attainment by the State.[59] As noted by EPA in its opening comments to the Menu of Control Measures, "it is essential to identify the sources contributing to the ozone problem."

EPA itself acknowledges the need for local controls. Specifically EPA states: "Downwind states also have control responsibilities because, among other things, the Act requires each state to adopt enforceable plans to attain and maintain air quality standards."[60]

In its 2014 document entitled "Reasonably Available Control Technology Analysis under the 2008 8-Hour Ozone National Ambient Air Quality Standard", the Connecticut Department of Energy and Environmental Protection ("DEEP") Bureau of Air Management conducted an evaluation of its RACT controls.[61] The principal conclusion reached by Connecticut of that report is as follows:

> DEEP commits to perform further evaluation of Connecticut's municipal waste combustor and fuel-burning source NOx requirements and to seek any regulatory revisions necessary to revise the control requirements to a RACT level for the 2008 ozone NAAQS. The main basis for the determination that these source categories are no longer subject to RACT is that other states now have in place emissions limitations that are more stringent than those required in Connecticut, so the more stringent emission limits, and the controls necessary to meet those emission limits, are technically and economically feasible.[62]

With respect to Municipal Waste Combustors the Connecticut report offered the following statement,

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[58] http://www3.epa.gov/ozonepollution/pdfs/20150226o3srrwebinar.pdf.
[59] http://www3.epa.gov/ttn/naaqs/pdfs/MenuOfControlMeasures.pdf
[60] 80 Fed. Reg. 75705, 75711 – 75712. (Dec. 3, 2015).
[61] Connecticut Department of Energy and Environmental Protection, "Reasonably Available Control Technology Analysis under the 2008 8-Hour Ozone National Ambient Air Quality Standard," July 17, 2014, http://www.ct.gov/deep/lib/deep/air/ozone/ozoneplanningefforts/ract_2008_naaqs/2014-07-17_-_ct_final_ract_sip_revision.pdf
[62] *Id.* at 28.

Connecticut has six facilities that burn municipal waste to create electricity and is comprised of a total of 15 units. Only three of the units are small municipal waste combustors, as defined by EPA in 40 CFR 60 Subpart AAAA and the associated emissions guidelines. Together, these 15 units are one of the most significant sources of NOx emissions in Connecticut. In 2011, the municipal waste combustor NOx emissions exceeded those of Connecticut's electric generating sector to become the largest stationary source category of NOx emissions in Connecticut.

...

Based on these observations, DEEP believes that it may be both technically and economically reasonable to reduce NOx emissions from the Connecticut municipal waste combustor facilities. The municipal waste combustor units at the Bristol facility, at which the LN™ technology has been installed, are mass burn waterwall units, which are the dominant combustor type in Connecticut.27 New Jersey has adopted, and Massachusetts has proposed to adopt, a NOx emissions limit for mass burn waterwall units that is more stringent than Connecticut's emissions limit .... In addition, Massachusetts has proposed to adopt a NOx emissions limit for mass burn refractory units that is more stringent than Connecticut's emissions limit .... DEEP commits to investigate the cost and emissions reductions available from the municipal waste combustors and, if appropriate, initiate a stakeholder process to develop a regulatory amendment. DEEP would seek to move such an amendment through the regulatory adoption process to allow for adoption by December 31, 2016.[63]

With respect to Fuel-Burning Sources (Boilers, Turbines, Engines) the Connecticut report observed as follows:

Revisions to the NOx emissions control requirements for boilers, turbines and engines in RCSA section 22a-174-22 are necessary to establish a RACT level of control under the 2008 ozone NAAQS. Several nearby states, including New York and New Jersey, have updated NOx RACT regulations, and other states, including Maryland, are currently reviewing existing NOx RACT requirements with respect to boilers, turbines and engines. The Ozone Transport Commission (OTC) has also recently reviewed the short-term NOx emissions limitations for fuel-burning equipment throughout the Ozone Transport Region in part to allow states to address emissions from demand response units and other units that operate intermittently to meet electric demand, particularly in the summer months.

...

[63] *Id.* at 28-29.

