BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of: Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS (81 Fed. Reg. 74504 (Oct. 26, 2016); EPA Docket No. EPA-HQ-OAR-2015-0500)

PETITION FOR PARTIAL RECONSIDERATION AND PARTIAL STAY OF THE UTILITY AIR REGULATORY GROUP

December 23, 2016

The Utility Air Regulatory Group ("UARG")[1] hereby petitions the Administrator of the United States Environmental Protection Agency ("EPA" or "the Agency") to reconsider and stay the effectiveness of certain provisions of its final rule entitled "Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS" under the Clean Air Act ("CAA" or "Act"), 81 Fed. Reg. 74504 (Oct. 26, 2016) ("CSAPR Update Rule"), to the extent the rule imposes more stringent emission budgets on states than exist under the 2011 Cross-State Air Pollution Rule, 76 Fed. Reg. 48208 (Aug. 8, 2011) ("CSAPR"),[2] as amended at 76 Fed. Reg. 80760 (Dec. 27, 2011), 77 Fed. Reg. 10324 (June 21, 2012), 77 Fed. Reg. 34830 (June 12, 2012), 79 Fed. Reg. 71663 (Dec.

[1] UARG is a voluntary group of electric generating companies and national trade associations. The vast majority of electric energy in the United States is generated by individual members of UARG or members of UARG's trade association members. UARG participates on behalf of its members in Clean Air Act proceedings that affect interests of electric generators.

[2] As discussed further below, UARG requests that EPA stay the effectiveness of the CSAPR Update Rule ozone-season budgets for emissions for nitrogen oxides ("NOx") with respect to each of the states for which that rule established a new ozone-season NOx budget, *i.e.*, Alabama, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Missouri, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, Tennessee, Texas, Virginia, West Virginia, and Wisconsin. The stay would result in each of these 22 states becoming subject to that state's CSAPR Phase 2 emission budget for ozone season 2017 and for subsequent ozone seasons during the duration of the stay. Kansas is not subject to the CSAPR ozone-season NOx program (apart from the CSAPR Update Rule) and therefore would not be subject to an ozone-season NOx emission control requirement under CSAPR during the duration of the stay.

3, 2014), and 81 Fed. Reg. 13275 (Mar. 14, 2016). In this petition, UARG describes several aspects of the final rule that EPA should reconsider. As described herein, certain of these aspects of the rule were not addressed in EPA's notice of proposed rulemaking, and UARG and others therefore had no notice of them and were not provided an adequate basis on which to comment on them.[3] In addition, some information has become available after the public comment period that is of central relevance to important provisions of the rule.

UARG emphasizes that EPA should take no action on reconsideration that would result in establishing a lower ozone-season NOx emission budget for any state than the budget established for that state in the CSAPR Update Rule.[4] Electric generating companies with units operating in the states covered by the CSAPR Update Rule have, of necessity, already begun planning, as best they are able to, for compliance with the rule – which is scheduled to take effect beginning with the 2017 ozone season on May 1, 2017, barely four months from now – and therefore must have the certainty that they can rely on allowance allocations based on ozone-season NOx emission budgets that are no lower than the budgets established in the final rule that EPA published in the Federal Register on October 26, 2016.

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[3] Neither the filing of this petition nor anything in the petition should be construed as suggesting that UARG is required to file this petition in order to preserve its right, during judicial review of the CSAPR Update Rule, to address the merits of any procedural or substantive issue described herein or any other issue.

[4] UARG also notes that, by requesting reconsideration of the CSAPR Update Rule, UARG is not thereby suggesting that EPA should return to the same emission-budget-setting methodology that EPA used in CSAPR or to the same emission-budget-setting methodology that EPA described in the proposed version of the CSAPR Update Rule.

