COMMENTS OF THE MIDWEST OZONE GROUP REGARDING THE MISSOURI STATE IMPLEMENTATION PLAN REVISION, INTERSTATE TRANSPORT PROVISIONS FOR THE 2015 OZONE STANDARD

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The Midwest Ozone Group (MOG) is pleased to have the opportunity to comment[1] on the proposed "Missouri State Implementation Plan Revision, Interstate Transport Provisions for the 2015 Ozone Standard" (the "Missouri Plan") prepared for the Missouri Air Conservation Commission by the Missouri Department of Natural Resources ("Missouri DNR"). Missouri DNR has invited comments on its Plan through April 4, 2019. MOG strongly supports the Missouri Plan as fully satisfying the requirements of CAA section 110(a)(2)(D)(i)(I) regarding the interstate transport for the 2015 ozone NAAQS.

MOG is an affiliation of companies, trade organizations, and associations that draws upon its collective resources to seek solutions to the development of legally and technically sound air quality programs.[2] MOG's primary efforts are 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 issues and initiatives related to the development and implementation of air quality policy, including the development of transport rules, NAAQS standards, nonattainment designations, petitions under Sections 176A and 126 of the Clean Air Act, NAAQS implementation guidance, the development of Good Neighbor state implementation plans (SIPs) and related regional haze and climate change issues. MOG members and participants operate a variety of emission sources including more than 75,000 MW of coal-fired and coal-refuse fired electric power generation in more than ten states. MOG Members and Participants also own and operate several fossil-fired generating units in the State of Missouri. They are concerned about the development of technically or legally unsubstantiated interstate air pollution actions and the impacts of those actions on their facilities, their employees, their contractors, and the consumers of their products.

1. MOG supports the conclusion that no additional emissions reductions beyond existing and planned controls are necessary to comply with CAA Section 110(a)(2)(D)(i)(I).

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[1] 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. These comments were prepared with the technical assistance of Alpine Geophysics, LLC

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

The issue being addressed in the Missouri Plan is whether after implementation of all on-the-books control measures in Missouri and other upwind states emissions from Missouri will satisfy the Good Neighbor requirements of Section 110(a)(2)(D)(i)(I) which prohibits a state from significantly contributing to nonattainment or interfering with maintenance of any primary or secondary NAAQS in another state.

As was identified in the March 27, 2018 memorandum of EPA's Peter Tsirigotis[3], a four-step process is to be used by EPA to address Good Neighbor requirements. These four steps are:

Step 1: identify downwind air quality problems;

Step 2: identify upwind states that contribute enough to those downwind air quality problems to warrant further review and analysis;

Step 3: identify the emissions reductions necessary to prevent an identified upwind state from contributing significantly to those downwind air quality problems; and

Step 4: adopt permanent and enforceable measures needed to achieve those emission reductions.

Relying principally on modeling work performed by EPA to address Step 1 and Step 2 in this analysis, Missouri DNR has analyzed nonattainment and maintenance monitors in the region and the contribution that Missouri makes to each of those monitors. In doing so, Missouri DNR concludes on page 4 of its Plan that the Missouri Plan is approvable after addressing Step 1 and Step 2 and without the need to address Step 3 and Step 4.

Among the reasons why the Missouri Plan analysis is conservative are the following:

- The Missouri Plan is based largely on the use of EPA's "No Water" 12 km modeling data (rather than the over-water data which typically shows lower ozone concentration projections for the Milwaukee and Sheboygan Wisconsin monitors); and

- The Missouri Plan relied on EPA modeling data that over-estimates EGU NOx emissions by failing to consider the impact of the announced retirements of several coal-fired boilers that will occur in the next several years.

Importantly, Missouri DNR invokes flexibilities developed by EPA as alternative methodologies to identify maintenance monitors and significant contribution of an upwind state to a downwind problem monitor.

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[3] *Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I),* prepared by Peter Tsirigotis, March 27, 2018. https://www.epa.gov/airmarkets/march-2018-memo-and-supplemental-information-regarding-interstate-transport-sips-2015.

Missouri DNR's analysis is indeed a conservative one. MOG supports this analysis and in these comments offers additional data and authorities that support the conclusion that no further emission requirements in Missouri are necessary to satisfy the requirements of CAA section 110(a)(2)(D)(i)(I).

2. MOG agrees with Missouri's conclusion that EPA's 2023 EGU emission projections for Missouri are higher than can now likely be expected.

In the EPA modeling platform relied upon by Missouri DNR to support the Missouri Plan, EPA utilized EGU emission estimates that EPA believed to be appropriate at the time that inventory was prepared. It is significant, however, that as pointed out on page 19 of the Missouri Plan that the annual NOx emissions for EGUs assumed in EPA's modeling work fails to recognize the reduction of some 1,659 tons per year that will occur as the result of announced shutdowns of several utility boilers.

It is apparent, therefore, that the modeling results being relied upon to support the Missouri Plan are likely to overstate Missouri's EGU impact on downwind areas adding to the conservative nature of the conclusion that nothing more needs to be done by Missouri to comply with the requirements of CAA section 110(a)(2)(D)(i)(I).

3. Emission trends in the CSAPR Update region have been decreasing for many years and will continue to do so in the immediate future adding assurance that there will be no interference with any downwind maintenance areas.

NOx emissions have been dramatically reduced in recent years. These NOx emission reductions will continue as the result of "on-the-books" regulatory programs already required by states on their own sources, "on-the-way" regulatory programs that have already been identified by state regulatory agencies and a variety of EPA programs including the CSAPR Update Rule.

Set forth below are tables developed from EPA modeling platform summaries[4] illustrating the estimated total anthropogenic emission reduction and EGU-only emission reduction in the several eastern states. As can be seen in the first table, total annual anthropogenic NOx emissions are predicted to decline by 29% between 2011 and 2017 over the CSAPR domain and by 43% (an additional 1.24 million tons) between 2011 and 2023.

[4] 83 Fed. Reg. 7716 (February 22, 2018).

Final CSAPR Update Modeling Platform Anthropogenic NOx Emissions (Annual Tons).

