Scientific modeling and legal observations regarding additional steps EPA and states should take to continue to assess and improve air quality;
A Clean Air Act Briefing Paper prepared by the Midwest Ozone Group

February, 2019

There have been enormous improvements in ozone air quality in all states with the assistance of EPA. The Midwest Ozone Group (MOG) has applied advanced analytical tools and regulatory policies to assess this progress in the Eastern, mid-Atlantic and Midwestern United States and to predict how future emissions reductions will affect compliance with attainment and maintenance requirements set by the Clean Air Act and EPA regulations and the flexibilities EPA has established in its regulatory guidance.

There are, however, a series of regulatory policies that should be advanced by states and EPA in 2019 to build on these past successes. These include:

1. **Requiring downwind states to establish appropriate controls on their local sources and to quantify those reductions before additional actions are required in upwind states to reduce long distance transport;**
2. **Requiring downwind states to request, and EPA to approve, consideration of exceptional events that are out of their control and must be addressed to avoid imposing unnecessary emissions reduction burdens on themselves and upwind states; and**
3. **Addressing the substantial impact of international emissions on states' air quality.**

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There have been enormous improvements in ozone air quality in all states with the assistance of EPA.[1] There are, however, a series of regulatory policies that should be advanced by states and EPA in 2019 to build on these past successes. These include:

- Requiring downwind states to establish appropriate controls on their local sources and to quantify those reductions before additional actions are required in upwind states to reduce long distance transport;

- Requiring downwind states to request, and EPA to approve, consideration of exceptional events that are out of their control and must be addressed to avoid imposing unnecessary emissions reduction burdens on themselves and upwind states; and

- Addressing the substantial impact of international emissions on states' air quality.

This paper will review the background and significance of each of these policies and offer a recommendation for addressing each.

1. Control of local sources must be addressed first before any additional emission reductions can be imposed of sources in upwind states.

a. Local controls must be addressed first before upwind controls.

When an area is measuring nonattainment of a NAAQS, as is the case with the areas linked to West Virginia and other Midwest states, the Clean Air Act (CAA) requires that the effects and benefits of local controls on all source sectors be addressed first before pursuing controls of sources 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 Implementation Plan (SIP) "provides for implementation, maintenance, and enforcement" of the NAAQS "in each air quality control region . . . within such State." Moreover, by operation of law, additional planning and control requirements are applicable to areas that are designated to be in nonattainment.

This issue is important because upwind states must be confident that appropriate downwind state emission reduction programs are in place as they prepare to submit approvable Good Neighbor state implementation plans to address the 2015 ozone NAAQS. EPA's current interstate transport modeling platforms fails to recognize and incorporate local emission reductions programs that are required by statute and regulation to improve ambient ozone

[1] http://www.midwestozonegroup.com/files/Final_TSD_-_Updated_4km_Ozone_Modeling_Dec_2018_.pdf

concentration by 2023. Only through a full assessment of these local emissions reductions can EPA determine whether there are any bases for the imposition of additional emissions controls in upwind states. This is because additional control requirements in upwind states can only be legally imposed if, after consideration of local controls, there is a continuing nonattainment issue in downwind areas. [2] Failure to include reductions from those local measures in emissions inventories will undoubtedly lead to efforts to over-control upwind sources.

b. Legally mandated controls in the attainment year must be included in EPA's evaluation of the need for upwind controls.

The CAA addresses the affirmative obligations of the states to meet the deadlines for submittal and implementation of State Implementation Plans (SIPs) designed to specifically address their degree of nonattainment designation. These requirements are applicable to both NOx and VOC emissions and include "reasonably available control measures" (RACM) as well as "reasonably available control technology" (RACT), for existing sources of emissions.

The CAA also imposes the same requirement on states located in the Ozone Transport Region (OTR). Specifically, CAA Section 184(b) provides that a state in the OTR must revise its SIP to implement RACT. 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.

c. All on-the-books controls in downwind nonattainment areas must be assessed by EPA to confirm that those areas would continue to be in nonattainment with those controls implemented.

Maryland has already recognized the need to adopt and implement programs to control emissions from local sources in Maryland and the Northeast. For example, as recently as December 2017[3], the Maryland Department of the Environment identified a series of controls in portions of the Northeast that it believed would further reduce ozone concentration in the Northeast. Specifically, Maryland has urged that "even deeper NOx and VOC reductions" should be taken in areas "just upwind of OTC problem areas" - "Mostly upwind of Connecticut right now – A little Maryland" Among the new control programs called for by Maryland are such local control programs as:

- New rules by New York on small distributed generators;
- New Ozone Transport Commission initiatives involving idle reduction;
- Reducing mobile source NOx through such measures as aftermarket catalysts

[2] *EME Homer et.al. v EPA*, 134 S. Ct. at 1608.

[3] See: "A Path Forward for Reducing Ozone in Maryland and the Mid-Atlantic States, Driving With Science", Tad Aburn, Air Director, MDE, December 11, 2017 (slides 60 and 61).
http://midwestozonegroup.com/files/Final_Path_Forward_2017_AQCAC_121117.pptx

and electric and other zero emission vehicles;
- Maryland RACT rules on municipal waste combustors; and
- Maryland's Idle Free Initiative.