UARG's objections are of central relevance to the outcome of the CSAPR Update rulemaking. The Administrator therefore should reconsider the rule, pursuant to section 307(d)(7)(B) of the CAA, to address these critically important issues.[5]

In addition, the issues addressed herein are of such importance, and the rule is flawed to such an extent, that UARG respectfully requests that the Administrator issue a partial administrative stay under section 307(d)(7)(B) of the Act – specifically, by staying the effectiveness of the final CSAPR Update Rule ozone-season NOx emission budgets for all states for which that rule established such budgets[6] – during the period of administrative

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[5] *See* CAA § 307(d)(7)(B), 42 U.S.C. § 7607(d)(7)(B) (providing for reconsideration of final EPA actions under the CAA that are within the scope of section 307(d)(1), including that the petitioner's objections arose after the public comment period, but within the time specified for judicial review, and are "of central relevance to the outcome of the rule"). Section 307(d)(7)(B) applies to EPA's CSAPR Update rulemaking, in which EPA imposed federal implementation plans ("FIPs") under section 110(c) of the Act, because section 307(d)(1)(B) provides that section 307(d) applies to, among other things, "the promulgation or revision of an implementation plan by the Administrator under [CAA section 110(c)]." 42 U.S.C. § 7607(d)(1)(B); *see* 81 Fed. Reg. at 74586 (recognizing that section 307(d) applies to the CSAPR Update Rule). UARG notes, however, that not all of the issues addressed in this petition are necessarily limited to matters that arose entirely after the public comment period.

[6] These states are Alabama, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Missouri, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, Tennessee, Texas, Virginia, West Virginia, and Wisconsin. The stay, therefore, would result in each of these 22 states becoming subject to their respective pre-existing CSAPR Phase 2 emission budgets for ozone season 2017, and for subsequent control periods, during the duration of the stay (with the exception of Kansas, which is not subject to the CSAPR ozone-season NOx program apart from the CSAPR Update Rule and therefore would not have an ozone-season NOx emission control requirement under CSAPR while the stay is in effect). The requested stay would ***not***, however, apply to EPA's determination, made as part of the CSAPR Update rulemaking, that North Carolina, South Carolina, and Florida have no CSAPR ozone-season NOx emission control requirement with respect to the 1997 or 2008 ozone national ambient air quality standards ("NAAQS"); in other words, *under the stay, those three states would continue not to be subject to CSAPR (or CSAPR Update Rule) ozone-season NOx emission budgets or other ozone-season NOx requirements*. UARG does not seek reconsideration of EPA's determination in the CSAPR Update rulemaking to exclude Florida, North Carolina, and South Carolina from the NOx ozone-season program under CSAPR, and that determination should not be affected by reconsideration or a stay. UARG also does not seek reconsideration of EPA's determination in the CSAPR Update rulemaking that Georgia does not

reconsideration, in accordance with the request at the conclusion of this petition. In addition, several states and other parties, including UARG, have filed petitions for review of the CSAPR Update Rule in the U.S. Court of Appeals for the D.C. Circuit. *State of Wisconsin, et al. v. EPA*, No. 16-1406 and consolidated cases; *Utility Air Regulatory Group v. EPA*, No. 16-1435. As described further below, the Administrator should also stay the rule pending the conclusion of judicial review under the authority granted to EPA by the Administrative Procedure Act. 5 U.S.C. § 705 ("When an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review").

INTRODUCTION AND BACKGROUND

The CSAPR Update Rule addresses interstate transport for the 2008 ozone NAAQS by, in general, applying the framework that EPA used in CSAPR – which EPA promulgated in 2011 and which went into effect in 2015, following litigation in the U.S. Court of Appeals for the D.C. Circuit and the Supreme Court – to address interstate transport for the 1997 ozone NAAQS and the 1997 and 2006 NAAQS for fine particulate matter ("$PM_{2.5}$"). The CSAPR Update Rule also addresses the July 28, 2015 D.C. Circuit remand of certain states' CSAPR ozone-season NOx budgets. *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118 (D.C. Cir. 2015) ("*EME Homer City II*").

The CSAPR Update Rule regulates ozone-season NOx emissions in 22 states that EPA deemed to be contributing significantly to nonattainment or interfering with maintenance of the 2008 ozone NAAQS in other states. 81 Fed. Reg. at 74506. Like CSAPR and its predecessor

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contribute significantly to nonattainment or interfere with maintenance of the 2008 ozone NAAQS in any other state, and that determination likewise should not be affected by reconsideration or a stay.

regulation, the Clean Air Interstate Rule ("CAIR"),[7] the CSAPR Update Rule addresses emissions from electric generating units ("EGUs") and is based on the Agency's interpretation and application of CAA section 110(a)(2)(D)(i)(I). That provision requires, in relevant part, that each state's plan for attaining the NAAQS "contain adequate provisions . . . prohibiting . . . any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will . . . contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any [NAAQS]." 42 U.S.C. § 7410(a)(2)(D)(i)(I).

