



John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Craig W. Butler, Director

April 6, 2017

Attention Docket No. EPA-HQ-OAR-2016-0751  
Environmental Protection Agency  
Mail Code 28221T  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

**Re: Comments on U.S. EPA's January 6, 2017, "Notice of Availability of the Environmental Protection Agency's Preliminary Interstate Ozone Transport Modeling Data for the 2015 Ozone National Ambient Air Quality Standard (NAAQS)" [82 FR 1733]**

To whom it may concern:

The Ohio Environmental Protection Agency (Ohio EPA) thanks U.S. EPA for the opportunity to comment on the above-referenced Notice of Data Availability (NODA) regarding interstate ozone transport modeling and associated data and methods to be used to address interstate ozone transport for the 2015 ozone national ambient air quality standards (NAAQS).

The majority of Ohio EPA's attached comments deal with the technical aspects of the data used in or generated by this NODA. It is imperative that U.S. EPA understand that inaccuracies in data and assumptions used to determine a state's contribution to downwind nonattainment and maintenance areas has significant implication. These data may be used by states or other stakeholders in a regulatory context to determine the level of control a state and its sources may be subject to in order to reduce its contribution. Therefore, it is imperative that U.S. EPA get the data and assumptions right. As we outline below, we have significant concerns with this NODA and are suggesting critical corrections that are required in order to ensure states are not faced with an inevitable over-control of its sources that will result from the current contributions determined by U.S. EPA.

As the ozone standard becomes lower and lower, a 1% contribution significance threshold can create an insurmountable goal of reducing transported emissions that sources, such as electric generating units (EGUs), can no longer achieve. Ohio EPA continues to believe U.S. EPA must re-evaluate the contribution threshold in light of technical and economic feasibility of sources within a state to achieve such a reduction. U.S. EPA's own guidance<sup>1</sup> indicates that models show greater response to decreasing emissions when base ozone predictions are highest, "likely due to more 'controllable' ozone at higher concentrations". According to this NODA, nitrogen oxides (NOx) emissions in Ohio are already projected to be cut in half between 2011 and 2023 (from 564,205 tons to 283,298 tons of NOx). This includes significant reductions in the largest

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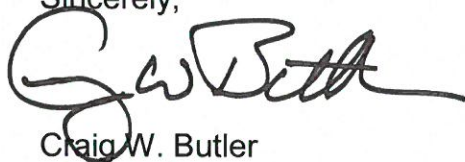
<sup>1</sup> "Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze" (draft December 2014)

sectors, with a 72% reduction in onroad emissions, a 54% reduction in EGU emissions, and a 53% in nonroad emissions. Additional reductions to address transport at a 1% contribution significance level may very well be technically or economically infeasible.

Also of importance, U.S. EPA should make it clear that, as states begin to develop their Good Neighbor State Implementation Plans (SIPs), they are not bound by or required to address the contribution as identified in this NODA. States should have the option of doing their own analysis to determine contribution if a state chooses to do so.

Again, Ohio EPA thanks you for this opportunity to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "C. W. Butler". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Craig W. Butler  
Director, Ohio EPA