In addition, it is significant that the Connecticut Department of Energy and Environmental Protection, Bureau of Air Management has reached the conclusion[4] that attainment in the Northeast cannot be achieved without addressing High Electricity Demand Days (HEDD) units in each of the states of New York, New Jersey and Connecticut as is illustrated by the following statement:

> *To reach attainment in the NY-NJ-CT nonattainment area, HEDD emissions need to be addressed in all three state portions of the area.*
> …
> *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.*

The New York State Department of Environmental Conservation has actually conducted an air quality assessment of the regulation of small generators in which it concluded[5] that ozone concentrations could be increased by as much as 4.8 ppb due to these sources – an extremely significant impact on ozone ambient air quality in a portion of the East that has historically had high ozone concentrations.

Significantly, at the OTC/MANE-VU Joint Committee Meeting held on September 21, 2018, the Stationary and Area Sources ("SAS") Committee conducted an analysis of the operation of simple cycle combustion turbine EGUs that operate on HEDD days and reached several conclusions about the merit of imposing additional NOx controls on these units. Based on an analysis of New Jersey, the OTC reached the following conclusions that appear on slide 15 of the presentation[6]:

- Simple cycle turbines operate on high ozone days.
- Control of NOx or replacement of old units is cost effective based on ozone day benefit.

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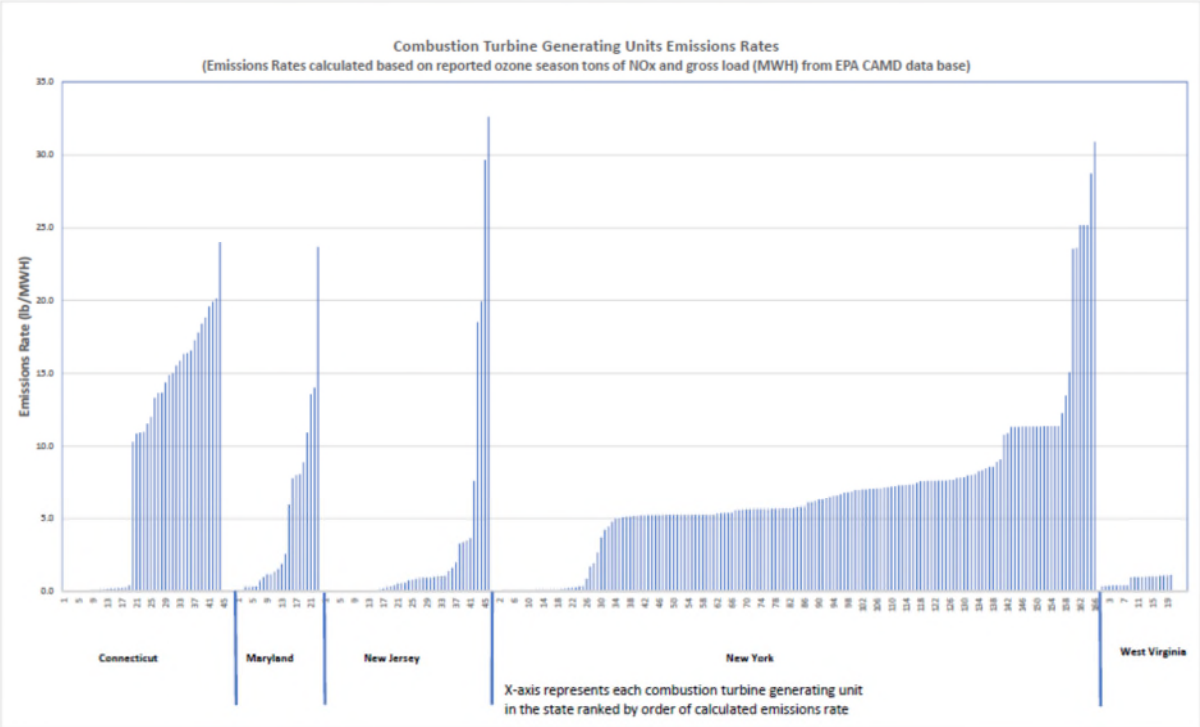
[4] "Reasonably Available Control Technology Analysis under the 2008 8-Hour Ozone National Ambient Air Quality Standard", dated July 17, 2014, http://www.ct.gov/deep/lib/deep/air/ozone/ozoneplanningefforts/ract_2008_naaqs/2014-07-17_-_ct_final_ract_sip_revision.pdf

[5] "Background, High Electric Demand Day (HEDD) Initiative", New York Department of Environmental Conservation, undated but presumed to be in 2017. http://midwestozonegroup.com/files/New_York_Peakers.pptx

[6] OTC/MANE-VU Stationary and Area Sources Committee presentation, September 21, 2018. http://www.midwestozonegroup.com/files/MOG_OTC_SAS_Public_09212018.pdf

- There are 200 simple cycle units in OTR with very high NOx emissions – approximately 10 times higher than most boiler NOx rates and greater than 100 times higher than most combined cycle NOx rates.
- Simple cycle units significantly increase, and can dominate EGU NOx emissions on high ozone days.
- Approximately 40% of simple cycle units have low NOx rates, showing that much lower NOx from simple cycle units is readily achievable and is already occurring.