> Based on the comparison of Connecticut's NOx emissions limitations with those in other states ..., reductions in the emissions limitations of RCSA section 22a-174-22 are necessary, likely in conjunction with an elimination or adjustment of the NOx credit trading program, so that Connecticut's boilers, turbines and engines are controlled to a RACT level with respect to the 2008 ozone NAAQS.[64]

As can be seen from this discussion there is a clear statutory and regulatory mandate for states such as Connecticut to adopt updated RACT controls in advance of the 2017 ozone season. A similar obligation applies with respect to the 2023 deadline related to the 2015 ozone NAAQS. The reductions related to these RACT-based controls will have a direct impact on air quality and directly affect the Court mandated assessment of whether emission reductions imposed by a transport rule are more stringent than would be necessary to allow a downwind states to attain the NAAQS. We therefore urge that EPA first consider the effects of local emissions in a nonattainment area and nearby areas in state(s) closest to the nonattainment area in question before seeking controls in upwind states.

It is also interesting that Connecticut DEEP in an April 14, 2015, presentation identified specific concerns about interstate transport of air pollutants from the neighboring states of New Jersey and New York focusing particular attention on emissions related to "High Electric Demand Day" ("HEDD") (i.e., days on which localized distributive generation is dispatched by local owners).[65] In Figure O below Connecticut highlights the emission reductions which it expects from New Jersey's HEDD rule.

[64] *Id.* at 30 and 32.
[65] http://www.state.nj.us/dep/cleanair/PPP/2015/Pirolli.pdf