The CSAPR Update Rule is the product of a flawed and inadequate rulemaking. EPA issued interstate transport modeling data for the 2008 ozone NAAQS for public comment through a notice of data availability ("NODA") published in the Federal Register on August 4, 2015. 80 Fed. Reg. 46271. UARG submitted comments to EPA on the NODA on October 23, 2015.[8] Without waiting for or considering comments on the NODA, however, EPA used the interstate modeling data made available through the NODA to develop the proposed version of the CSAPR Update Rule. 80 Fed. Reg. 75706, 75720 (Dec. 3, 2015) ("Proposed CSAPR Update Rule").[9] UARG submitted extensive legal and technical comments on the Proposed CSAPR Update Rule on February 1, 2016, which was the end of the public comment period on the

[7] 70 Fed. Reg. 25162 (May 12, 2005).

[8] Comments of the Utility Air Regulatory Group on the Notice of Data Availability of the Environmental Protection Agency's Updated Ozone Transport Modeling Data for the 2008 Ozone National Ambient Air Quality Standard, EPA-HQ-OAR-2015-0500-0040 (Oct. 23, 2015) ("UARG NODA Comments").

[9] EPA sent the proposed rule to the Office of Management and Budget for interagency review during the public comment period on the NODA without awaiting public comments on the NODA. *See* UARG NODA Comments at 1 n.2.

proposed rule.[10] UARG also submitted supplemental comments on June 1, 2016, June 9, 2016, and August 16, 2016, addressing matters arising after the February 1, 2016 comment deadline.[11] According to EPA, the revised modeling used in the final CSAPR Update Rule reflects EPA's consideration of both comments on the NODA and comments on the proposed rule. 81 Fed. Reg. at 74507. EPA's decision to redo its modeling for the final CSAPR Update Rule without issuing a supplemental notice of proposed rulemaking or otherwise providing an opportunity for public comment on the new modeling, as well as EPA's decision not to address and respond to comments on the NODA before it issued the final rule, likely contributed to many of the problems with the final rule addressed herein.

In this petition, UARG describes several critical aspects of the final rule that EPA should reconsider, including certain aspects of the rule which EPA changed from its rulemaking proposal and of which the Agency failed to provide public notice and an opportunity to comment. In addition, as discussed below, certain key elements of the rule are further undermined by new information that has become available since the close of the public comment

[10] UARG's February 1, 2016 comments are in the docket for this rulemaking at EPA-HQ-OAR-2015-0500-0253 ("UARG February 1 Comments"). The length of the public comment period on the Proposed CSAPR Update Rule was inadequate, given the volume and complexity of the proposed rule and the technical materials associated with it. When EPA published the Proposed CSAPR Update Rule in the Federal Register, it established a 45-day public comment period, which would have ended on January 19, 2016. 80 Fed. Reg. at 75706. In response to requests from UARG and others, EPA announced a very limited extension of the comment period, to February 1, 2016. 80 Fed. Reg. 81251 (Dec. 29, 2015). UARG and several other stakeholders – including the State of Arkansas, the State of Mississippi, the Environmental Energy Alliance of New York, the Energy & Environmental Alliance of Arkansas, and Entergy Services, Inc. – filed letters after EPA granted the extension to February 1, requesting that EPA grant a further extension of the comment period to the first week of March 2016, but EPA refused to extend the length of the public comment period beyond February 1, 2016. See UARG's February 1, 2016 comments at pages 3-6 for a discussion of the inadequacy of the public comment period on the Proposed CSAPR Update Rule.

[11] UARG's supplemental comments on the Proposed CSAPR Update Rule are not in the rulemaking docket but are attached hereto in Appendix A.

period on the proposed rule. The aspects of the CSAPR Update Rule to which UARG objects and on which it requests reconsideration are described below.

EPA's positions on these aspects of the CSAPR Update Rule can be expected to have significant effects on UARG members, which include electric generating companies that own and operate EGUs that are subject to the rule's requirements. As a result, UARG members will be subject to significant costs and other regulatory burdens, including, for example, more stringent limitations on emissions and the possibility of burdensome penalties to the extent they are unable to comply with the requirements of the rule.