Cc: Bob Hodanbosi, Chief, Division of Air Pollution Control, Ohio EPA

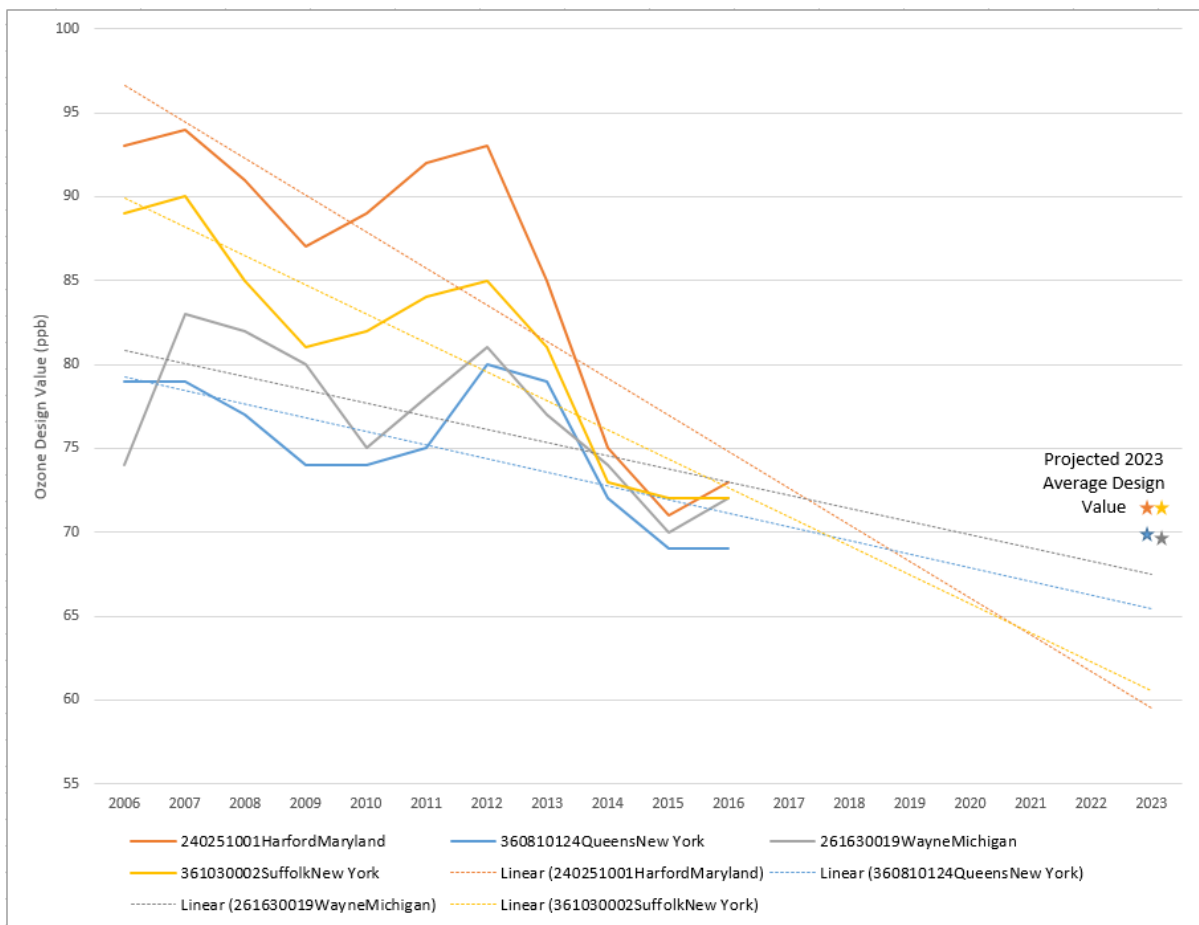
### Technical Comments

Ohio's technical comments are as follows:

#### **Projected 2023 Design Values (DV)**

1. Of the nine projected nonattainment or maintenance receptors linked to Ohio, four have projected 2023 average DV that are only slightly lower, or even slightly higher, than their 2014-2016 DV. As shown in Figure 1 below, these projections are clearly inconsistent with the current trends at these monitors and nationwide. Several projected nonattainment or maintenance receptors in Texas and one monitor in California are also projected to stay nearly the same or even increase. This has serious implications and raises questions regarding the validity of U.S. EPA's data and modeling approach. The projections resulting from this NODA will likely be used by U.S. EPA to require reductions from sources contributing to these monitors. It is imperative U.S. EPA use sound data and modeling given the serious implications that will result from future use of these projections.

Figure 1. Ozone trends and projected 2023 average design values



## **EGUs/NEEDS/IPM**

2. For EGUs, the 2023 modeling uses an updated version of the Integrated Planning Model (IPM) which includes expected reductions from the Clean Power Plan (CPP). This assumption may ultimately lead to inaccuracies in the modeled results given the current uncertainty regarding the future of the CPP. It is Ohio EPA's belief that even absent the CPP, many of the reductions expected under the CPP will occur as states continue to implement their own programs, such as renewable and energy efficiency programs. As Ohio has routinely stated, Ohio does not believe a federally mandated plan is necessary to continue to see the significant reductions Ohio has already achieved in reducing greenhouse gas emissions. The low cost of natural gas, decreasing costs of renewables, slowing of electricity demand growth and increased energy efficiency initiatives will ensure reductions continue into the future regardless of a federally mandated CPP.

Regardless, Ohio EPA is concerned that if the CPP is not upheld, U.S. EPA may feel compelled to invalidate the modeling under this NODA. First and foremost, Ohio EPA believes U.S. EPA must acknowledge that these reductions will occur absent the CPP. However, if U.S. EPA fails to take this position, U.S. EPA must ensure that revisions to this modeling are provided and that states have additional opportunities for notice and comment.

Further, U.S. EPA needs to recognize that State Infrastructure SIPs addressing the Good Neighbor provisions are due by October 1, 2018. It is imperative that any revised modeling, with opportunity for comment, be provided to the states in a timely manner. However, providing an adequate opportunity to comment may very well be impossible given the amount of lead time necessary for a state to implement any necessary controls to address the contribution determined by the modeling. This puts states and U.S. EPA in the untenable position to either use questionable modeling and meet the Clean Air Act (CAA) deadline, or to revise the modeling and miss the submittal deadline.

3. Ohio EPA continues to be concerned regarding U.S. EPA's reliance on IPM. For a number of years, numerous states and organizations have expressed concerns regarding U.S. EPA's IPM modeling and concerns with its accuracy and appropriateness for developing important policy and regulatory programs. The concerns identified below clearly identify inherent problems with U.S. EPA's over-reliance on IPM and the Energy Information Administration (EIA) which provides a false sense of security. Ohio EPA strongly advocates that U.S. EPA should do its due diligence by consulting appropriate federal agencies and using established modeling and analysis mechanisms.

Ohio EPA along with other states working through the Lake Michigan Air Directors Consortium (LADCO) have expressed these concerns in the past. On June 30, 2014, LADCO submitted comments regarding U.S. EPA's 2018 Modeling Platform and use of IPM. These concerns were also included in Ohio EPA's comments on the CPP. The same concerns seem to resurface. Concerns regarding the economic optimization of the IPM model specifically with respect to the power system, which is not completely governed by economics. For instance, reliability, emissions credit trading, and

corporate/organizational inertia can all influence where companies select to generate power.

Accurate and reliable transmission modeling of the type conducted routinely by regional transmission organizations (RTOs) and other entities concerned with grid reliability can only be accomplished with sophisticated dispatch models. Models of this type are non-linear, rely on historical operating data to achieve optimal dispatch, correctly treat generating units as specific, geographically located entities, and are capable of identifying congestion at the proper level of detail. Ohio EPA urges U.S. EPA to engage in outreach with the various RTOs, the Federal Energy Regulatory Commission (FERC), the North American Electric Reliability Corporation (NERC), and other entities capable of adequately modeling dispatch scenarios. We believe that a fully optimized economics based projection tool is an inappropriate mechanism for building future policy frameworks or setting regulatory requirements.