From the chart set out below you will note that the OTC itself has identified the states of New York, New Jersey, Connecticut and Maryland as having a much greater reliance on the use of simple cycle combustion turbines with very high emissions rates than is the case with West Virginia, for example. While MOG has not seen or reviewed the basis for the OTC conclusion that control or replacement of "old" units is "cost effective," such a strategy that addresses emissions from those units may indeed be cost-effective within the OTC (but would not be cost-effective for West Virginia or other states that do not have the same degree of reliance on high emitting combustion turbines as apparently is the case in OTC states identified below).



Given the significance of the need for and cost effectiveness of local controls particularly in the states of New York, New Jersey, Connecticut and Maryland, it is inappropriate for EPA to impose any further emission requirements on West Virginia or other upwind states to satisfy the

requirements of CAA section 110(a)(2)(D)(i)(I) unless and until additional local controls in the Northeast are satisfactorily quantified and addressed.

While the CSAPR Update Rule addressed only emissions from EGU sources, it must be recognized that it is emissions from mobile, including both on-road and non-road, and local area sources have the most significant impact on ozone concentrations and the problem monitors identified in this proposal, which are located in or in the proximity of urban areas, and that these sources must be addressed by EPA before requiring additional emission reductions from upwind states' point sources, including EGUs.

d. Mobile sources in downwind states are the largest contributor to nonattainment monitors and must be regulated to a greater extent than is currently being undertaken.

EPA recently recognized the significance of mobile source emissions in preamble to its full remedy proposal. There EPA stated:

> *Mobile sources also account for a large share of the NOx emissions inventory (i.e., about 7.3 million tons per year in the 2011 base year, which represented more than 50% of continental U.S. NOx emissions), and the EPA recognizes that emissions reductions achieved from this sector as well can reduce transported ozone pollution. The EPA has national programs that serve to reduce emissions from all contributors to the mobile source inventory (i.e., projected NOx emissions reductions of about 4.7 million tons per year between the 2011 base year and the 2023 future analytical year). A detailed discussion of the EPA's mobile source emissions reduction programs can be found at www.epa.gov/otaq.*
>
> *In light of the regional nature of ozone transport discussed herein, and given that NOx emissions from mobile sources are being addressed in separate national rules, in the CSAPR Update (as in previous regional ozone transport actions) the EPA relied on regional analysis and required regional ozone season NOx emissions reductions from EGUs to address interstate transport of ozone.*
>
> 83 Federal Register 31918.

Mobile source emissions are the dominant contributor to predicted ozone concentrations across the nation. At the request of the Midwest Ozone Group, Alpine Geophysics has examined not only the relative contribution of mobile and local area sources to problem monitors but also how a small reduction in emissions from these sources could bring about significant additional reductions in ozone concentrations.

The following table presents the annual mobile source NOx emission totals (onroad plus nonroad) for eastern states as presented in the final CSAPR update emission summary files[7]. As can been seen in this table, consistent with EPA's national assessment of mobile source emissions, annual mobile source NOx emissions in this region comprise 51%, 41%, and 33% of the annual anthropogenic emission totals for 2011, 2017, and 2023, respectively.

Eastern State Mobile Source NOx Emissions (Annual Tons).