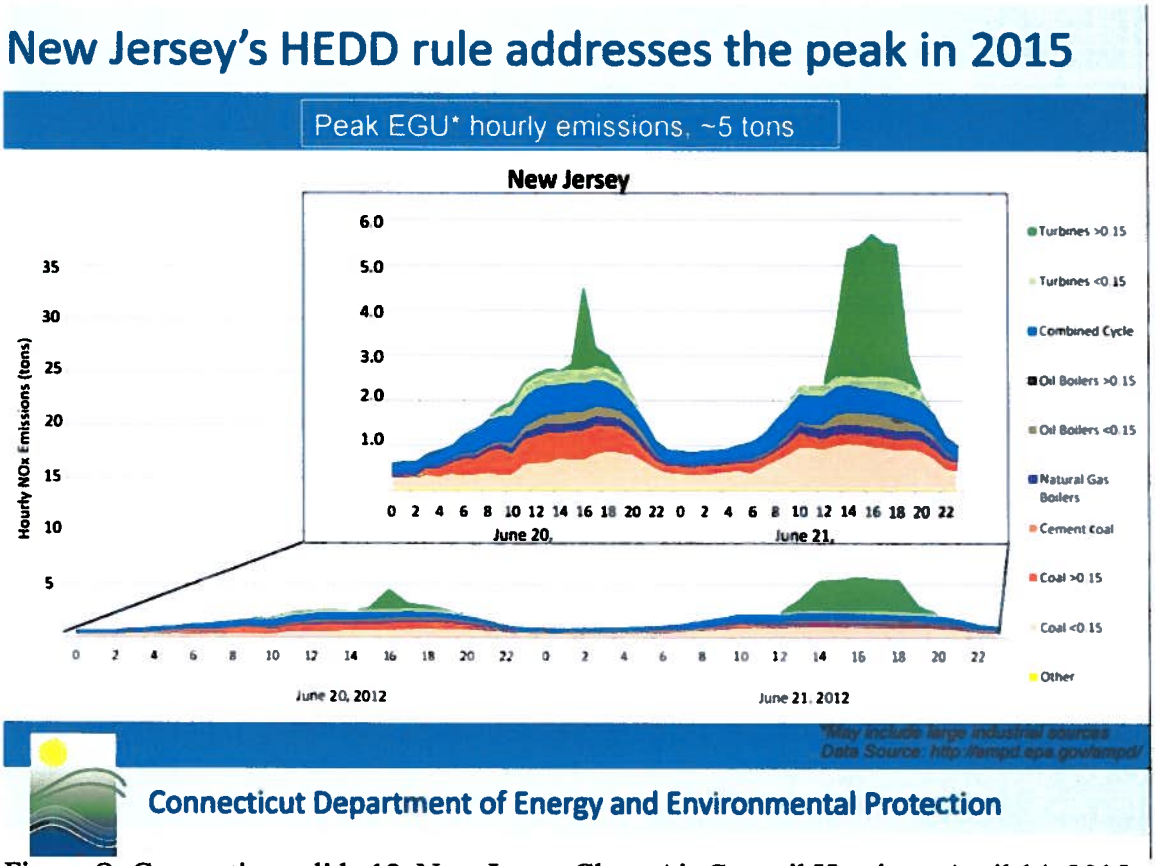

Figure O. Connecticut, slide 12, New Jersey Clean Air Council Hearing, April 14, 2015.

The document entitled "Reasonably Available Control Technology Analysis under the 2008 8-Hour Ozone National Ambient Air Quality Standard", dated July 17, 2014 the Connecticut Department of Energy and Environmental Protection Bureau of Air Management reached the following conclusion about HEED emissions and their impact on Connecticut's air quality:[66]

> To reach attainment in the NY-NJ-CT nonattainment area, HEDD emissions need to be addressed in all three state portions of the area. DEEP recognizes that the appropriate approach to addressing HEDD emissions may differ in each state because the magnitude of emissions and type of units responsible for the emissions differs in each state's portion of the area. Figures 4, 5 and 6 show the unit types emitting in each of the three states during a HEDD episode. New York is represented by 14 southern counties while Connecticut and New Jersey emissions are presented statewide. The magnitude of emissions differs from state to state: Connecticut averaged 18 tons of NOx per day, New Jersey averaged 52 tons per day and New York (downstate) averaged 126 tons per day. Among the peaking units in each state (Figures 4, 5, and 6 include all units that operate during the HEDD), Connecticut's emissions are dominated by the load-following boilers,

[66] http://www.ct.gov/deep/lib/deep/air/ozone/ozoneplanningefforts/ract_2008_naaqs/2014-07-17_-_ct_final_ract_sip_revision.pdf, pp. 25 and 27.

as explained above. New York and New Jersey's emissions are dominated by turbines with an emission rate greater than 0.15 lbs/MMBtu, which are labeled as "dirty" turbines in Figures 4, 5 and 6.

...

In sum, to address Connecticut's ozone nonattainment, and Connecticut's good neighbor obligations to downwind states, peak day emissions must be reduced. Thus, "beyond RACT" measures may be warranted for HEDD units on HEDD to meet the state obligation of attainment of the ozone NAAQS as expeditiously as possible." Emphasis added.

Until this local transport is addressed, Connecticut will not be able to achieve attainment of the NAAQS. It is the primary duty of the downwind states to address this compliance issue as a condition precedent to the development of a transport rule related to these receptors.

As stated elsewhere in these comments, EPA's authority is limited by several factors including being prohibited from imposing any emission reductions on upwind states that would be more than would be necessary to eliminate nonattainment in downwind areas. It is clear from the Connecticut material provided here that controls on local sources in and around Connecticut are the key to attainment of the ozone NAAQS – raising a significant question about whether upwind states should be encouraged by EPA to include any new emission reductions in their Good Neighbor SIPs.

16. Emission impact of local sources is significantly greater per ton on ozone concentrations at local monitors than emission from sources in upwind states.