4. Ohio EPA continues to be concerned with IPM's one size fits all assumptions and the effect of these assumptions on modeling results. On October 15, 2010, Ohio EPA submitted comments on the NODA regarding the Proposed Transport Rule which illustrated a failure in IPM to take into account logistical impossibilities. This failure has been carried forward into the current modeling. Specifically, in Chapter 5 of the Documentation for EPA Base Case v.5.13 Using the Integrated Planning Model (Emissions Control Technology), U.S. EPA describes the two types of Flue Gas Desulfurization (FGD) technologies applied to the modeling and states: "In EPA Base Case v.5.13 when a unit retrofits with an [Lime Spray Dryer (LSD)] SO<sub>2</sub> scrubber, it loses the option of burning certain high sulfur content coals." Incremental Documentation for EPA Base Case v.5.16 does not indicate this has been modified. Ohio EPA is concerned with the model applying these types of one size fits all assumptions that do not take into account the specific circumstances of each plant. For example, for some "mine - mouth" plants, the infrastructure (no barge or inadequate rail) may not be available to handle large quantities of low sulfur coal. If an LSD type scrubber is assumed for one of these plants, at a specific cost threshold, it may be incorrect or impractical. And ultimately, those assumptions may force certain plants to install a wet FGD system, when an LSD system was assumed.
5. There are several instances where the National Electric Energy Database System (NEEDS) and IPM don't agree. NEEDS is supposed to establish baseline operating conditions, which IPM builds on for the projections. While a particular disagreement between NEEDS and IPM may not necessarily have resulted in an inaccurate projection, such disagreements may be indicative of systemic flaws in the inventories. It is essential that the data and assumptions underlying this modeling are accurate, to avoid overestimating contributions which would result in over-control of sources. Examples of the disagreement between NEEDS and IPM include:
  - a. Muskingum River Units 1, 2, 3, 4 and 5: NEEDS accurately identifies all units as shutdown in 2015. IPM appropriately does not include units 1-4; however, IPM *projects* coal retirement for unit 5. While no real impact results from this, its concerning that select shutdown units are carried forward into IPM.

- b. Shelby Municipal Light Plant Units 4 and IC1: NEEDS correctly identifies Unit 4 as retired in 2013, yet IPM *projects* coal retirement in 2023. In addition, IPM projects Unit IC1 (P002) to emit 26 tons of NO<sub>x</sub> in 2023, yet this facility has not reported *any* emissions since 2012. Prior to that this unit only reported emissions of 1 ton or less between 2010 and 2012. This seems like an unreasonable increase.
  - c. Mingo Junction Energy Center Units 1, 2, 3 and 4: NEEDS inaccurately identifies all units as retiring by 2020, yet IPM identifies them as using Fossil Waste and projects emissions in 2023. Per West Virginia's SO<sub>2</sub> SIP and Ohio's SO<sub>2</sub> SIP for the Steubenville nonattainment area, Mountain State Carbon can no longer supply coke oven gas to Mingo Junction Energy Center. The facility is now a de-facto natural gas only facility and has not reported emissions since 2012.
  - d. Painesville Units 3, 4 and 5: NEEDS inaccurately identifies units 4 and 5 as retired in 1959 and 1976 respectively, yet IPM projects emissions. These units are not retired. In addition, the only year between 2011 and 2013 that Unit 3 reported emissions was in 2012, at 3.84 tons of NO<sub>x</sub>. IPM projected this unit would emit 48 tons of NO<sub>x</sub> in 2023. This seems like an unreasonable increase for this boiler.
6. There are several instances where NEEDS is inaccurate or the assumptions are unclear. Again, it is crucial that U.S. EPA ensure these units are characterized appropriately and the data and assumptions underlying this modeling are correct, to not over inflate the contributions, which would result in over-control of sources. The following errors in NEEDS were identified:
- a. Cardinal Units 1, 2 and 3: NEEDS identifies unit 1 as having a wet scrubber installed in 2007. Our records indicate March 2008. NEEDS identifies a 98% removal efficiency for units 1 and 2 and 95% for unit 3. The owner indicates units 1, 2 and 3 are achieving approximately 95%. NEEDS identifies a selective catalytic reduction (SCR) install date of 2003 which is consistent with our records. However, it is not clear if U.S. EPA accounted for this SCR beginning continuous operation starting in 2009 based upon a Consent Decree.
  - b. J M Stuart Units 1, 2, 3 and 4: NEEDS identifies the installation of a wet scrubber in 2008. Although these were installed in early 2008 full operation did not begin until July of 2009 which is apparent by the actual emissions identified for these units. NEEDS identifies these units as achieving 97% scrubber efficiency; however, these units are more closely achieving 95% according to the owner. All units at J M Stuart installed SCRs in 2004 and began continuous operation of the SCRs in May of 2009 based upon a Consent Decree. It is not clear if U.S. EPA accounted for the continuous operation of the SCRs.
  - c. Gavin Units 1 and 2: Gavin installed SCRs in 2001 and began continuous operation in 2009 based upon a federally-enforceable consent decree. It is unclear if the continuous operation of the SCRs has been accounted for.

- d. Zimmer Unit 1: This unit is controlled by a wet scrubber installed in 1990 operating year-round. NEEDS identifies this scrubber with a 98% control efficiency yet the owner approximates a 91-93% efficiency is achieved and that it may be possible to optimize to 95%; however, 98% would not be achievable from this unit. NEEDS accurately identifies an SCR installed in 2004. The owner has operated the SCR continuously since 2009. It is unclear if the continuous operation of the SCR has been accounted for.
  - e. Hamilton Unit 8: This unit is identified in NEEDS as a coal-fired boiler and projected by IPM to be converted to natural gas. The original coal-fired boiler was retrofitted in 2013 to combust only natural gas. This retrofit should be captured in the NEEDS database.
  - f. Kyger Units 1, 2, 3, 4 and 5: NEEDS accurately identifies SCRs were installed in 2003 for these units. The owner has operated the SCRs continuously since 2009. It is unclear if the continuous operation of the SCRs has been accounted for. In addition, 2011 NOx emissions appears to be under-reported for Unit 3. The Clean Air Markets Division (CAMD) shows Unit 3 reported 2,946.9 tons of NOx in 2011. The spreadsheet titled "2011el 2011ek 2017ek 2023el ptegu unit comparison" (Doc ID EPA-HQ-OAR-2016-0751-0026) shows Unit 3 at only 2,467 tons of NOx in 2011. It is very concerning that a unit reporting emissions via CAMD is not accurately captured in NEEDS. Again, it is essential that the data underlying this modeling is accurate to avoid overinflating states' contribution resulting in over-control of sources.
  - g. Miami Fort Units 7 and 8: NEEDS accurately identifies an SCR installed in 2003 on units 7 and 8. The owner has operated the SCRs continuously since 2009. It is unclear if the continuous operation of the SCRs has been accounted for.
  - h. W.H. Sammis Units 1, 2, 3, 4, 5, 6 and 7: These units are currently operating under a Consent Decree agreed to by U.S. EPA, including a requirement to continuously operate selective non-catalytic reduction (SNCRs) and SCRs. It is unclear if the continuous operation of the SNCRs and SCRs has been accounted for. Additionally, FirstEnergy has notified Ohio EPA that it intends to retire units 1, 2, 3 and 4 by May 2020.
  - i. Sauder Woodworking Cogeneration Facility Units 1 and 2: Sauder Woodworking Cogeneration Facility (Ohio EPA Id 0326000079), called Sauder Power Plant in NEEDS and IPM, is not identified as having any NOx control. Both Units 1 and 2 (B008 and B009) installed SCR in 1992.
7. There are several instances where IPM projections are unreasonable or even impossible. U.S. EPA needs to carefully examine the data and projections to ensure they make sense, so that contributions are accurately identified and to avoid unnecessarily burdensome controls. The following are examples of IPM projections which are not realistic:

- a. Fremont Energy Center Units CT01 and CT02: IPM projects a significant increase in NO<sub>x</sub> emissions in 2023 from this facility that is not proportional to the projected increase in heat input. This raises serious concerns about the methodology for converting heat input to emissions, as a 1.5x increase in heat input resulting in almost a 10x increase in NO<sub>x</sub> emissions is obviously incorrect.

<b>Year</b>	<b>NO<sub>x</sub> (tons)</b>	<b>Heat Input (mmBTU)</b>
2014	102	16,794,972
2015	123	23,666,638
2023 (projected)	1,211	35,725,561

- b. Dover Municipal Light Plant Unit 4: IPM projects a significant increase in emissions in 2023 from this coal fired unit. This unit reported emissions of 176 and 208 tons of NO<sub>x</sub> in 2014 and 2015, respectively; IPM projects it will emit 551 tons in 2023. Further, the 2023 heat input projected by IPM of 2,485,705 exceeds the capacity of this unit. The design capacity of this unit is 247 mmBTU/hr (2,163,720 mmBTU for 8,760 operating hours). This is a fatal flaw. These types of flaws contribute to higher contributions, leading to over-control of sources. These types of flaws must be corrected.
- c. Cardinal Power Plant Units 1, 2 and 3: IPM projects a significant increase in both NO<sub>x</sub> emissions and heat input in 2023 from this facility. The projected increase in heat input is 23% greater than the highest heat input in the last 10 years. Further, the projected 2023 heat input is approximately 86% of the plant's design capacity of 149,121,480 mmBTU. This projected increase is improbable for a coal-fired power plant given current trends in decreasing utilization of coal driven by the low cost of natural gas, decreasing costs of renewables, slowing of electricity demand growth and increased energy efficiency initiatives. This is another example of the unrealistic projections by IPM. U.S. EPA need to carefully examine the data and projections to ensure they make sense.

<b>Year</b>	<b>NO<sub>x</sub> (tons)</b>	<b>Heat Input (mmBtu)</b>
2007	15597.652	103,329,938.40
2008	17153.517	98,729,869.37
2009	1972.887	103,872,540.91
2010	2095.196	96,678,151.24
2011	2235.067	76,613,338.71
2012	2270.021	71,593,637.12
2013	3518.912	103,435,520.03
2014	4050.902	102,812,172.88
2015	3334.5	88,034,680.42
2016	3761.186	90,152,524.48
2023 (projected)	3720	127,874,470.00



## Non-EGUs

8. P. H. Glatfelter Company - Chillicothe Facility converted units 7 and 8 (B002 and B003) were required to convert to natural gas by January 31, 2017 to address Best Available Retrofit Technology (BART), the SO<sub>2</sub> Data Requirements Rule and Boiler Maximum Available Control Technology (MACT) regulations. It does not appear this conversion is captured in the 2023 projected emissions. In 2011, these coal-fired burners generated 1,594 tons of NO<sub>x</sub> while IPM projects 2023 NO<sub>x</sub> at 1,227 tons. A complete conversion to natural gas will dramatically reduce these levels in 2023.
9. Kraton Polymers shutdown coal fired boilers B005 and B007 on August 31, 2015. This is not reflected in the 2023 projected emissions.

## On-road Sources

10. U.S. EPA developed 2023 vehicle miles traveled (VMT) by applying growth factors to the 2017 VMT, which was developed by applying growth factors to the 2011 VMT included with the 2011 National Emission Inventory. The 2023 growth factors are based on the Department of Energy's Annual Energy Outlook 2016. Since U.S. EPA prefers local data for the emissions inventory, Ohio EPA obtained local transportation projections from all Metropolitan Planning Organizations (MPOs) in Ohio and the Ohio Department of Transportation (ODOT). The MPO and ODOT projections were estimated using local travel demand models. This data is used by the MPOs and ODOT to plan transportation projects, establish transportation emission budgets and to comply with transportation conformity requirements. In addition, the Ohio Development Services Agency's latest population projections data indicates that the projected state-wide population for year 2025 is only 0.5% higher than the 2010 census year. This is more in line with ODOT's projected VMT growth. Ohio EPA believes that the MPO and ODOT projected 2023 VMT is the best data available.

Ohio EPA has revised the 2023 VMT SMOKE FF10 format file by back calculating the U.S. EPA growth rates from the 2011 and 2023 VMT SMOKE file. Ohio EPA then calculated an overall county-wide growth rate from the U.S. EPA data, which was adjusted based on local county-wide growth rates. Note, the revised SMOKE file contains VMT for Ohio only. An Excel workbook with the revised SMOKE file has been uploaded to the docket. Please contact us if a raw .csv file is needed.