	Annual Anthropogenic NOx Emissions (Tons)			Annual Mobile Source NOx Emissions (Tons)			Mobile Sources as % of All Annual Emissions (%)		
State	**2011**	**2017**	**2023**	**2011**	**2017**	**2023**	**2011**	**2017**	**2023**
Alabama	359,797	220,260	184,429	175,473	88,094	54,104	49%	40%	29%
Arkansas	232,185	168,909	132,148	113,228	68,949	44,583	49%	41%	34%
Connecticut	72,906	46,787	37,758	49,662	26,954	18,718	68%	58%	50%
Delaware	29,513	18,301	14,511	17,788	10,387	6,819	60%	57%	47%
District of Columbia	9,404	6,052	4,569	7,073	3,947	2,500	75%	65%	55%
Florida	609,609	410,536	323,476	406,681	232,319	153,275	67%	57%	47%
Georgia	451,949	295,397	236,574	267,231	147,690	90,541	59%	50%	38%
Illinois	506,607	354,086	293,450	261,727	166,393	114,243	52%	47%	39%
Indiana	444,421	317,558	243,954	218,629	122,633	76,866	49%	39%	32%
Iowa	240,028	163,126	124,650	132,630	82,212	53,712	55%	50%	43%
Kansas	341,575	270,171	172,954	115,302	68,491	43,169	34%	25%	25%
Kentucky	327,403	224,098	171,194	139,866	80,244	50,633	43%	36%	30%
Louisiana	535,339	410,036	373,849	117,529	67,331	43,962	22%	16%	12%
Maine	59,838	42,918	32,186	34,933	18,380	12,240	58%	43%	38%
Maryland	165,550	108,186	88,383	103,227	60,164	38,922	62%	56%	44%
Massachusetts	136,998	90,998	73,082	83,398	45,031	30,508	61%	49%	42%
Michigan	443,936	296,009	228,242	250,483	135,434	88,828	56%	46%	39%
Minnesota	316,337	216,925	174,797	176,424	102,728	65,868	56%	47%	38%
Mississippi	205,800	128,510	105,941	108,198	57,751	34,561	53%	45%	33%
Missouri	376,256	237,246	192,990	219,505	122,137	75,380	58%	51%	39%
Nebraska	217,427	159,062	119,527	88,985	55,067	35,556	41%	35%	30%
New Hampshire	36,526	22,413	18,794	24,919	14,780	10,322	68%	66%	55%
New Jersey	191,035	127,246	101,659	133,073	75,538	51,231	70%	59%	50%
New York	388,350	264,653	230,001	224,454	130,023	92,171	58%	49%	40%
North Carolina	369,307	231,783	167,770	250,549	114,952	70,812	68%	50%	42%
North Dakota	163,867	135,009	128,864	57,289	37,071	23,956	35%	27%	19%
Ohio	546,547	358,107	252,828	311,896	168,799	100,058	57%	47%	40%
Oklahoma	427,278	308,622	255,341	139,550	79,830	50,525	33%	26%	20%
Pennsylvania	562,366	405,312	293,048	249,792	135,765	81,645	44%	33%	28%
Rhode Island	22,429	15,868	12,024	13,689	7,705	5,209	61%	49%	43%
South Carolina	210,489	134,436	104,777	132,361	73,359	44,886	63%	55%	43%
South Dakota	77,757	49,014	37,874	48,499	30,473	19,685	62%	62%	52%
Tennessee	322,578	209,873	160,166	213,748	122,738	77,135	66%	58%	48%
Texas	1,277,432	1,042,256	869,949	554,463	292,609	189,601	43%	28%	22%
Vermont	19,623	14,063	10,792	14,031	8,569	5,958	72%	61%	55%
Virginia	313,848	199,696	161,677	179,996	108,175	67,678	57%	54%	42%

[7] ftp://ftp.epa.gov/EmisInventory/2011v6/v3platform/reports/

	Annual Anthropogenic NOx Emissions (Tons)			Annual Mobile Source NOx Emissions (Tons)			Mobile Sources as % of All Annual Emissions (%)		
State	**2011**	**2017**	**2023**	**2011**	**2017**	**2023**	**2011**	**2017**	**2023**
West Virginia	174,219	160,102	136,333	48,294	27,487	17,494	28%	17%	13%
Wisconsin	268,715	178,927	140,827	167,753	100,814	67,201	62%	56%	48%
Eastern US Total	**11,455,243**	**8,042,552**	**6,411,386**	**5,852,332**	**3,291,024**	**2,110,555**	**51%**	**41%**	**33%**

The regulation of mobile sources is specifically addressed in the CAA section 209, which provides guidance on the management roles of mobile sources for the federal government, California and other states. Section 209(a) opens with the statement concerning on-road engines and vehicles, "No State or any political subdivision thereof shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part." Relative to non-road engines or vehicles, CAA 209(e) provides similar language.

The exception to these prohibitions is set forth in CAA §177 for California and any other state that chooses to adopt an "EPA-approved California control on emissions of new motor vehicles or engines." Regulation of new mobile-source emissions has been principally federally-driven, but states continue to have a role. *Engine Mfrs. Ass'n v. EPA*, 88 F.3d 1075, 1079 (D.C. Cir. 1996). The CAA §209(d) preserves the authority of the states to control, regulate, or restrict the use, operations, or movement of registered or licensed motor vehicles. The D.C. Circuit has interpreted this as maintaining state power to regulate pollution from motor vehicles once they are no longer new; for instance, through in-use regulations such as car pools and other incentive programs. *Id.*

e. EPA's Heavy Duty Truck Initiative.

Moreover, EPA's new Heavy Duty Truck initiative will also have a significant positive benefit on ozone air quality. The emissions reductions from this initiative must be quantified and included in EPA's assessment of the need for any additional upwind state programs. EPA describes this program as follows:

> On November 13, 2018, EPA announced the Cleaner Trucks Initiative (CTI), a future rulemaking to update standards for nitrogen oxide (NOx) emissions from highway heavy-duty trucks and engines. Over the last decade, NOx emissions in the U.S. have dropped by more than 40 percent. Nonetheless, EPA expects that heavy-duty trucks will be responsible for one-third of NOx emissions from transportation in 2025. Updating these standards will result in NOx reductions from mobile sources and could be one important way that allows areas across the U.S. to meet National Ambient Air Quality Standards for ozone and particulate matter. Updating the standards will also offer opportunities to reduce regulatory burden through smarter program design.