In a report prepared for MOG by Alpine Geophysics and entitled "Relative Impact of State and Source Category NOx Emissions on Downwind Monitors Identified Using the 2017 Cross State Air Pollution Rule Modeling Platform", Alpine has examined which state's emission have the greatest impact on downwind ozone concentrations.[67]

Alpine has determined the greatest relative contribution to ozone concentrations for each monitor assessing location and source category impacts. The Alpine report identifies which source category, and from what state, has the greatest per ton NOx contribution to the monitors' modeled ozone concentrations. Results from Alpine's calculations were then normalized to the results to the maximum individual state/category contributor, so that one can easily identify the greatest ppb per ton state/source category. This provides an easy way of determining which categories have greater relative impact compared to all others. In addition to recognizing the usefulness of this impact factor in determining which states and categories are the largest ppb/ton contributors to each monitor, the results could be used in assisting policy makers in the

[67] http://www.midwestozonegroup.com/files/RelativeImpactofStateandSourceCategoryNOxEmissionsonDownwindMonitorsIdentifiedUsingthe2017CrossStateAirPollutionRuleModelingPlatform.pdf

development of control strategies and their relative impact on ozone concentrations at various locations. Resulting monitor-level, relative impact factors for the twenty-one eastern state monitors are presented in the tables set forth in that report.

The following Figure P is the graph from the Alpine report related to one of the Fairfield Connecticut monitors:

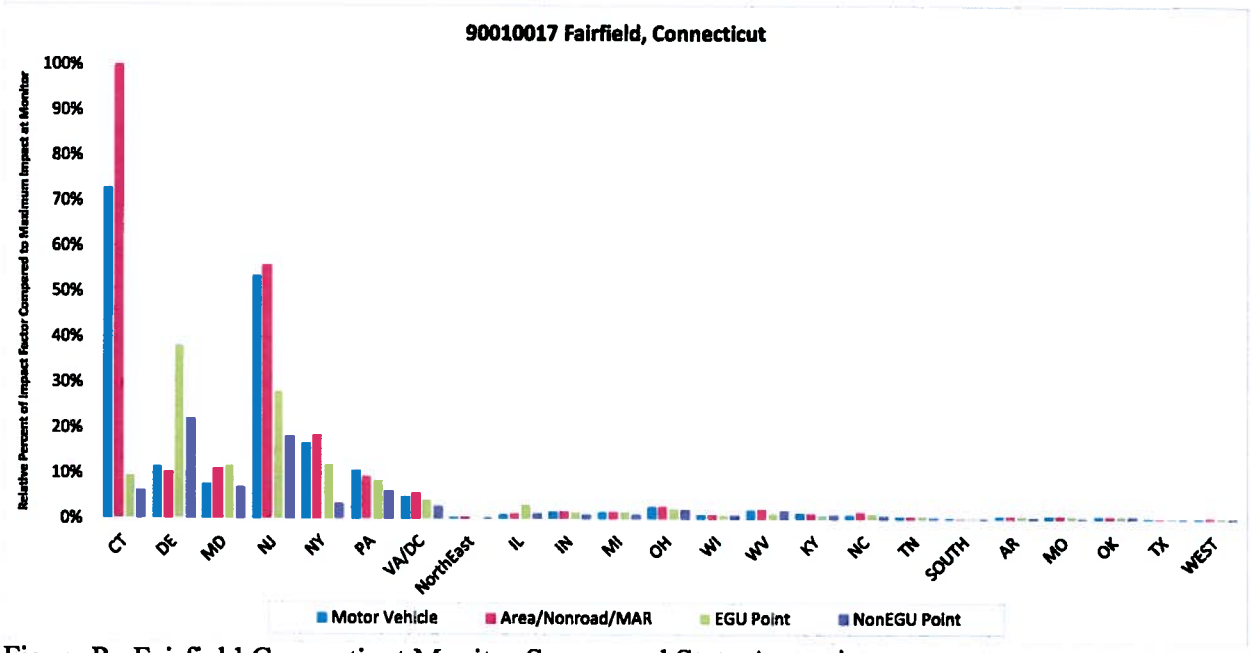

Figure P. Fairfield Connecticut Monitor Source and State Apportionment.

As can be seen from this graph, assuming linearity of NOx emissions and ozone concentration changes, the greatest improvement in ozone concentrations occur with reductions in emissions from sources located in Connecticut itself and from area and mobile sources throughout the Northeast. Alpine's study indicates that the three states with the next greatest potential to improve air quality on a per ton reduced basis in Connecticut are:

New Jersey (over 50% of Connecticut's potential);
Delaware (nearly 40% of Connecticut's potential); and
New York (nearly 20% of Connecticut's potential).