11. Also, U.S. EPA needs to make a correction with respect to the default fuel data for Clinton county (FIPS code 39027), which is located near Cincinnati. For all counties, the fuel data is the U.S. EPA default database values. For the 2011 NEI submittal, the Fuel Formulation IDs were revised to reflect that fuel sold in Clinton County during the ozone season is not low Reid Vapor Pressure (RVP) fuel. The ozone transport modeling and associated data appears to have reverted back to assigning low RVP fuel to Clinton county during the ozone season. Clinton county is not required to use low RVP fuel. Ohio Administrative Code (OAC) rule 3745-72-01 establishes the applicability of low RVP fuel requirements to the Cincinnati area, which includes Hamilton, Butler, Warren and Clermont counties only [OAC rule 3745-21-72-01(D)]. This error may be related to a past

correction to Ohio's SIP regarding Clinton county. On July 8, 2011, U.S. EPA promulgated a corrected final rule (76 FR 40427, <http://www.gpo.gov/fdsys/pkg/FR-2011-07-08/html/2011-17049.htm>) that corrects an error in a May 25, 2007 (72 FR 29269) final rule under the Clean Air Act pertaining to a request for the use of low RVP fuel in the Cincinnati and Dayton areas. Clinton County, Ohio is actually not part of the area affected by the rulemaking. The correct low RVP fuel limitation is included in 40 CFR 52.1870(c)(138).

This is an error for which Ohio EPA has repeatedly requested correction. While the impact of this particular error may not be great, the fact that this error continues to perpetuate is illustrative of a larger problem -- that U.S. EPA is not satisfactorily addressing comments and errors brought to their attention, continuing instead to repeat the same mistakes, resulting in flawed modeling with erroneous results.

In addition, on March 23, 2017, U.S. EPA signed a final approval for the removal of low RVP fuel requirements in Butler, Clermont, Hamilton and Warren counties in the Cincinnati area, and Clark, Green, Miami and Montgomery counties in the Dayton area. This approval is expected to be published in the Federal Register in April.

## Other

12. U.S. EPA has not accurately identified all units subject to the Boiler MACT rule. U.S. EPA identified 27 facilities in Ohio subject to the Boiler MACT. In comparison, Ohio EPA has identified 170 operating facilities (Attachment A). To identify these units, U.S. EPA extracted sources from the National Emissions Inventory (NEI) using certain criteria (as described in the Technical Support Document (TSD) Updates to Emissions Inventories for the Version 6.3, 2011 Emissions Modeling Platform for the Year 2023 pp 65-68). The Boiler MACT rule requires facilities electronically report directly to U.S. EPA's Compliance and Emissions Data Reporting Interface (CEDRI) database. Ohio EPA suggests U.S. EPA use this data source to accurately identify all units subject to the Boiler MACT rule. It is imperative that U.S. EPA use accurate data and assumptions in this modeling which is used to determine a state's contribution to downwind nonattainment and maintenance areas. It is unacceptable that U.S. EPA has not accurately accounted for the impact of its own major control program. This major flaw that will lead to over-prediction of future emissions, and ultimately over-control of sources.
13. It is unclear whether the emissions inventories account for U.S. EPA's June 18, 2012 final rule "Control of air pollution from aircraft and aircraft engines; Emission standards and test procedures" [77 FR 36342]. This rule adopted NOx emission standards for certain commercial passenger and freighter aircraft engines in common use at airports across the U.S. The rule contains six major provisions, two of which are new NOx emission standards for newly certified-engine models. The first standards, Tier 6, took effect when the rule became effective and represents approximately a 12% reduction from current Tier 4 levels. The second standards, Tier 8, took effect in 2014 and represents approximately a 15% reduction from Tier 6 levels. Equipment turnover will ensure continued emissions reductions from this category for many years.

### **Typographical/Errors**

14. TSD Updates to Emissions Inventories for the Version 6.3, 2011 Emissions Modeling Platform for the Year 2023: pages 48 and 68 contain an “Error! Reference source not found.”
15. IPM System Summary Report, Fuel report tab: graph erroneously includes the year as a fuel type in the bar chart for fuel consumption.
16. The Federal Register [82 FR 1734] erroneously states Good Neighbor SIPs are due October 26, 2018. However, promulgation (signature) occurred on October 1; therefore, these SIPs are due October 1, 2018.