https://www.epa.gov/regulations-emissions-vehicles-and-engines/cleaner-truck-initiative

In response to questions from Congress related to his confirmation process, Acting Administrator Wheeler offered the following explanation of the importance of this initiative:

> In addition, on November 13, 2018, EPA announced the Cleaner Trucks Initiative, a future rulemaking to update standards for nitrogen oxide (NOx) emissions from highway heavy-duty trucks and engines. Over the last decade, NOx emissions in the U.S. have dropped by more than 40 percent. Nonetheless, EPA expects that heavy-duty trucks will be responsible for one-third of NOx emissions from transportation in 2025. Updating these standards will result in NOx reductions from mobile sources and could be one important way that allows areas across the U.S. to meet National Ambient Air Quality Standards for ozone and particulate matter. Updating the standards will also offer opportunities to reduce regulatory burden through smarter program design.

Given the dominant role of mobile sources in ambient ozone concentrations, additional local mobile source controls in downwind states are necessary before requiring additional emission reductions from upwind states to avoid over control in the upwind states. Downwind states should be encouraged to take full advantage of all of the authority provided to each of them under the CAA and to reduce mobile source emissions as necessary to assure continued attainment of the 2015 ozone NAAQS.

2. **Downwind states should be required to invoke EPA exceptional events rule to the measured data from their monitors before being allowed to pursue emission reductions from upwind states.**

In the case of many of the air quality monitors relied upon by downwind states to report ambient ozone concentrations, the data being reported has been influenced by Exceptional Events. Consideration of these events provides an appropriate basis for removing those data from the calculation of the 3 year design values, which could materially change the basis for the agency's designations of nonattainment with the 2015 ozone NAAQS as well as predicted ozone concentration in the attainment year.

While EPA has recognized these Exceptional Events in certain cases, there are many other instances in which data from monitors related to the same Exceptional Events have not been excluded. This has resulted in higher design values for many monitors. If not corrected, the use of these higher design values will not only result in unnecessarily stringent, inaccurate nonattainment designations but also in ultimately higher future year predictions of ozone concentrations.

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

> Regulations promulgated under this section shall, at a minimum, provide that –
>
> (i) the occurrence of an exceptional event must be demonstrated by reliable, accurate data that is promptly produced and provided by Federal, State, or local government agencies;
>
> (ii) a clear causal relationship must exist between the measured exceedances of a national ambient air quality standard and the exceptional event to demonstrate that the exceptional event caused a specific air pollution concentration at a particular air quality monitoring location;
>
> (iii) there is a public process for determining whether an event is exceptional; and
>
> (iv) there are criteria and procedures for the Governor of a State to petition the Administrator to exclude air quality monitoring data that is directly due to exceptional events from use in determinations by the Administrator with respect to exceedances or violations of the national ambient air quality standards.

EPA responded to the mandate by the adoption of regulations, including most recently 40 CFR 50.14 (81 Fed. Reg. 68216, October 3, 2016) which provides the regulatory framework for addressing Exceptional Events. The regulations include requirements related to demonstrating (a) that a clear, causal relationship exists between the event and monitored exceedance(s) (b) the event was of human origin and not likely to recur or was natural in origins and (3) the occurrence was not reasonably controllable or preventable.

EPA has also offered guidance related to Exceptional Events[8] that, among other things, requires that demonstrations include:

- A narrative conceptual model that describes the event(s) causing the exceedance or violation and a discussion of how emissions from the event(s) led to the exceedance or violation at the affected monitor(s);
- A demonstration that the event affected air quality in such a way that there exists a clear causal relationship between the specific event and the monitored exceedance or violation;
- Analyses comparing the claimed event-influenced concentration(s) to concentrations at the same monitoring site at other times. The Administrator

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

shall not require a State to prove a specific percentile point in the distribution of data;
- A demonstration that the event was both not reasonably controllable and not reasonably preventable;
- A demonstration that the event was caused by human activity that is unlikely to recur at a particular location or was a natural event; and
- Documentation that the submitting air agency followed the public comment process.

Over the years, EPA has had brought to its attention many Exceptional Events that are believed to have had an impact of monitored concentrations.[9] Following these requirements, several states have already made these demonstrations addressing a May 2016 event. Thus far only Maryland has made a demonstration related to a July 2016 event. Indeed EPA has concurred in at least four demonstration related to the May 2016 event. The demonstrations that have already been made by various states related to the Canadian wildfire in 2016 include:

Connecticut - The Connecticut demonstration related to the May 2016 event was submitted on May 23, 2017.[10] In addition to showing that Canadian wildfire caused the event, the demonstration noted that ". . . the exceedances of May 25-26th cannot be attributed to EGUs operating on high electric demand days as is more typically the case later in the ozone season." EPA concurred in that demonstration on July 31, 2017.

Massachusetts - The Massachusetts demonstration related to the May 2016 event was submitted on May 25, 2017.[11] EPA concurred in that demonstration on September 19, 2017.