This analysis further supports the conclusion that the control of local sources and local transport are key components to addressing residual nonattainment concerns in the region with respect to the 2015 ozone NAAQS.

17. To the extent that regional NOx caps are appropriate at all to meet any ozone NAAQS, they should be applied as ozone season caps only and not on any shorter duration time period.

In the development of any SIP or new transport rule, EPA should continue its past practice of implementing state budgets whenever possible through ozone season trading programs such as are utilized in the CSAPR program. Even though there is a long-standing precedent for programs implemented on an ozone season basis, officials from the Ozone Transport Region have asked EPA to consider additional peak day limits on EGU NOx emissions.[68]

MOG opposes any suggestion that it would be appropriate to impose EGU NOx limits in a transport rule on any time scale shorter than the ozone season.

18. EPA should undertake new modeling work to address the many concerns that exist with respect to the data which is the subject of the NODA and provide for adequate time to allow that modeling to be accomplished.

While MOG welcomes the opportunity to comment on this NODA, the time allowed for comments is insufficient to allow any new, additional modeling data to be developed to address the specific concerns raised by these comments. These are important matters of significant scientific complexity that cannot be accomplish quickly. The extent and complexity of the technical and related issues raised by EPA's proposal are so extensive that they cannot be adequately addressed in such a limited time-period. MOG has identified numerous flaws in EPA's analysis. Even more significant is the fact that we have identified numerous other flaws that must also be investigated and for which there is inadequate time, under the current schedule.

To the extent that any such further analysis could not be accomplished in time to provide the states with the data they may need to develop Good Neighbor SIPs by the current deadline of October 2018, we urge that EPA perform the required modeling data and technical analysis to be provided at a later date. Indeed, as EPA acknowledged in connection with the litigation of the Kentucky Good Neighbor SIP, should it be necessary for EPA to put a FIP in place for states found not to have an approvable Good Neighbor SIP, 3 years of additional time may be needed to allow appropriate analysis to be undertaken. Specifically, in the Kentucky litigation EPA noted:

> Although the deadlines for the EPA to promulgate these additional FIPs will not pass until 2017 and 2018, the EPA expects these deadlines will pass during the period in which we will be conducting the analysis necessary to address its FIP obligation as to Kentucky. Accordingly, conducting the necessary regional analysis to address Kentucky will also permit the Agency to address the outstanding FIP obligations for these 23 other states. If the EPA were to instead focus its analysis on developing a FIP for Kentucky alone – if that were even possible given the regional, interconnected nature of ozone

[68] 80 Fed. Reg. at 75716.

transport – the EPA would necessarily need to delay action to address its FIP obligation as to these 23 other states, thereby missing a number of additional statutory deadlines.[69]

> ... although the EPA identified downwind areas in the CSAPR Update that are expected to have problems attaining or maintaining the 2008 ozone NAAQS in the 2017 compliance year, the EPA must analyze downwind air quality in a future compliance year. Any subsequent rulemaking to fully quantify emissions reductions necessary to address the good neighbor provision with respect to the 2008 ozone NAAQS will necessarily require compliance in a year later than 2017. The nature of the air quality problems may be different in that future year, considering the implementation of additional state and federal requirements (such as upcoming requirements to reduce mobile source emissions) and other changes in emissions due to economic factors and changes in the energy sector in terms of growth in oil and gas production and electricity demand.[70]

> The EPA therefore believes it is necessary to conduct air quality modeling to project air quality levels in an appropriate future year that is later than 2017 in order to identify the extent of remaining downwind nonattainment and maintenance problems in that future year (CSAPR framework step 1). The results of this analysis could show, for example, that the nonattainment and maintenance problems projected to persist in 2017 are either diminished or resolved in a later year because of emissions reductions expected to occur between 2017 and that future year. Similarly, the EPA believes we must conduct air quality modeling to evaluate upwind state contributions to downwind nonattainment and maintenance problems in that future year, the results of which could show a change in the level of contribution from Kentucky relative to the one percent screening threshold (CSAPR framework step 2).[71]

We strongly urge that EPA conduct additional modeling and analysis to address the deficiencies we have identified. EPA should provide for an additional comment period be authorized to allow for thoughtful public and stakeholder input that could not be provided with respect to the current comment period. Moreover, EPA should provide modeling data and guidance about how EPA would undertake the development of a FIP in a later year should states not address interstate transport to EPAs satisfaction in Good Neighbor SIPs.