**Appendix A - Ohio Boiler MACT Facility Report**

Facility Id	Name	Address	City	ZIP	County
0123000137	CRAWFORD COMPRESSOR STATION	Environmental Health and Safety	Greenfield Twp.	25314	Fairfield
0123010255	Crown Cork and Seal	940 Mill Park Drive	Lancaster	43130	Fairfield
0125040716	Calgon Carbon Corp.	835 N. Cassady Ave.	Columbus	43219	Franklin
0125041046	Core Molding Technologies, Inc.	800 Manor Park	Columbus	43228	Franklin
0125042608	The Ohio State University	2003 MILLIKIN ROAD	Columbus	43210	Franklin
0125102034	Dominion - Groveport Compressor Station	5509 Berger Road	Groveport	43125	Franklin
0145000018	Denison University	Central Heating Plant	Granville	43023	Licking
0145020185	Owens Corning Insulating Systems, LLC	400 CASE AVE.	NEWARK	43055	Licking
0145020235	Clean Harbors Recycling Services of Ohio L.L.C.	581 Milliken Drive, S.E.	Hebron	43025	Licking
0165000045	Aleris Rolled Products, Inc.	1 REYNOLDS ROAD	Ashville	43103	Pickaway
0165010145	PPG Industries - Resin	559 Pittsburgh Road	Circleville	43113	Pickaway
0180010013	ContiTech USA, Inc.	13601 Industrial Parkway	Marysville	43040	Union
0180010193	Honda of America Mfg., Inc., Marysville Auto Plant	24000 Honda Parkway	Marysville	43040	Union
0204010000	FirstEnergy Generation Corp., Ashtabula Plant	2133 Lake Road	Ashtabula	44004	Ashtabula
0204010200	Cristal USA Inc., Ashtabula Complex Plant 1	2900 Middle Road	Ashtabula	44004	Ashtabula
0215020233	Heritage Thermal Services	1250 St. George Street	East Liverpool	43920	Columbiana
0238000049	HOLMES COMPRESSOR STATION	8462 State Rt. 179	Washington Twp.	44638	Holmes
0243000024	The Lubrizol Corporation	155 Freedom Road	Painesville	44077	Lake
0243000165	PET Processors, L.L.C.	1350 Bacon Road	Painesville	44077	Lake
0243001188	Marking Films Div. of Avery Dennison Building #11	670 Hardy Road	Painesville	44077	Lake
0243011367	Astro Manufacturing and Design	34459 Curtis Blvd	Eastlake	44095	Lake
0243020004	EQUISTAR Chemicals, LP	110 Third Street	Fairport Harbor	44077	Lake
0243030257	Carmeuse Lime, Inc - Grand River Operations	15 Williams Street	Grand River	44045	Lake
0243081177	Avery Dennison, Specialty Tape Division, Bldg. 14&19	7100 Lindsay Drive	Mentor	44060	Lake
0243081207	CFF of Avery Dennison	5750 Heisley Road	Mentor	44060	Lake
0243081365	Avery Dennison Corporation Fasson Roll N. America B#22	8080 Norton Parkway	Mentor	44060	Lake
0243110008	PAINESVILLE MUNICIPAL ELECTRIC PLANT	325 Richmond Street	Painesville	44077	Lake
0243111361	Avery Dennison MFD, Bldg 7	Avery Dennison	Painesville	44077	Lake
0243111362	Avery Dennison STD, Bldg 5	250 Chester Street	Painesville	44077	Lake
0243111416	Avery Dennison PFF, Bldg 3	Avery Dennison	Painesville	44077	Lake
0247030013	Avon Lake Power Plant	33570 Lake Road	Avon Lake	44012	Lorain
0247030471	Ford Motor Company - Ohio Assembly Plant	650 Miller Road	Avon Lake	44012	Lorain
0247080487	West Lorain Plant	7101 WEST ERIE AVENUE	Lorain	44053	Lorain
0247080961	U. S. Steel Seamless Tubular Operations, LLC - Lorain	2199 E. 28th Street	Lorain	44055	Lorain
0247100408	OBERLIN COLLEGE	173 W. Lorain St.	Oberlin	44074	Lorain

Facility Id	Name	Address	City	ZIP	County
0250110024	Youngstown Thermal	205 North Ave	Youngstown	44502	Mahoning
0278000199	General Motors LLC - Lordstown Complex	General Motors Lordstown Complex	Warren	44482	Trumbull
0278000648	ArcelorMittal Warren	2234 Main Ave SW	Warren	44481	Trumbull
0278060023	Niles Plant	1047 Belmont Ave.	Niles	44446	Trumbull
0278080051	Delphi Packard Electric Systems, North River Road	Delphi Packard Electric Systems	Warren	44483	Trumbull
0285000366	East Ohio Gas - Chippewa Station	17045 Galehouse Road	Doylestown	44230	Wayne
0285010188	Department of Public Utilities, City of Orrville, Ohio	1100 Perry Street	Orrville	44667	Wayne
0285020059	Morton Salt, Inc.	151 S. Industrial St.	Rittman	44270	Wayne
0285020076	Urban Renewals II	100 Industrial Ave.	Rittman	44270	Wayne
0285030180	College of Wooster	580 East Wayne Ave.	Wooster	44691	Wayne
0302020012	Lima Refining Company	1150 South Metcalf Street	Lima	45804	Allen
0302020027	Joint Systems Manufacturing Center	1155 Buckeye Road	Lima	45804	Allen
0302020143	Ford Motor Co.-Lima	1155 Bible Road	Lima	45801	Allen
0302020370	PCS Nitrogen Ohio, L.P.	Fort Amanda & Adgate Roads	Lima	45804	Allen
0302020371	Ineos Nitriles USA LLC	1900 Fort Amanda Rd.	Lima	45804	Allen
0303010043	Ashland LLC	1745 Cottage Street	Ashland	44805	Ashland
0306000133	Nidec Minster Corporation	240 West Fifth Street	Minster	45865	Auglaize
0306010010	CITY OF ST. MARYS POWER PLANT	335 NORTH CHESTNUT STREET	Saint Marys	45885	Auglaize
0306010138	Veyance Technologies, Inc.	1115 South Wayne Street	Saint Marys	45885	Auglaize
0320010001	GM Defiance Casting Operations	State Route 281 East	Defiance	43512	Defiance
0320010044	GM Defiance Casting Operations	26787 State Route 281 East	Defiance	43512	Defiance
0320010169	ANR Pipeline Company	6357 State Route 66 North	Defiance	43512	Defiance
0322000017	CertainTeed Corp.	11519 State Route 250N	Milan	44846	Erie
0322020019	Okamoto Sandusky Manufacturing LLC	3130 West Monroe Street	Sandusky	44870	Erie
0322020045	Kyklos Bearing International, Inc.	2509 Hayes Ave.	Sandusky	44870	Erie
0326000079	Sauder Woodworking Cogeneration Facility	502 Middle St.	Archbold	43502	Fulton
0332000023	Ball Metal Beverage Container Corporation	12340 Township Road 99	Findlay	45840	Hancock
0332010003	The Cooper Tire Company - Findlay	701 Lima Ave.	Findlay	45840	Hancock
0332010055	Back in Black dba Superior Trim	2100 Fostoria Road	Findlay	45840	Hancock
0332010170	Whirlpool Findlay Operations	4901 North Main Street	Findlay	45840	Hancock
0332020187	ADM-Fostoria	608 Findlay Road	Fostoria	44830	Hancock
0339010005	Bunge N.A.	605 Goodrich Rd	Bellevue	44811	Huron
0339030135	LSC Communications US, LLC	1145 Conwell Avenue	Willard	44890	Huron
0351010002	Central Ohio Farmers Co-op, Inc.- Marion Grain	751 East Farming St	Marion	43302	Marion
0351010012	Whirlpool Corp. Marion Operations	1300 Marion-Agosta Road	Marion	43302	Marion
0362000009	Materion Brush Inc.	14710 W. Portage River South Road	Elmore	43416	Ottawa
0363000002	Lafarge North America - Paulding Plant	11435 County Road 176	Paulding	45879	Paulding