	Annual Anthropogenic NOx Emissions (Tons)			Emissions Delta (2017-2011)		Emissions Delta (2023-2011)	
State	**2011**	**2017**	**2023**	**Tons**	**%**	**Tons**	**%**
Alabama	359,797	220,260	184,429	139,537	-39%	175,368	-49%
Arkansas	232,185	168,909	132,148	63,276	-27%	100,037	-43%
Illinois	506,607	354,086	293,450	152,521	-30%	213,156	-42%
Indiana	444,421	317,558	243,954	126,863	-29%	200,467	-45%
Iowa	240,028	163,126	124,650	76,901	-32%	115,377	-48%
Kansas	341,575	270,171	172,954	71,404	-21%	168,621	-49%
Kentucky	327,403	224,098	171,194	103,305	-32%	156,209	-48%
Louisiana	535,339	410,036	373,849	125,303	-23%	161,490	-30%
Maryland	165,550	108,186	88,383	57,364	-35%	77,167	-47%
Michigan	443,936	296,009	228,242	147,927	-33%	215,694	-49%
Mississippi	205,800	128,510	105,941	77,290	-38%	99,859	-49%
Missouri	376,256	237,246	192,990	139,010	-37%	183,266	-49%
New Jersey	191,035	127,246	101,659	63,789	-33%	89,376	-47%
New York	388,350	264,653	230,001	123,696	-32%	158,349	-41%
Ohio	546,547	358,107	252,828	188,439	-34%	293,719	-54%
Oklahoma	427,278	308,622	255,341	118,656	-28%	171,937	-40%
Pennsylvania	562,366	405,312	293,048	157,054	-28%	269,318	-48%
Tennessee	322,578	209,873	160,166	112,705	-35%	162,411	-50%
Texas	1,277,432	1,042,256	869,949	235,176	-18%	407,482	-32%
Virginia	313,848	199,696	161,677	114,152	-36%	152,171	-48%
West Virginia	174,219	160,102	136,333	14,117	-8%	37,886	-22%
Wisconsin	268,715	178,927	140,827	89,788	-33%	127,888	-48%
CSAPR States	**8,651,264**	**6,152,990**	**4,914,012**	**2,498,274**	**-29%**	**3,737,252**	**-43%**

When looking exclusively at the estimated EGU emissions used in these modeling platforms, even greater percent decrease is noted between 2011 and 2017 (40% reduction CSAPR-domain wide) and between 2011 and 2023 (51% reduction). These reductions are particularly significant since the CSAPR Update Rule focus exclusively on EGU sources.

Final CSAPR Update Modeling Platform EGU NOx Emissions (Annual Tons).

	Annual EGU NOx Emissions (Tons)			Emissions Delta (2017-2011)		Emissions Delta (2023-2011)	
State	**2011**	**2017**	**2023**	**Tons**	**%**	**Tons**	**%**
Alabama	64,008	23,207	24,619	40,800	-64%	39,388	-62%
Arkansas	38,878	24,103	17,185	14,775	-38%	21,693	-56%
Illinois	73,689	31,132	30,764	42,557	-58%	42,926	-58%
Indiana	119,388	89,739	63,397	29,649	-25%	55,991	-47%
Iowa	39,712	26,041	20,122	13,671	-34%	19,590	-49%
Kansas	43,405	25,104	14,623	18,301	-42%	28,781	-66%
Kentucky	92,279	57,520	42,236	34,759	-38%	50,043	-54%
Louisiana	52,010	19,271	46,309	32,740	-63%	5,701	-11%
Maryland	19,774	6,001	9,720	13,773	-70%	10,054	-51%
Michigan	77,893	52,829	33,708	25,064	-32%	44,186	-57%
Mississippi	28,039	14,759	13,944	13,280	-47%	14,095	-50%
Missouri	66,170	38,064	44,905	28,106	-42%	21,265	-32%
New Jersey	7,241	2,918	5,222	4,323	-60%	2,019	-28%
New York	27,379	10,191	16,256	17,188	-63%	11,123	-41%
Ohio	104,203	68,477	37,573	35,727	-34%	66,630	-64%
Oklahoma	80,936	32,366	21,337	48,570	-60%	59,599	-74%
Pennsylvania	153,563	95,828	49,131	57,735	-38%	104,432	-68%
Tennessee	27,000	14,798	11,557	12,201	-45%	15,442	-57%
Texas	148,473	112,670	103,675	35,804	-24%	44,799	-30%
Virginia	40,141	7,589	20,150	32,553	-81%	19,992	-50%
West Virginia	56,620	63,485	46,324	(6,865)	12%	10,296	-18%
Wisconsin	31,881	15,374	15,419	16,507	-52%	16,462	-52%
CSAPR States	**1,392,682**	**831,466**	**688,175**	**561,216**	**-40%**	**704,508**	**-51%**

Importantly, these estimated 2017 emissions used in the EPA modeling are inflated as compared to the actual 2017 CEM-reported EGU emissions. When the CSAPR-modeled 2017 annual EGU emissions are compared to the actual CEM-reported 2017 annual EGU emissions, it becomes apparent that there is a significant domain-wide overestimation (129,000 annual tons NOx) of the predicted emissions for this category. A similar conclusion is reached when ozone season data is examined as seen in the following chart where ozone season NOx data in the CSAPR states was 24% lower in 2017 than is assumed to be the case in EPA's modeling.

	Ozone Season EGU NOx Emissions (Tons)			Emissions Delta 2017 CEM-2017 EPA	
State	**2011 EPA**	**2017 EPA**	**2017 CEM**	**Tons**	**%**
Alabama	27,672	11,204	11,523	319	3%
Arkansas	18,068	10,016	12,811	2,795	22%
Illinois	29,424	13,575	14,531	956	7%
Indiana	54,149	40,524	22,419	-18,105	-81%
Iowa	17,677	11,480	10,743	-738	-7%
Kansas	19,870	11,333	6,403	-4,931	-77%
Kentucky	40,007	27,527	20,055	-7,472	-37%
Louisiana	26,842	9,865	14,609	4,743	32%
Maryland	9,147	3,326	2,939	-387	-13%
Michigan	35,204	23,086	16,963	-6,122	-36%
Mississippi	14,905	8,188	6,052	-2,137	-35%
Missouri	27,989	17,151	15,400	-1,751	-11%
New Jersey	4,185	1,803	1,684	-119	-7%
New York	13,343	5,299	5,533	234	4%
Ohio	44,748	28,188	21,005	-7,183	-34%
Oklahoma	40,875	16,720	11,043	-5,677	-51%
Pennsylvania	69,222	40,298	14,435	-25,863	-179%
Tennessee	13,185	6,952	10,135	3,182	31%
Texas	74,143	57,123	54,375	-2,748	-5%
Virginia	19,763	3,773	8,049	4,276	53%
West Virginia	24,729	26,386	18,463	-7,923	-43%
Wisconsin	14,059	6,556	8,104	1,547	19%
CSAPR States	**639,206**	**380,376**	**307,272**	**-73,104**	**-24%**

These data conclusively demonstrate that annual anthropogenic NOx emissions in the CSAPR Update region are projected to be significantly reduced through 2017, with overall actual EGU 2017 emissions being even lower than EPA's CSAPR-modeled estimates. Emission trends for these states have been deceasing for many years and will continue to decrease through at least 2023 as the result of nothing more than on-the-books controls.

4. Had current air modeling projections taken into account the significant emission reduction programs that are legally mandated to occur prior to 2023, even better air quality would have been predicted.

There are several legally mandated NOx emission reductions programs that have not yet been included in the current modeling efforts related to 2023 ozone predictions. These programs, both individually and collectively, will have a material effect on predicted air quality in those downwind areas.

When an area is measuring nonattainment of a NAAQS, as is the case with the Sheboygan monitor, the Clean Air Act (CAA) requires that the effects and benefits of local controls on all source sectors be considered first, prior to 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 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 this has occurred 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 incorporate local emission reductions programs that are required to improve ambient ozone 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. [5]

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 State Implementation Plans (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.