19. While the NODA does not address what cost effective controls are available for emission sources potentially subject to the rule, EPA must engage in a careful and thoughtful process to gather that data and make it available for review and public comment.

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[69] Declaration of Janet D. McCabe, ¶ 48.
[70] *Id.* at ¶52.
[71] *Id.* at ¶53.

MOG recognizes that EPA has not yet published data related to a determination of what might constitute cost effective controls for sources that may be implicated by any effort to address interstate transport in a Good Neighbor SIP. We are however very aware of the significant errors made by the agency in assessing technology related to the CSAPR Update rule and we are mindful of the efforts the agency has underway to assess control technologies related to non-EGUs. Any control strategy developed should be achievable by the affected sources and be capable of timely implementation.

In EPA's brief in the Kentucky Good Neighbor SIP litigation the following statement was made that sets the stage for the discussion of non-EGU controls:

> As a first preliminary step, EPA must take steps to improve the quality of its information regarding the current status of existing controls for the non-EGU inventory and data on potential control devices that could be installed on uncontrolled or under-controlled sources. This information is necessary to quantify potential emissions impacts and reductions from non-EGU sources. If EPA does not gather this information with respect to non-EGUs, the results of EPA's subsequent analyses might be inaccurate and might result in either over- or under-control of emissions relative to downwind air quality problems, a scenario that is prohibited by 42 U.S.C. § 7410(a)(2)(D)(i). *EME Homer City Generation*, 134 S. Ct. at 1604. ... Presently, EPA is completing its inventory of non-EGUs and a review of National Emissions Inventory ("NEI") to ensure that the NEI's control measures and control measure efficiency information is accurate. *Id.* ¶¶109- 12. ...The database serves as a primary input for the Control Strategy Tool ("CoST"). ...Once EPA has completed these tasks in January 2017, the Agency intends to conduct analyses of potential NOX emissions reductions and costs from EGUs and the various types of non-EGU emissions sources or units and request public comment, likely through the publication of a Notice of Data Availability ("NODA").[72]

Beyond its consideration of non-EGU controls, an affidavit filed by Assistant Administrator McCabe makes it clear that in the development of program to follow-up on the Kentucky Good Neighbor SIP it will be necessary to target compliance deadlines after 2017 and that the agency will also be reviewing EGU controls. Her statement to that effect follows:

> ... the emissions reductions achievable from the installation of post-combustion controls could not be implemented by 2017 and were not considered for purposes of calculating budgets in the CSAPR Update. Therefore, in order to determine the level of NOX control stringency necessary to quantify those emissions reductions that constitute fully eliminating significant contribution to downwind nonattainment or interference with maintenance for the region, and therefore also for Kentucky, the EPA must evaluate

[72] EPA's Defendant Memorandum in Opposition, p. 14-15.

further emission reductions from EGU strategies that take longer to implement than those considered in the CSAPR Update rulemaking.[73]

Given the importance and significance of this data to the development of new Good Neighbor SIPs, we urge that EPA immediately issue a NODA with respect to its assessment of these controls so that MOG and others might have an opportunity to comment on that data in advance of any rulemaking proposal.

20. Conclusion.

MOG appreciates the opportunity to offer these comments. While we urge EPA to provide timely guidance to the states on these important issues as they plan for their Good Neighbor SIP's, it is increasingly apparent that much more work must be undertaken to get the modeling correct. EPA should carefully review that requirement and provide the state with guidance about how best to manage their Good Neighbor SIP obligations even as EPA takes additional time to provide data which correctly and accurately addresses the critical issues related to the interstate transport of air pollutants.

[73] Declaration of Janet D. McCabe at ¶ 54.