Facility Id	Name	Address	City	ZIP	County
0370000164	LUCAS COMPRESSOR STATION	4307 State Route 39	Perrysville	44843	Ashland
0370000226	PAVONIA COMPRESSOR STATION	2385 Cotter Road	Mansfield	44903	Richland
0370000228	Weaver Compressor Station	2873 Pleasant Valley Rd	Lucas	44843	Richland
0370020002	SHELBY MUNICIPAL LIGHT PLANT	34 Mansfield Ave.	Shelby	44875	Richland
0372020143	Whirlpool Corporation - Clyde Operations	119 Birdseye St.	Clyde	43410	Sandusky
0372030103	Great Lakes Sugar Company	1101 North Front Street	Fremont	43420	Sandusky
0372030198	GREEN BAY PACKAGING INC FREMONT DIVISION	2323 Commerce Dr	Fremont	43420	Sandusky
0374010109	Morgan Advanced Materials	200 North Town Street	Fostoria	44830	Seneca
0374010197	InterMetro Industries Corporation	1150 State Street	Fostoria	44830	Seneca
0381000011	Bunge North America	234 S. Jefferson Street	Delphos	45833	Van Wert
0386000042	Sauder Manufacturing Co. / Stryker Plant	201 Horton Street	Stryker	43557	Williams
0386010003	Titan Tire Corporation of Bryan	927 S. Union Street	Bryan	43506	Williams
0387000046	MSC Walbridge Coatings Inc	30610 East Broadway	Walbridge	43465	Wood
0387000259	Evergreen Recycling and Disposal Facility	2625 East Broadway Street	Northwood	43619	Wood
0387000376	Charter Steel	6255 U.S. Highway 23 South	Risingsun	43457	Wood
0387020045	Cooper Standard Automotive, LLC	1175 North Main Street	Bowling Green	43402	Wood
0448000012	Johns Manville / Plant #01 - wtv1	6050 River Road	Waterville	43566	Lucas
0448000013	Johns Manville - Waterville 07	7500 Dutch Road	Waterville	43566	Lucas
0448010133	Perstorp Polyols, Inc.	600 Matzinger Road	Toledo	43612	Lucas
0448010246	Toledo Refining Company, LLC.	1819 Woodville Road	Oregon	43616	Lucas
0448010247	University of Toledo Health Science Campus	3000 Arlington Ave	Toledo	43614	Lucas
0448010414	FCA US LLC - Toledo North Assembly	4400 Chrysler Drive	Toledo	43608	Lucas
0448010466	Crown Cork & Seal	5201 Enterprise Blvd	Toledo	43612	Lucas
0448011730	KUKA Toledo Production Operations	3770 Stickney Avenue	Toledo	43608	Lucas
0448011731	FCA US LLC- Wrangler Paint Facility	3800 Stickney Avenue	Toledo	43608	Lucas
0448020007	BP-Husky Refining LLC	4001 Cedar Point Road	Oregon	43697	Lucas
0546000117	HONDA OF AMERICA, EAST LIBERTY PLANT	11000 St. Rt. 347	East Liberty	43319	Logan
0575000174	Honda of America Mfg., Inc. Anna Engine Plant	12500 Meranda Road	Anna	45302	Shelby
0575010103	Ply Gem	2615 Campbell Road	Sidney	45365	Shelby
0575010160	CARGILL, INCORPORATED	2400 INDUSTRIAL DRIVE	Sidney	45365	Shelby
0605010016	Ohio University Lausche Heating Plant	Factory Street	Athens	45701	Athens
0607090013	4K Industrial Park LLC	1001 Main Street	Martins Ferry	43935	Belmont
0616000000	Conesville Power Plant	47201 County Road 273	Conesville	43811	Coshocton
0627000003	Ohio Valley Electric Corp., Kyger Creek Station	5758 State Route 7 North	Cheshire	45620	Gallia
0627010056	General James M. Gavin Power Plant	7397 N. St Rt #7	Cheshire	45620	Gallia
0641050002	Cardinal Power Plant (Cardinal Operating Company)	306 County Road 7 East	Brilliant	43913	Jefferson
0641090010	Acero Junction Incorporated	540 Commercial Ave	Mingo Junction	43938	Jefferson