New Jersey - The New Jersey demonstration related to the May 2016 was submitted on May 31, 2017.[12] In addition to showing that Canadian wildfire caused the event in New Jersey, the demonstration also noted that the event had had a similar impact on many other states including Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania and New York. EPA concurred in that demonstration on October 24, 2017.

Rhode Island - The Rhode Island demonstration related to the May 2016 event was submitted on June 20, 2017.[13] EPA concurred in that demonstration on September 19, 2017.

Ohio - The Ohio demonstration related to the May 2016 event was submitted on November 15, 2017.[14] We are not aware that EPA has yet addressed the merit of the Ohio demonstration.

[9] https://www.epa.gov/air-quality-analysis/exceptional-events-submissions-table-2007-rule#Ozone
[10] https://www.epa.gov/air-quality-analysis/exceptional-events-documents-ozone-connecticut
[11] https://www.epa.gov/air-quality-analysis/exceptional-events-documents-ozone-massachusetts
[12] https://www.epa.gov/air-quality-analysis/exceptional-events-documents-ozone-new-jersey
[13] https://www.epa.gov/air-quality-analysis/exceptional-events-documents-ozone-rhode-island
[14] http://www.epa.state.oh.us/portals/27/SIP/ozone/exepevent_signedUSEPAletter_11-15-17.pdf

Pennsylvania – Pennsylvania has also made a demonstration related to the May 2016 event dated November 2017.[15] We are not aware that EPA has yet addressed the merit of the Pennsylvania demonstration.

Maryland – While the Maryland demonstration dated May 26, 2017, nominally addresses July 2016 event, the demonstration report itself includes data which assesses how the design values for Maryland's monitors are affected by both the May and July 2016 events.[16] In addition to showing that Canadian wildfire caused the events, the demonstration noted that "Daily aggregate NOx emissions of Indiana, Ohio, West Virginia, Virginia, Pennsylvania Maryland and the District of Columbia for only the month of July from 2010 – 2016 pulled from CAMD showed emissions during late July 2016 were some of the lowest daily emissions ever." We are not aware that EPA has yet addressed the merit of the Maryland demonstration.

It is clear from these demonstrations that the May and July 2016 events were significant and clearly meet the substantive criteria for concurrence by EPA. While the EPA has historically focused on applying Exceptional Event determinations to those monitors that exceed a NAAQS, extending these determinations to all other affected monitors is critical since doing so would assure that all designations were based on appropriate data. In addition, even for a monitor whose attainment status is not changed, accounting for these Exceptional Events would lower the design value for that monitor and increase the critical nonattainment value for each monitor (the ozone concentration in the upcoming ozone season that would be high enough to push a monitor into nonattainment). Moreover, as we move to modeling using a 2014 base case the updated 2016 design values would be directly incorporated into that modeling platform affecting the development of Good Neighbor SIPs and any possible transport rules, state 126 petitions or other planning related to the future attainment year. Finally, appropriately updating these design values would provide a more accurate benchmark for determining if and to what extent upwind states would need to reduce ozone precursor emissions related to transport because that obligation ends when a downwind state achieves attainment of the NAAQS at all monitoring locations.

Even though Connecticut and New Jersey requested consideration of Exceptional Events for at least the May 2016 event, New York has not filed an Exceptional Event Analysis for either the May or July 2016 Exceptional Events. Yet as can be seen from the following data, had the May and July 2016 events been considered, the design values for 25 of New York's monitors (highlighted in yellow) would be significantly lower than has thus far been accepted by EPA[17].

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

[16] http://www.mde.state.md.us/programs/Air/AirQualityMonitoring/Documents/MDE_JUL_21_22_2016_EE_demo.pdf

[17] https://www.epa.gov/sites/production/files/2017-12/documents/ny_nj_ct_new_york-northern_new_jersey-long_island_120d_tsd_final.pdf

AQS Site ID	State Name	County Name	2014-2016 Design Value (ppm)	EPA Accepted 2014-2106 Design Value (ppm)	No Fire 2014-2016 Design Value (ppm)
360010012	New York	Albany	0.064		0.063
360050110	New York	Bronx	0.067	0.067	0.066
360050133	New York	Bronx	0.070	0.070	0.070
360130006	New York	Chautauqua	0.068		0.067
360270007	New York	Dutchess	0.068	0.068	0.067
360290002	New York	Erie	0.069		0.068
360310002	New York	Essex	0.062		0.061
360310003	New York	Essex	0.065		0.063
360319991	New York	Essex	0.058		0.058
360337003	New York	Franklin	0.058		0.057
360410005	New York	Hamilton	0.060		0.059
360430005	New York	Herkimer	0.063		0.058
360450002	New York	Jefferson	0.063		0.062
360551007	New York	Monroe	0.063		0.063
360610135	New York	New York	0.069	0.069	0.068
360631006	New York	Niagara	0.066		0.065
360671015	New York	Onondaga	0.064		0.062
360715001	New York	Orange	0.066	0.066	0.065
360750003	New York	Oswego	0.060		0.060
360790005	New York	Putnam	0.068	0.068	0.068
360810124	New York	Queens	0.069	0.069	0.067
360850067	New York	Richmond	0.076	0.076	0.074
360870005	New York	Rockland	0.072	0.072	0.071
360910004	New York	Saratoga	0.063		0.062
361010003	New York	Steuben	0.059		0.059
361030002	New York	Suffolk	0.072	0.072	0.070
361030004	New York	Suffolk	0.072	0.072	0.070
361030009	New York	Suffolk	0.066		0.065
361099991	New York	Tompkins	0.063		0.061
361173001	New York	Wayne	0.064		0.063
361192004	New York	Westchester	0.074	0.074	0.072