BASES FOR THE PETITION FOR PARTIAL RECONSIDERATION OF THE RULE

I. EPA's Reliance on Modeling Projections To Identify Downwind Areas To Be Addressed, in Disregard of Real-World Air Quality Conditions

In the CSAPR Update Rule, EPA should have returned to the "monitored-plus-modeled" approach that the Agency used in its pre-CSAPR interstate transport rules – the NOx SIP Call rule and CAIR [12] – to identify the downwind areas that should be addressed. In those pre-CSAPR interstate-transport rules, the monitored-plus-modeled approach ensured that EPA would check the results of its modeling projections against recent real-world monitored data. Using this approach, EPA "evaluate[d] downwind areas for which *monitors indicate[d] current nonattainment*, *and* air quality *models indicate[d] future nonattainment*, taking into account CAA control requirements and growth." 63 Fed. Reg. at 57375 (emphases added). In other words, EPA used modeling to project whether *those areas that currently monitor nonattainment*

[12] *See* 62 Fed. Reg. 60318, 60324-25 (Nov. 7, 1997) (describing the monitored-plus-modeled approach in the proposed NOx SIP Call rule); 63 Fed. Reg. 57356, 57375 (Oct. 27, 1998) (adopting the monitored-plus-modeled approach for the final NOx SIP Call rule); 69 Fed. Reg. 4566, 4581 (Jan. 30, 2004) (describing the monitored-plus-modeled approach in the proposed CAIR); 70 Fed. Reg. 25162, 25174 (May 12, 2005) (adopting for the final version of CAIR the monitored-plus-modeled approach that EPA used in the NOx SIP Call).

air quality would *continue* to have nonattainment air quality in a relevant future year, considering projected changes in emissions. EPA identified in those rules only those downwind areas that had *both* monitored and modeled nonattainment air quality.

In CSAPR, however, EPA abandoned use of this approach in favor of a "modeled-only" approach, primarily for a specific reason based on a unique circumstance affecting the CSAPR rulemaking: At that time, recent monitoring data reflected emission reductions achieved through compliance with CAIR, a rule that the D.C. Circuit had held EPA had adopted unlawfully and that CSAPR ultimately was designed to replace.[13] In CSAPR, EPA identified (a) downwind receptors with projected five-year weighted average design values ("DVs") that exceed the NAAQS as nonattainment receptors and (b) downwind receptors with projected maximum DVs that exceed the NAAQS as maintenance-only receptors.[14] Monitored air quality was not a factor in this EPA analysis. EPA's rationale for abandoning the monitored-plus-modeled approach in CSAPR does not apply in the CSAPR Update rule because, at the time of the CSAPR Update rulemaking, CAIR had already been superseded by CSAPR.

In the CSAPR Update Rule, EPA purported to adopt a version of its earlier monitored-plus-modeled approach, saying that

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[13] *See* 76 Fed. Reg. at 48230 ("The main reason for dropping the 'monitored' part of the modeled + monitored test is the fact that the most recent monitoring data (2007–2009 design values) include large emission reductions from CAIR. . . . *[B]ecause the Transport Rule [i.e., CSAPR] will replace CAIR*, we must model a future year base case which does not assume that CAIR is in place (a 'no-CAIR' case). It is simply not appropriate to examine the current monitoring data, which represent air quality with CAIR emission reductions in place, and compare the values to 2012 projected air quality that is based on a no-CAIR modeling case.") (emphasis added).

[14] Using this approach, "nonattainment receptors are also maintenance receptors because the maximum [DVs] for each of these sites is always greater than or equal to the average [DV]." 80 Fed. Reg. at 75725.

> [a]s the [Agency] is not replacing an existing transport program . . ., [it] proposed to . . . once again consider current monitored [air quality] data as part of the process for identifying projected nonattainment receptors . . .. [EPA] received comments supporting the consideration of current monitored data for identifying projected nonattainment receptors. Thus, for the final CSAPR Update the EPA is identifying as nonattainment receptors those monitors that both currently measure nonattainment and that the EPA projects will be in nonattainment in 2017.

81 Fed. Reg. at 74531.[15] For all practical purposes, however, EPA's methodology in the CSAPR Update Rule assigns no weight to monitored, real-world air quality. In the rule, EPA identifies as "maintenance-only" receptors *both*:

> (1) receptors that have 2017 projected five-year weighted average DVs equal to or below the 2008 ozone NAAQS[16] but that have 2017 projected maximum DVs that exceed that NAAQS (*i.e.*, receptors that would also have been classified as maintenance-only receptors under EPA's CSAPR methodology); *and*
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> (2) receptors that (a) currently measure attainment of the NAAQS (*i.e.*, have actual 2013-2015 DVs equal to or below the NAAQS) *but* (b) have 2017 projected five-year weighted average DVs that exceed the NAAQS (*i.e.*, receptors that EPA would have classified as nonattainment receptors under its CSAPR methodology).