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

These programs as well other local control programs will almost certainly improve ozone predictions in 2023. Accounting for the programs and the related emission reductions at this time offers additional support for Missouri DNR's conclusion that on-the-books control programs are all that is needed to address the 2015 ozone NAAQS.

5. Missouri DNR is correct in concluding that a 1% significant contribution test is inappropriate and should not be applied.

For many months, EPA has had under consideration the appropriateness of the use of its 1% significance test to determine whether an upwind state significantly contributes to downwind non-attainment or interference with downwind maintenance areas. While EPA's March 27, 2018 memo related to interstate transport state implementation plan submission involving the 2015 ozone NAAQS provides a set of contributions by upwind states to downwind states, that data is not based on a particular significance threshold.[6] Indeed, that memo identifies the significance threshold as one of the flexibilities that a state may wish to consider in the development of its Good Neighbor SIP. Specifically, EPA offers the following description of this flexibility:

> *Consideration of different contribution thresholds for different regions based on regional differences in the nature and extent of the transport problem.*

On August 31, 2018, EPA issued significant new guidance in which it analyzed 1 ppb and 2 ppb alternatives to the 1% significance level that it has historically used.[7] In that memo, EPA offers the following statement:

> *Based on the data and analysis summarized here, the EPA believes that a threshold of 1 ppb may be appropriate for states to use to develop SIP revisions addressing the good neighbor provisions for the 2015 ozone NAAQS.*

As Missouri DNR correctly points out (Missouri Plan, page 9), EPA's March 2018 "No Water" data identified the following four monitors as being linked to Missouri, but only if the significant contribution threshold is set at 1%:

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[6] *Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I)*, prepared by Peter Tsirigotis, March 27, 2018, p. A-2. https://www.epa.gov/airmarkets/march-2018-memo-and-supplemental-information-regarding-interstate-transport-sips-2015.

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

			Ozone Design Value / Contribution Concentration (ppb)				
Monitor	**State**	**County**	**2009-2013 Avg DV**	**2009-2013 Max DV**	**2023 Avg DV**	**2023 Max DV**	**MO Contribution**
261630019	Michigan	Wayne	78.7	81	69.0	71.0	0.92
480391004	Texas	Brazoria	88.0	89	74.0	74.9	0.88
482011039	Texas	Harris	82.0	84	71.8	73.5	0.88
550790085	Wisconsin	Milwaukee	80.0	82	71.2	73.0	0.93

Accordingly, with a significant contribution threshold set at 1 ppb, there is no need to further evaluate these four monitors.

In its August 31, 2018 guidance memorandum, EPA also evaluated the use of 2 ppb as a significant contribution threshold. In doing so EPA compared the 2 ppb alternative to the 1 ppb alternative using data which averaged all receptors outside California. In that broader context, EPA determined that using a 1 ppb threshold captures 86 percent of the net contribution captured using a 1% threshold whereas a 2 ppb threshold captures only half of the net contribution using 1%. A different picture is presented, however, when the receptors east of the Mississippi River (involving the states of Connecticut, Maryland, Michigan, New York and Wisconsin) are considered separately from the states of Arizona, Colorado and Texas. In that case, use of a 1 ppb threshold captures 92% of the net contribution captured using a 1% threshold compared with 78% for the 2 ppb threshold.

As Missouri DNR correctly points out, in the case of the Sheboygan Wisconsin monitor, the application of a 2 ppb significant contribution threshold captures 85.9 % of what would have been captured at 1 ppb. This makes 2 ppb an appropriate contribution level to be applied to Missouri's contribution to the Sheboygan monitor. Indeed, the Sheboygan Wisconsin monitor, even with a 2 ppb significance level would capture a higher percent of upwind contribution (at 68.2%) than would be captured at 1 ppb at many monitors.[8]

[8] *Id.* at pages 6 and 7.

6. An alternative methodology should be used to determine whether the Allegan MI monitor should be considered a maintenance monitor.

As stated above, Missouri DNR has correctly determined that it is linked to only one maintenance monitor – Allegan MI – based upon the technique used by EPA to identify maintenance monitors in the CSAPR rule.[9]

On October 19, 2018, EPA issued new guidance[10] in the form of a memorandum entitled "Considerations or Identifying Maintenance Receptors for Use in Clean Air Act Section 110(a)(2)(D)(i)(I) Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards" ("EPA's Memo"). That guidance recognizes an alternative methodology for making the determination of the monitor's status as a maintenance monitor.

Missouri DNR applied data from EPA's 12 km modeling to correctly conclude on page 17 of the Missouri Plan that the Allegan Monitor meets the criteria in the EPA October memo and accordingly "Missouri need not consider the Allegan monitor a maintenance monitor under step 1 of the EPA framework."

At MOG's request, Alpine Geophysics was requested to perform state-of-the-science modeling to address the concerns about whether modeling with a 12 km grid is sufficiently refined to address the land/water interface issues. To address this concern, Alpine Geophysics undertook to rerun EPA's 2011/2023en modeling platform using 4km-processed emissions. This was done in an effort to refine modeled ozone concentrations at and near land-water interface receptors. The results of the refined 4km modeling have been incorporated into a Technical Support Document (TSD) which is available on the MOG web site[11] and is attached to these comments and identified as Exhibit A.

Alpine Geophysics was then tasked by MOG to review EPA's October 19, 2018 Memo and to apply MOG's refined 4km modeling results as well as observed ozone concentrations to relevant monitors to determine whether those monitors would qualify as maintenance monitors under EPA's alternative methodology. A copy of that analysis is available on the MOG web site[12] and is attached to these comments and identified as Exhibit B. One of the monitors examined by Alpine Geophysics in this analysis was the Allegan monitor where the data confirms (as will be demonstrated below) that the Allegan monitor need not be considered a maintenance monitor.

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[9] This same analysis would also apply to the Sheboygan WI monitor if that monitor were to be reclassified from a nonattainment monitor to a maintenance monitor utilizing the CSAPR rule criteria.

[10] https://www.epa.gov/airmarkets/considerations-identifying-maintenance-receptors-memo

[11] "Air Quality Modeling Technical Support Document for Midwest Ozone Group's Updated 4km Modeling," prepared by Alpine Geophysics, LLC, Burnsville, NC. December 2018. http://www.midwestozonegroup.com/files/Final_TSD_-_Updated_4km_Ozone_Modeling_Dec_2018_.pdf.

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

Under EPA's Memo, a modeled demonstration would first need to show that using an alternative base year period would lead to a projected future year design value at or below a concentration of 70.9 ppb which demonstrates modeled attainment of the 2015 ozone NAAQS of 70 ppb. If that demonstration is successful, EPA's Memo states that EPA would expect states to include with their SIP demonstration submission technical analyses showing that:

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

EPA's Memo provided the meteorological data to support #1 above. EPA also provided historical emission trends[13] and emission projections[14] that demonstrate continued decline of ozone precursors through 2023 to support #3. Alpine Geophysics then used modeled ozone concentration data from EPA's 12km and MOG's refined 4km modeling, as well as historical observed concentrations, to demonstrate #2.