EPA has taken a first step in addressing this matter in its March 27, 2018 memorandum entitled “Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards Pursuant to Section 110(a)(2)(D)(i)(I)” by

Peter Tsirigotis[18] by stating that upwind states may consider as they develop their Good Neighbor SIPs "whether downwind areas have considered and/or used available mechanisms for regulatory relief." In the case of New York, at least, the exceptional events mechanism has not been invoked and, accordingly, New York and similar downwind states should not be allowed to pursue emission reduction demand on upwind states through such mechanisms as Clean Air Act Section 126 petitions, transport rule or challenges to Good Neighbor SIPs.

3. Consideration of international emissions must be included as they eliminate the need to impose any additional emission reductions on sources in upwind states.

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

(a) Implementation plans and revisions

> *Notwithstanding any other provision of law, an implementation plan or plan revision required under this chapter shall be approved by the Administrator if—*
> *(1) such plan or revision meets all the requirements applicable to it under the*[19] *chapter other than a requirement that such plan or revision demonstrate attainment and maintenance of the relevant national ambient air quality standards by the attainment date specified under the applicable provision of this chapter, or in a regulation promulgated under such provision, and*
> *(2) the submitting State establishes to the satisfaction of the Administrator that the implementation plan of such State would be adequate to attain and maintain the relevant national ambient air quality standards by the attainment date specified under the applicable provision of this chapter, or in a regulation promulgated under such provision, but for emissions emanating from outside of the United States.*

In addition, addressing international emissions is particularly important to upwind states as they implement the requirements of CAA section 110(a)(2)(D)(i)(I).

The U.S. Supreme Court has ruled that it is essential that Good Neighbor states be required to eliminate only those amounts of pollutants that contribute to the nonattainment of NAAQS in downwind States. ***Specifically, the Supreme Court stated: "EPA cannot require a State to reduce its output of pollution by more than is necessary to achieve attainment in every downwind State. . ."*** EPA v. EME Homer City Generation, 134 S. Ct. 1584, 1608 (2014).

The D.C. Circuit has also stated "section 110(a)(2)(D)(i)(I) gives EPA no authority to force an upwind state to share the burden of reducing other upwind states' emissions," *North Carolina*, 531 F.3d at 921. Given this ruling by the Court it seems logical that the CAA would not require upwind states to offset downwind air-quality impacts attributable to other *countries*' emissions. Simply put, EPA over-controls a state if the state must continue reducing emissions *after* its linked receptors would attain in the absence of international emissions.

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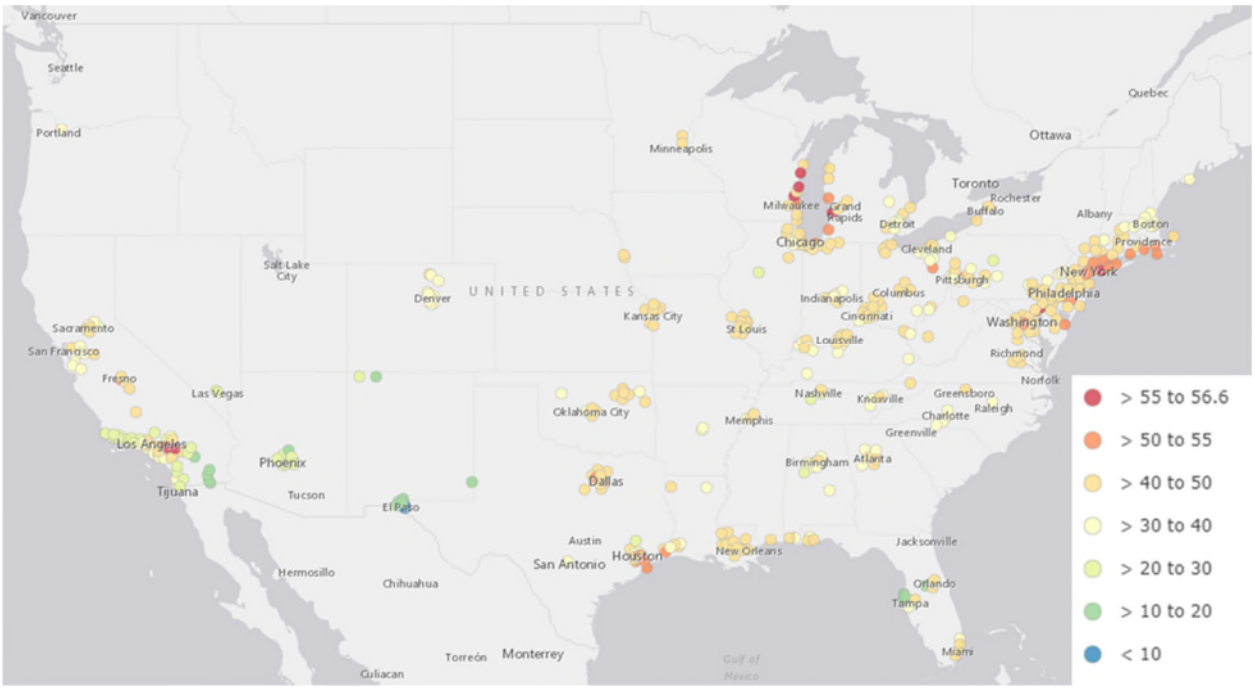
[18] https://www.epa.gov/sites/production/files/2018-03/documents/transport_memo_03_27_18_1.pdf
[19] So in original. Probably should be "this".