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0641090234	Mingo Junction Energy Center, LLC	540 Commercial Avenue	Mingo Junction	43938	Jefferson
0641120012	Yorkville Energy Services Terminal	219 Public Road	Yorkville	43971	Jefferson
0641160017	W. H. SAMMIS PLANT	29503 State Rte 7	Stratton	43961	Jefferson
0666000000	American Centrifuge Operating, LLC	3930 U.S. Route 23 South	Piketon	45661	Pike
0666005004	Fluor-BWXT Portsmouth LLC	3930 U.S. Route 23 South	Piketon	45661	Pike
0671010028	P. H. Glatfelter Company - Chillicothe Facility	232 East 8TH St.	Chillicothe	45601	Ross
0679000075	Dominion Transmission Inc - Gilmore Station	656 Gravel Lick Road	Port Washington	43837	Tuscarawas
0679010146	Dover Municipal Light Plant	303 East Broadway	Dover	44622	Tuscarawas
0684000000	Muskingum River Development, LLC	1501 Sparling Road	Waterford	45786	Washington
0684010011	Kraton Polymers U.S. LLC	2419 State Route 618	Belpre	45714	Washington
0684020008	Solvay Specialty Polymers USA, L.L.C.	17005 State Route 7	Marietta	45750	Washington
0684020037	Marietta Materials Management and Transportation Center	State Route 7 South	Marietta	45750	Washington
0701000001	General Electric Aircraft Engines: Peebles Facility	1200 Jaybird Road	Peebles	45660	Adams
0701000007	DP&L, J.M. Stuart Generating Station	745 U.S. Route 52	Aberdeen	45101	Adams
0701000060	DP&L, Killen Generating Station	14869 U.S. Route 52	Manchester	45144	Adams
0773000080	ALTIVIA Petrochemicals, LLC	1019 Haverhill-Ohio Furnace Road	Haverhill	45636	Scioto
0773010001	OSCO Industries - Portsmouth Division	Jct. Rt. 23 South & Rt. 52 East / West	Portsmouth	45662	Scioto
0773010120	Sole Choice, Inc.	830 Murray Street	Portsmouth	45662	Scioto
0812760220	Navistar, Inc. - SAP	6125 Urbana Road	Springfield	45502	Clark
0819030169	Production Paint Finishers, Inc.	140 Center Street	Bradford	45308	Darke
0819070134	BASF Corporation	1175 Martin Street	Greenville	45331	Darke
0829700441	Wright-Patterson Air Force Base	88 CEG/CEIE	Fairborn	45433	Greene
0857041124	Cargill, Inc. - Dayton	3201 Needmore Road	Dayton	45413	Montgomery
0857041333	Tate & Lyle, Dayton	5600 Brentlinger Dr.	Dayton	45414	Montgomery
0857080148	Tenneco Automotive Operating Company, Inc.	2555 Woodman Drive	Kettering	45420	Montgomery
0857190001	Appvion, Inc.	1030 West Alex-Bell Rd.	West Carrollton	45449	Montgomery
1318000246	Cleveland Thermal LLC	1921 Hamilton Avenue	Cleveland	44114	Cuyahoga
1318001613	ArcelorMittal Cleveland LLC	3060 Eggers Avenue	Cleveland	44105	Cuyahoga
1318003059	The Medical Center Company	2250 Circle Drive	Cleveland	44106	Cuyahoga
1318006552	Day-Glo Color Corp.	Day-Glo Color Corp.	Cleveland	44103	Cuyahoga
1318120179	Ford Motor Company, Cleveland Engine Plants	17601 Brookpark Rd	Brook Park	44142	Cuyahoga
1318170314	Arconic Cleveland Works	1600 Harvard Avenue	Cuyahoga Heights	44105	Cuyahoga
1318202137	The Lincoln Electric Company	22801 St. Clair Avenue	Cleveland	44117	Cuyahoga
1318453876	GrafTech Advanced Graphite Materials LLC	12900 SNOW RD	Parma	44130	Cuyahoga
1318458257	Graftech Advanced Graphite Materials LLC	12300 Snow Road	Parma	44130	Cuyahoga
1318530291	ZIRCOA INC.	31501 SOLON RD.	Solon	44139	Cuyahoga
1409000037	Metal Coaters	2400 Yankee Road	Middletown	45044	Butler

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1409000353	MillerCoors LLC	2525 WAYNE MADISON ROAD	Trenton	45067	Butler
1409010006	AK Steel Corporation	1801 Crawford Street	Middletown	45043	Butler
1409040243	City of Hamilton Department of Public Utilities	960 North Third Street	Hamilton	45011	Butler
1413090154	Zimmer Power Station	1781 US Route 52	Moscow	45153	Clermont
1413100008	Duke Energy Ohio, W.C. Beckjord Station	757 US Route 52	New Richmond	45157	Clermont
1431010054	INEOS ABS (USA) Corporation	356 Three Rivers Parkway	Addyston	45001	Hamilton
1431070035	BASF Corp	4900 Este Avenue	Cincinnati	45232	Hamilton
1431070849	University of Cincinnati	Clifton Campus	Cincinnati	45221	Hamilton
1431070944	Mill Creek WWTP	1600 Gest Street	Cincinnati	45204	Hamilton
1431073342	Cast-Fab Technologies, Inc.	3040 Forrer Street	Cincinnati	45209	Hamilton
1431074278	Emery Oleochemicals LLC	4900 Este Avenue	Cincinnati	45232	Hamilton
1431150060	General Electric Aviation, Evendale Plant	One Neumann Way	Cincinnati	45215	Hamilton
1431150801	Formica Corporation - Evendale	10155 Reading Rd.	Cincinnati	45241	Hamilton
1431390137	PMC Specialties Group, Inc.	501 Murray Road	St. Bernard	45217	Hamilton
1431394148	DTE St. Bernard, LLC	5189 Spring Grove Avenue	Cincinnati	45217	Hamilton
1576002006	Marathon Petroleum Company LP - Canton Refinery	2408 Gambrinus Avenue SW	Canton	44706	Stark
1652050040	Owens Corning Roofing and Asphalt, LLC	890 W. Smith Road	Medina	44256	Medina
1652050059	3M Medina	1030 Lake Road	Medina	44256	Medina
1667060088	Duracote Corp.	350 North Diamond Street	Ravenna	44266	Portage
1667090000	HarbisonWalker International, Inc.	9686 East Center St / Route 303	Windham	44288	Portage
1677010027	Cargill, Incorporated - Salt Division (Akron, OH)	2065 Manchester Road	Akron	44314	Summit
1677010029	Emerald Polymer Additives, LLC	240 West Emerling Avenue	Akron	44301	Summit
1677010757	City of Akron Steam Generating	226 Opportunity Parkway	Akron	44307	Summit
1677020163	PPG - North Plant	PPG Industries, Inc.	Barberton	44203	Summit