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

The Allegan MI monitor has been identified by Missouri DNR as the only monitor linked to Missouri that can be characterized as a maintenance monitor under the CSAPR test. A first step in applying the flexibility guidance set forth in EPA's Memo is to determine whether this monitor can be shown to attain the 2015 ozone NAAQS under the alternative methodology. Alpine Geophysics reviewed the 2023 ozone design value for this monitor using alternate base year concentrations (from the three, three-year time periods between 2009 – 2013). These data, presented in the following table, demonstrate that this monitor has at least one alternate base year period design value that results in a 2023 projection equal to or lower than the 70.9 ppb. This data satisfies this condition of EPA's alternative methodology.

[13] https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data
[14] https://www.epa.gov/air-emissions-modeling/additional-updates-2011-and-2023-emissions-version-63-platform-technical

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

				2023 Ozone Design Value (ppb)		
Monitor	**State**	**County**	**DVb (2011)**	**DVf (Ave)**	**DVf (Max)**	**DVf (Max 2009/11)**
260050003	Michigan	Allegan	82.7	70.0	72.8	66.1

b. **Meteorological conditions of this monitor were conducive to ozone formation.**

One of the criteria established in EPA's Memo for approving an alternative demonstration of a monitor's maintenance status is that the "meteorological conditions in the area of the monitoring site were conducive to ozone formation during the period of clean data or during the alternative base period design value used for projections."

EPA's Memo at page A-3 goes on to offer the following general comment on meteorological conditions:

> *In general, below average temperatures are an indication that meteorological conditions are unconducive for ozone formation, whereas above average temperatures are an indication that meteorology is conducive to ozone formation. Within a particular summer season, the degree that meteorology is conducive for ozone formation can vary from region to region and fluctuate with time within a particular region. For example, the temperature-related information presented below suggests that summer meteorology was generally conducive for ozone formation in 2010, 2011, 2012 and 2016 in most regions. In contrast, the summer of 2009 was generally unconducive for ozone formation, overall, in most regions. In addition, the summers of 2013 and 2014 were not particularly conducive for ozone formation in the Upper Midwest, Ohio Valley, South, Southeast.*

With respect to Allegan MI, the alternative demonstration is based upon alternative base year periods involving the years 2009 through 2011.While EPA offers the caution that the summer of 2009 was generally not conducive for ozone formation, we have been careful to develop an alternative demonstration for this monitor that does not rely on 2009 exclusively. Rather, the alternative base case period selected for the following monitors also includes the average of the years 2010 and 2011 which clearly are ozone conducive years:

By basing model projections for the attainment year of 2023 on alternative base period design values for ozone conducive years, the Allegan MI monitor meets the meteorological threshold of EPA's Memo.

c. Ozone concentrations are trending downward.

As an additional supporting case to the flexibility in identifying maintenance monitors, EPA guidance provides that a state would need to show that "ozone concentrations have been trending downward at the site since 2011". The first table below presents 4th high ozone concentration data[15] measured at each noted receptor and a calculated slope between 2011 and the most recently EPA-approved 4th high concentrations from 2017. The second table below presents a count of the number of ozone exceedance days per monitor per year relative to the 2015 70 ppb ozone NAAQS.

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

			4th High Ozone Concentration (ppb)							
Monitor	**State**	**County**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**Slope (2011-2017) (ppb/yr)**
260050003	Michigan	Allegan	85	95	78	77	72	76	71	-3.07

Daily Ozone Exceedance Counts and Slope Calculation for Allegan MI in the 4km Domains.

			Daily Ozone Exceedance Counts							
Monitor	**State**	**County**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**Slope (2011-2017**
260050003	Michigan	Allegan	9	36	8	7	4	9	4	-2.61

In the case of the Allegan MI monitor, negative slopes for both 4th high ozone concentrations and daily ozone exceedance counts demonstrates the necessary downward trends in ozone concentrations necessary to satisfy this requirement of EPA's Memo.

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

d. **Emissions of ozone precursors have been trending downwards since 2011 and are expected to continue to decline.**

NOx and VOC emissions across the CSAPR region have been dramaticaly reduced in recent years. These emission reductions will continue as the result of "on-the-books" regulatory programs already required by states on their own sources, "on-the-way" regulatory programs that have already been identified by state regulatory agencies as efforts that they must undertake as well as from the effectiveness of a variety of EPA programs including the CSAPR Update Rule.

Presented below are supplemental VOC emission tables to those discussed for NOx in Section 3 of this document and as developed from EPA modeling platform summaries[16] illustrating the estimated total anthropogenic emission reduction in the CSAPR states.

As was seen in the NOx emission tables in Section 3, total annual anthropogenic NOx emissions are predicted to decline by 29% between 2011 and 2017 over the CSAPR domain and by 43% (an additional 1.24 million tons) between 2011 and 2023.

It is significant that the estimated 2017 emissions used in the EPA modeling are inflated as compared to the actual 2017 CEM-reported EGU emissions. As also reported in tables from Section 3, when the CSAPR-modeled 2017 annual EGU emissions are compared to the actual CEM-reported 2017 annual EGU emissions, it becomes apparent that there is a significant domain-wide overestimation (129,000 annual tons NOx) of the predicted emissions for this category.

Similar to NOx, as seen in the table below, total annual anthropogenic VOC emissions are predicted to decline by 9% between 2011 and 2017 over the CSAPR domain and by 15% (an additional 1.43 million tons) between 2011 and 2023.

[16] 83 Fed. Reg. 7716 (February 22, 2018).

Final CSAPR Update Modeling Platform Anthropogenic VOC Emissions (Annual Tons).

	Annual Anthropogenic VOC Emissions (Tons)			Emissions Delta (2017-2011)		Emissions Delta (2023-2011)	
State	**2011**	**2017**	**2023**	**Tons**	**%**	**Tons**	**%**
Alabama	393,465	328,996	306,583	64,468	-16%	86,882	-22%
Arkansas	342,779	312,750	295,210	30,029	-9%	47,569	-14%
Illinois	372,137	320,543	294,087	51,594	-14%	78,049	-21%
Indiana	284,378	226,734	200,827	57,644	-20%	83,551	-29%
Iowa	191,201	158,520	144,326	32,681	-17%	46,875	-25%
Kansas	461,871	457,042	388,734	4,828	-1%	73,137	-16%
Kentucky	273,603	236,383	214,051	37,220	-14%	59,551	-22%
Louisiana	692,238	647,568	586,378	44,670	-6%	105,860	-15%
Maryland	125,468	105,316	95,511	20,152	-16%	29,957	-24%
Michigan	450,276	350,937	301,599	99,339	-22%	148,677	-33%
Mississippi	274,537	236,316	213,200	38,221	-14%	61,338	-22%
Missouri	377,268	331,054	307,386	46,214	-12%	69,882	-19%
New Jersey	183,091	152,805	141,113	30,286	-17%	41,978	-23%
New York	417,438	337,078	301,794	80,361	-19%	115,645	-28%
Ohio	391,315	306,215	303,144	85,101	-22%	88,172	-23%
Oklahoma	607,943	561,947	538,770	45,996	-8%	69,172	-11%
Pennsylvania	376,322	317,876	293,703	58,446	-16%	82,618	-22%
Tennessee	290,998	231,537	207,178	59,461	-20%	83,820	-29%
Texas	2,194,868	2,324,259	2,244,343	(129,391)	6%	(49,475)	2%
Virginia	295,360	254,049	235,605	41,311	-14%	59,755	-20%
West Virginia	139,516	173,841	172,511	(34,324)	25%	(32,995)	24%
Wisconsin	288,296	231,988	204,074	56,308	-20%	84,222	-29%
CSAPR States	**9,424,368**	**8,603,753**	**7,990,125**	**820,614**	**-9%**	**1,434,242**	**-15%**