Projected 2023 ozone design values (ppb) excluding the contribution from boundary condition, initial condition, Canadian and Mexican emission sources, shown below were prepared by Alpine Geophysics for the Midwest Ozone Group. The exclusion of boundary condition and 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 U.S. will have a design value equal to or less than 56.6 ppb when these categories are excluded. Modeling the U.S. emissions inventory projected to 2023 but without the impact of uncontrollable emission sources demonstrates that the CAA programs in the U.S. are performing as intended.

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

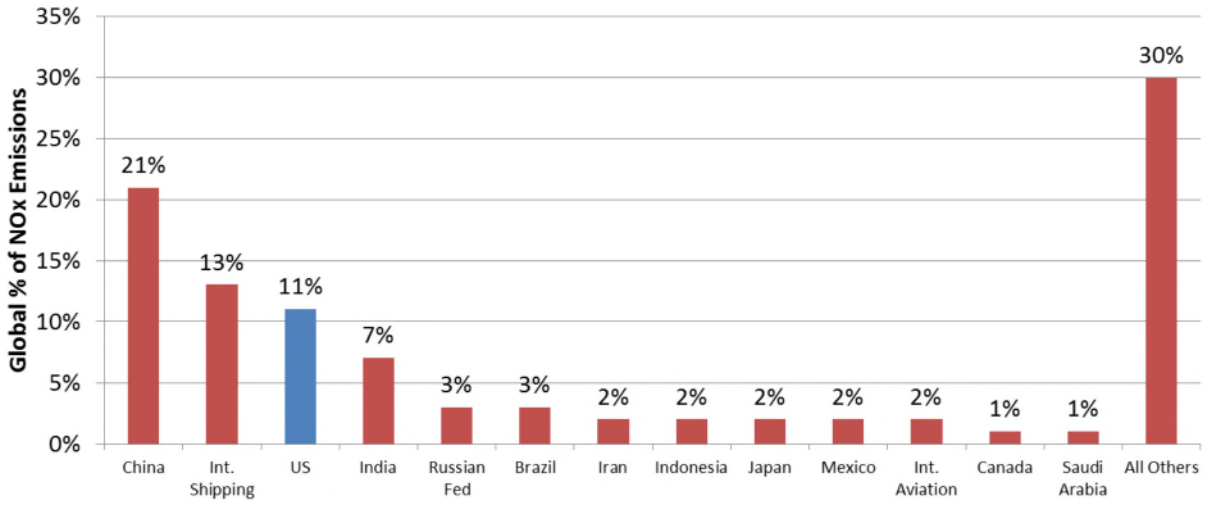


In addition to changing emissions resulting from growth and control in the continental U.S., including both on-the-books and on-the-way controls programs already in place, EPA has identified updated projected emissions in both Canada and Mexico that have been integrated into the modeling platform used in this modeling.[20] 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 contributing to international transport, are on the rise.[21]

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

In support of conclusion that boundary conditions are significantly impacted by international emissions, the following chart illustrates that 89% of the emissions being modeled to establish boundary conditions are related to international sources.[22]

Relative International NOx Emissions (% of Total) Used to Inform Global Model Boundary Concentrations of Ozone



There can be no doubt that international emissions have a significant impact on ambient ozone concentration measurements at all monitors related to this proposal. EPA should recognize the significance of this impact and to determine that but for international emissions there would be no downwind problem areas and therefore no need to for additional action to be undertaken to satisfy the requirements of CAA section 110(a)(2)(D)(i)(I).

[22] European Commission, Joint Research Centre (JRC)/PBL Netherlands Environmental Assessment Agency. Emission Database for Global Atmospheric Research (EDGAR), https://protect-us.mimecast.com/s/N-G6CERPwVI3vMWjhNVQlp?domain=edgar.jrc.ec.europa.eu