EPA's October 19, 2018 guidance memo offers states the option of using an alternative method of identifying maintenance monitors to be addressed in their Good Neighbor SIPs related to the 2015 ozone NAAQS. When current data is applied to the various criteria identified by EPA, it is clear that the Allegan MI monitor should <u>not</u> be considered a maintenance monitor for purposes related to the 2015 ozone NAAQS.

7. In the development of its Good Neighbor SIP, maintenance areas should not be treated the same as nonattainment areas.

Maintenance areas should not be subject to the same "significance" test as is applied to nonattainment areas. Maintenance areas do not require the same emission reduction requirements as nonattainment areas, and therefore, require different management.

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.*[17]

The D.C. Circuit opinion in *EME Homer City v. EPA*, 96 F.3d 7, 27 Ftn 25 (D.C. Cir 2012, also informs the maintenance area 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 invitation for EPA to impose reductions on upwind States. Rather, it is a carefully calibrated and commonsense supplement to the "contribute significantly" requirement.*

[17] 134 S. Ct. at 1064, Ftn 18.

EPA's January 17, 2018, brief in the CSAPR Update litigation (*Wisconsin et al. v EPA*, Case No. 16-1406) documents with the following statement on pages 77 and 78 that EPA is ready to concede that a lesser level of control is appropriate in situations not constrained by the time limits of the CSAPR Update:

> *Ultimately, Petitioners' complaint that maintenance-linked states are unreasonably subject to the "same degree of emission reductions" as nonattainment linked states must fail. Indus. Br. 25. There is no legal or practical prohibition on the Rule's use of a single level of control stringency for both kinds of receptors, provided that the level of control is demonstrated to result in meaningful air quality improvements without triggering either facet of the Supreme Court's test for over-control. So while concerns at maintenance receptors can potentially be eliminated at a lesser level of control in some cases given the smaller problem being addressed, this is a practical possibility, not a legal requirement. See 81 Fed. Reg. at 74,520. Here, EPA's use of the same level of control for both maintenance-linked states and nonattainment-linked states is attributable to the fact that the Rule considered only emission reduction measures available in time for the 2017 ozone season. Id. at 74,520. Under this constraint, both sets of states reduced significant emissions, without over-control, at the same level of control. Id. at 74,551-52. Accordingly, EPA's selection of a uniform level of control for both types of receptors was reasonable.* Emphasis added.

As an alternative to maintenance monitors being treated the same as nonattainment monitors, we urge that Missouri DNR take the position that no additional control would be needed to address a maintenance monitor if it is apparent that emissions and air quality trends make it likely that the maintenance monitor will remain in attainment. Such an approach is consistent with Section 175A(a) of the Clean Air Act which provides:

> *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 ten years after the redesignation. The plan shall contain such additional measures, if any, as may be necessary to ensure such maintenance.*

It is also consistent with the John Calcagni memorandum of September 4, 1992, entitled "Procedures for Processing Requests to Redesignate Areas to Attainment", which contains the following statement on page 9:

> *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 that 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.

On pages 17 and 18 of the Missouri Plan, the agency calculates Missouri's proportional responsibility for contribution to the Allegan Michigan monitor – a maintenance monitor. While this calculation suggests that Missouri has a "required reduction" of 0.06 ppb to bring this monitor into attainment, MOG believes this statement to be overly conservative. Our concern is based in part on our agreement with Missouri DNR that this monitor should actually be treated as an attainment monitor. In addition, while the proportional calculation employed by Missouri DNR is entirely appropriate for nonattainment monitors, we do not believe that it is appropriate for application to a maintenance monitor. As noted earlier, there is neither legal nor technical support for attaching the same weight to maintenance monitors as might be attached to a nonattainment monitor. Any impacts which Missouri has on a maintenance monitor will certainly be addressed by consideration of controls that are already on the books and by emissions reductions that have been and will continue to apply to Missouri sources as is well-demonstrated by these comments and the remainder of the Missouri Plan.

Accordingly, MOG urges that Missouri DNR apply an alternate methodology to assess maintenance monitors than it would to assess nonattainment monitors.

8. Consideration of international emissions also adds support to the conclusion that there is no further obligation to reduce emissions.

As an integral part of the consideration of the Missouri Plan, MOG supports an assessment of the impact of natural and manmade international emissions on the ultimate question of whether the downwind monitors can be properly considered either nonattainment or maintenance monitors.

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 [18] chapter other than a requirement that such plan or revision demonstrate

[18] So in original. Probably should be "this".

> *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).

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."[19] However, this "mess" seems to be related to international emissions for which upwind states and sources have no responsibility.

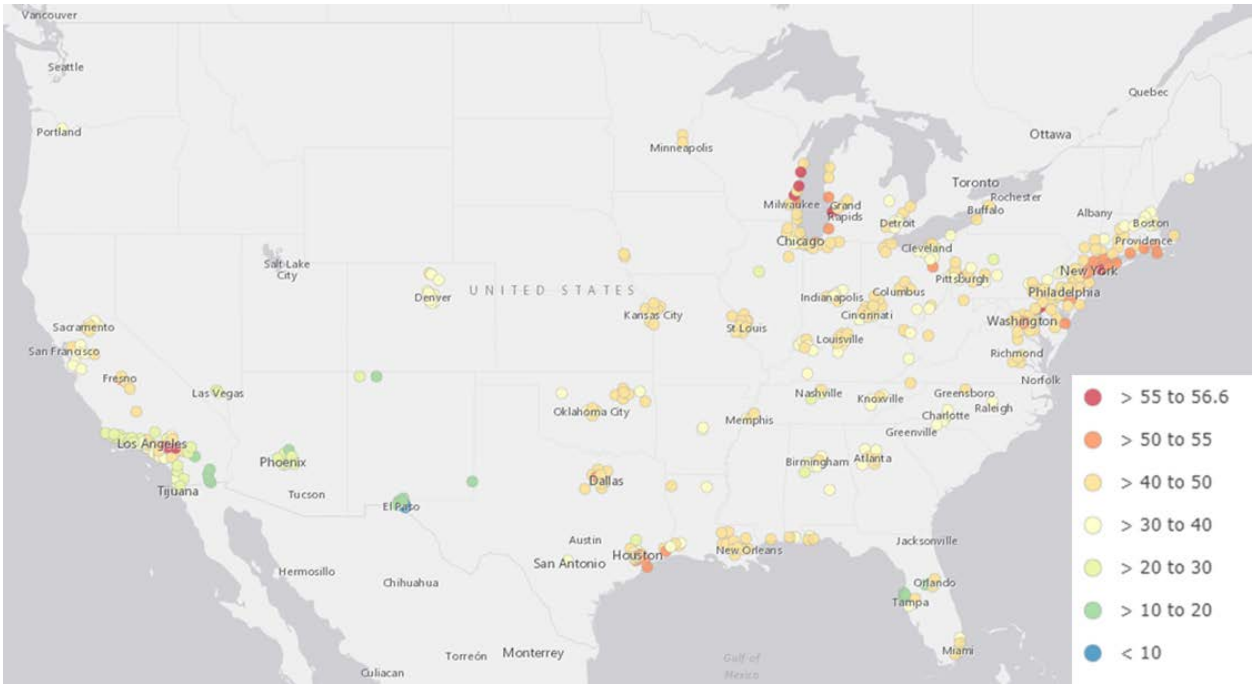
The D.C. Circuit has also stated "section 110(a)(2)(D)(i)(I) gives EPA no authority to force an upwind state to share the burden of reducing other upwind states' emissions,".[20] Given this ruling by the Court it seems logical that the CAA would not require upwind states to offset downwind air-quality 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.

Projected 2023 ozone design values (ppb) excluding the contribution from boundary condition, initial condition, Canadian and Mexican emission sources shown below was prepared by Alpine Geophysics for MOG, and depicts the projected 2023 8-hour ozone design values across the U.S., excluding the contribution from boundary and initial condition, Canadian, and Mexican emission sources. 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. with 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

[19] *EME Homer City Generation, L.P. v EPA*, 696 F.3d 7, 13 (D.C. Cir. 2012).
[20] *North Carolina v. EPA*, 531 F.3d 896, 921 (D.C. Cir. 2008).

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

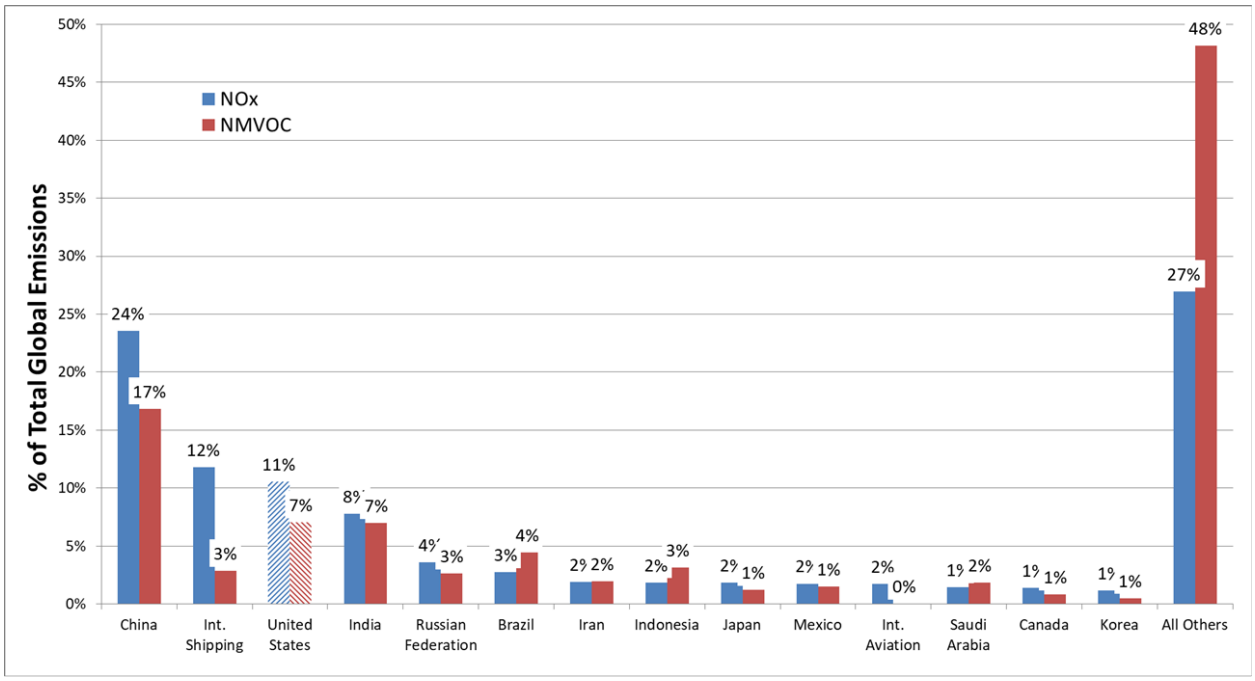


In addition to changing emissions resulting from growth and control in the continental U.S., EPA has identified updated projected emissions in both Canada and Mexico that have been integrated into the modeling platform used in this modeling.[21] EPA's modeling boundary conditions, however, have been 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.[22]

In support of conclusion that boundary conditions are significantly impacted by international emissions, the following chart illustrates that 89% of the NOx emissions and 93% of non-methane VOC being modeled to establish boundary conditions are related to international sources.[23]

[21] EPA-HQ-OAR-2016-0751-0009.
[22] Atmos. Chem. Phys., 17, 2943–2970(2017).
[23] 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

Relative International NOx and Non-Methane VOC Emissions (% of Global Total) Used to Inform Global Model Boundary Concentrations of Ozone



There can be no doubt that international emissions have a significant impact on ozone measurements at all monitors related to the Missouri Plan. On page 19 of the Missouri Plan the agency concluded that international emission impacts should be subtracted from the predicted ozone concentrations to determine the nonattainment or maintenance status of the Allegan monitor.

Consideration of international emissions also provides an additional reason for the exclusion of the Sheboygan, Wisconsin monitor from further consideration in the development of the Missouri Plan. As discussed earlier, Missouri DNR properly determined that Sheboygan could be excluded from consideration at Step 2 since Missouri did not significantly contribute to that monitor at a level of 2 ppb or greater. MOG's additional analysis of this monitor leads to the conclusion that Sheboygan could be excluded from further consideration at Step 1 had international emissions been considered.

To address the impact of international emissions on Sheboygan, Alpine Geophysics, LLC was tasked by the Midwest Ozone Group to develop an independent source apportionment modeling analysis of its 4kei modeling platform. The results of this analysis have been included in a Technical Support Document that identifies the methods and approaches used to perform this study. A copy of

the report on that study is available on the MOG web site[24] and is attached to these comments and identified as Exhibit C.

After applying the approach described in the TSD to evaluate the projected design values from the 4km analysis, Alpine identified a list of nonattainment and maintenance monitors located within two eastern 4km domains resulting from the approach. Sheboygan, Wisconsin was identified to have the last remaining modeled nonattainment monitor from the two 4km domains as defined using Alpine's 4km simulation, and is identified in the following table along with its calculated 2023 average and maximum design values from both EPA's "no water" calculation approach, and Alpine's 4km simulation compared to its most current 2015-2017 ozone design value.

Alpine 4km Modeling-identified nonattainment monitor in the 4km domains.

			Ozone Design Value (ppb)					
				EPA "No Water" 12km Modeling		Alpine Updated 4km Modeling		
Monitor	State	County	DVb (2011)	DVf (2023) Ave	DVf (2023) Max	DVf (2023) Ave	DVf (2023) Max	2015-2017 DV
551170006	WI	Sheboygan	84.3	72.8	75.1	71.5	73.8	80

The contribution modeling that was conducted as part of this study provided contributions to ozone from NOx and VOC emissions by region and source category. The following table provides these results showing the region and source category contribution at the Sheboygan, WI monitor (551170006).

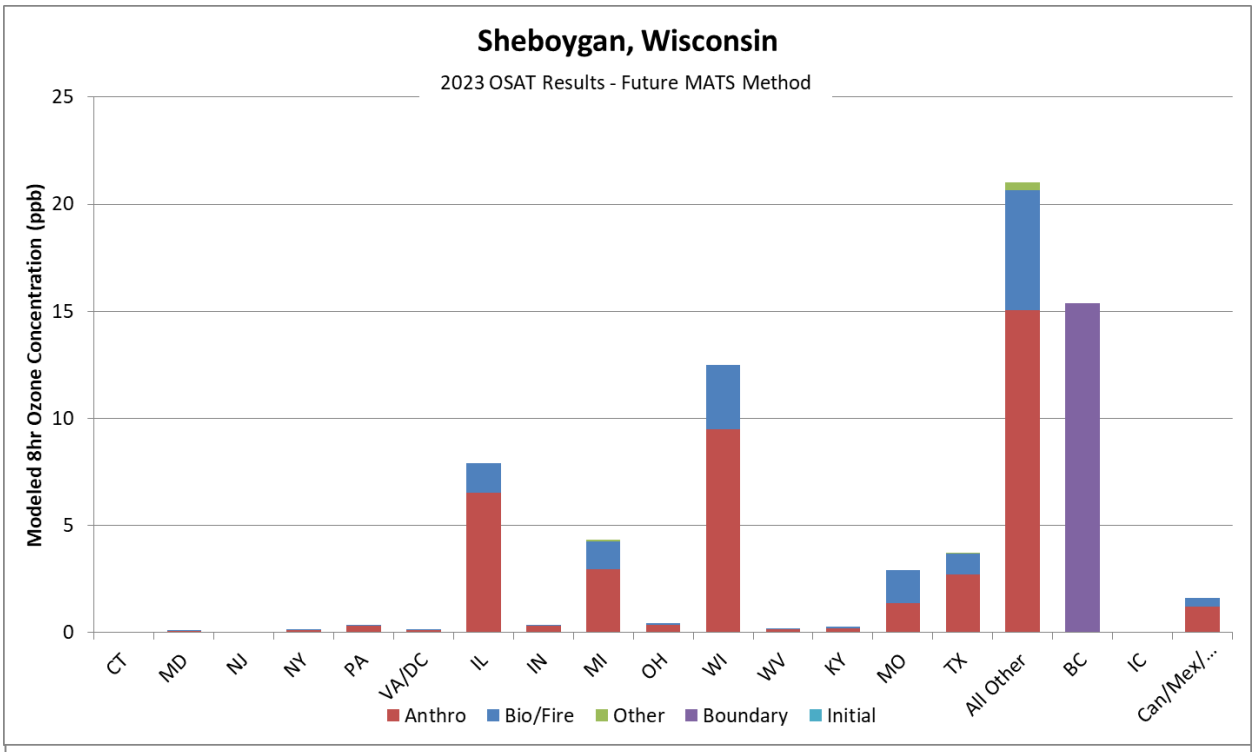
[24] "Good Neighbor" Modeling Technical Support Document for 8-Hour Ozone State Implementation Plans Using MOG's 4kei Modeling Platform, Prepared by Alpine Geophysics LLC, March 2019, http://midwestozonegroup.com/files/Final_TSD_-_Ozone_4kei_Modeling_Supporting_GN_SIP_Obligations.pdf

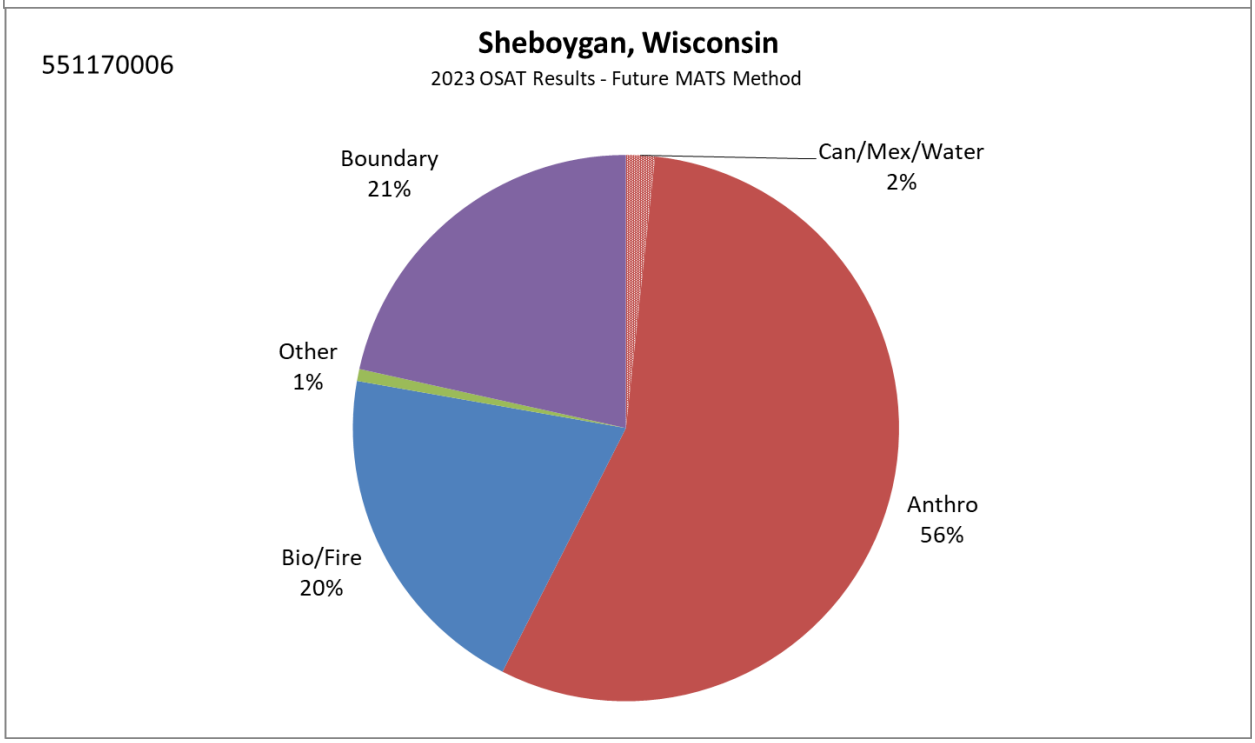
Sheboygan WI monitor and 2023 base case 4kei dv-scaled source apportionment output.

Monitor	551170006	Sheboygan, Wisconsin		CSAPR DV (Ave)		71.5
	2023 OSAT Results (Modeled ppb) -- Future MATS Method					
Region	**Anthro**	**Bio/Fire**	**Other**	**Boundary**	**Initial**	**Total**	**% of Total**
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.06	0.01	0.00	0.00	0.00	0.07	0%
NJ	0.01	0.00	0.00	0.00	0.00	0.01	0%
NY	0.11	0.02	0.00	0.00	0.00	0.13	0%
PA	0.31	0.04	0.00	0.00	0.00	0.35	0%
VA/DC	0.13	0.02	0.00	0.00	0.00	0.16	0%
IL	6.53	1.38	0.00	0.00	0.00	7.90	11%
IN	0.32	0.06	0.00	0.00	0.00	0.38	1%
MI	2.97	1.29	0.08	0.00	0.00	4.34	6%
OH	0.37	0.07	0.00	0.00	0.00	0.44	1%
WI	9.50	3.02	0.00	0.00	0.00	12.52	18%
WV	0.17	0.02	0.00	0.00	0.00	0.19	0%
KY	0.22	0.06	0.00	0.00	0.00	0.28	0%
MO	1.39	1.55	0.00	0.00	0.00	2.94	4%
TX	2.73	0.94	0.07	0.00	0.00	3.74	5%
All Other	15.05	5.61	0.35	0.00	0.00	21.01	29%
BC	0.00	0.00	0.00	15.39	0.00	15.39	22%
IC	0.00	0.00	0.00	0.00	0.00	0.00	0%
Can/Mex/Water	1.22	0.41	0.00	0.00	0.00	1.63	2%
Monitor Total	**41.09**	**14.51**	**0.51**	**15.39**	**0.00**	**71.50**	**100%**

If the value is highlighted in red, the region-anthropogenic contribution to the monitor is equal to or in excess of 1.0 ppb. The green highlighted cell indicates that “but for” contributions from Canadian, Mexican, and offshore international commercial marine vessel identified emissions, the receptor would show a demonstrated, modeled attainment of the 70 ppb NAAQS in 2023 (CSAPR DV – Can/Mex <= 70.9 ppb).

These data for Sheboygan are illustrated in the following graphics.





If it is determined that "but for" international emissions there would be no downwind problem areas, then there would be no requirement for any additional action to be undertaken to

satisfy the requirements of CAA section 110(a)(2)(D)(i)(I). As can be seen in this analysis, allowing credit for only the Canada/Mexico/over water portion of international emissions would be sufficient to allow Sheboygan to join the Allegan receptor in being considered an attainment monitor.

9. Mobile sources have the most significant impact on ozone concentrations at the problem monitors identified in the Missouri DNR proposal.

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 that have the most significant impact on ozone concentrations and the problem monitors identified in this proposal, and that these sources must be addressed by EPA before requiring additional emission reductions from upwind states.

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.

We strongly agree that mobile source emissions are the dominant contributor to predicted ozone concentrations across the nation. At the request of MOG, 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 these emissions 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[25]. As can been seen in this table, consistent with EPA's national assessment of mobile source emissions,

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

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%
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.* In response to the D.C. Circuit opinion, EPA clarified its position relative to state non-road regulatory authority in 40 CFR 89, Subpart A, Appendix A - State Regulation of Nonroad Internal Combustion Engines as follows:

EPA believes that states are not precluded under section 209 from regulating the use and operation of nonroad engines, such as regulations on hours of usage, daily mass emission limits, or sulfur limits on fuel; nor are permits regulating such operations precluded, once the engine is no longer new. EPA believes that states are precluded from requiring retrofitting of used nonroad engines except that states are permitted to adopt and enforce any such retrofitting requirements identical to California requirements which have been authorized by EPA under section 209 of the Clean Air Act. [62 FR 67736, Dec. 30, 1997]

Given the dominant role of mobile sources in impacting on ozone air quality, MOG believes that additional local mobile source controls in downwind states are necessary before requiring additional emission reductions from upwind states. We urge that downwind states take full advantage of all of the authority provided to each of them under the CAA and to reduce mobile source emissions appropriately to assure continued attainment of the 2015 ozone NAAQS.

10. 2023 is the appropriate year for assessing Good Neighbor SIP requirements related to the 2015 ozone NAAQS.

MOG agrees with the conclusion reached by Missouri DNR on page 6 of the Missouri Plan that it is appropriate for the modeling results relied upon by the agency to have been based on 2023 as the future analytic year. That year was selected by EPA as the basis for its modeling "because it aligns with the anticipated attainment year for the Moderate ozone nonattainment areas".[26] Indeed, 2023 aligns with the last full ozone season before the attainment year for Moderate ozone nonattainment areas.

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 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.*[27]

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*

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[26] *Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I),* prepared by Peter Tsirigotis, March 27, 2018, p. 3. https://www.epa.gov/airmarkets/march-2018-memo-and-supplemental-information-regarding-interstate-transport-sips-2015.

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

downwind areas, as instructed by the court in North Carolina v. EPA, 531 F.3d 896, 911-12 (D.C. Cir. 2008).[28]

MOG strongly urges continued efforts to follow the court holding *North Carolina v. EPA*, 531 F.3d 896, 911-12 (D.C. Cir. 2008), and to assure alignment of the implementation of Good Neighbor SIPs with the date by which states are required to demonstrate attainment with the applicable NAAQS. There must be continued recognition that air quality will improve between the 2018 due date for Good Neighbor SIPs and the 2023 attainment deadline as a result of additional local controls in nonattainment areas as well as CAA programs including Federal Measures, federally mandated state RACT rules, nonattainment infrastructure SIPs, and Good Neighbor SIPs. While the Federal measures, state RACT rules, nonattainment infrastructure SIPs, and other control programs will all significantly improve air quality in many nonattainment areas, those programs will all be implemented after the Good Neighbor SIPs are due, which means that states will need to carefully consider how best to address those air quality improvements as part of their Good Neighbor SIP submittals.

The failure to include the benefits of these programs in Good Neighbor SIPs will result in over-control of upwind states, which is, of course, 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.

Conclusion.

Accordingly, the Midwest Ozone Group supports the Missouri Plan and the manner in which it has addressed its Good Neighbor SIP as a conservative justification for the conclusion that no additional emissions reductions beyond existing and planned controls are necessary to mitigate any contribution Missouri may have to any downwind monitors to comply with CAA section 110(a)(2)(D)(i)(I).

[27] 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.