Id. at 74532. Thus, under EPA's CSAPR Update Rule approach, monitored air quality has *no* bearing on EPA's projections and identification of maintenance-only receptors. *Id.*

Thus, EPA's disregard of monitored air quality in identifying maintenance receptors renders its use of a version of the monitored-plus-modeled approach in identifying downwind

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[15] EPA also stated in the preamble to the proposed version of the rule that it planned to "return to" its previous approach. 80 Fed. Reg. at 75724 ("As the [Agency] is not replacing an existing transport program . . ., [it] is proposing to return to [the Agency's] prior practice of comparing [its] modeled nonattainment projections to current monitored air quality . . . [by] identify[ing] as nonattainment receptors those monitors that both currently measure nonattainment and that the EPA projects will be in nonattainment in 2017").

[16] In determining compliance with the 2008 ozone NAAQS, EPA truncated ozone DVs to integer values, so receptors with projected average DVs of 76.0 parts per billion ("ppb") or greater are considered nonattainment receptors and, using the CSAPR approach, receptors with projected maximum DVs of 76.0 ppb or greater are considered maintenance-only receptors. *See, e.g.*, 81 Fed. Reg. at 74532; 80 Fed. Reg. at 75725.

nonattainment receptors illusory and meaningless for all practical purposes. This is due to EPA's practice in the CSAPR Update Rule of applying the same uniform cost threshold to quantify each upwind state's ozone transport obligation with respect to both upwind-state linkages to nonattainment receptors and upwind-state linkages to maintenance receptors. By requiring the same level of emission reductions from upwind states linked to any projected downwind "problem" receptor – whether classified as nonattainment or maintenance-only – EPA deprived its putative consideration of real-world air quality of any actual effect. The proper approach would have been for EPA to follow a methodology that removes *any* receptor that has current monitored attainment air quality from consideration as a downwind nonattainment receptor ***or*** as a maintenance-only receptor.

EPA's return to its monitored-plus-modeled approach in name only is inconsistent with the Agency's explanation of why it applied that approach in previous interstate-transport rulemakings: "EPA explained that it had the most confidence in its projections of nonattainment for those counties that also *measure* nonattainment for the most recent period of available ambient data." *Id.* at 74531 (emphasis added);*see, e.g.,* 70 Fed. Reg. at 25241 (EPA explaining that it applied the monitored-plus-modeled approach in CAIR because, "[i]n light of the uncertainties inherent in regionwide modeling many years into the future, . . . *we have the most confidence in our projection of nonattainment for those counties that are not only forecast to be nonattainment in 2010, . . . but that also measure nonattainment for the most recent period of available ambient data*") (emphasis added).

EPA did not identify maintenance receptors separately from nonattainment receptors in the NOx SIP Call or CAIR, but the same principles that apply to projecting future nonattainment apply as well to projecting maintenance problems. EPA now asserts that "[u]nlike nonattainment

receptors, current clean monitored data does not disqualify a receptor from being identified as a maintenance receptor because [of] the possibility of failing to maintain the NAAQS in the future" based on the notion that "previously experienced meteorological conditions . . . that promote ozone formation, may recur in the future." 81 Fed. Reg. at 74532. This rationale is entirely unpersuasive: By using five-year weighted DVs to project future nonattainment and maintenance problems, EPA's methodology *already* accounts for meteorological and other sources of interannual variability in ambient ozone concentrations.

For the reasons described above, EPA should have followed a methodology that removes *any* receptor that has current monitored attainment air quality from consideration as a downwind nonattainment or *maintenance-only* receptor. In other words, EPA should use the most recent available air quality data as an "override" to account for real-world air quality by eliminating from its analyses any downwind receptor which is modeled to be a nonattainment or maintenance-only receptor in 2017 but whose current air quality attains the NAAQS.

II. The Effects of Land-Water Interface on EPA's Modeling

EPA's air quality modeling failed to properly consider the effects of land-water interface at near-shoreline receptors. In the CSAPR Update Rule, "EPA used the Comprehensive Air Quality Model with Extensions (CAMx)" – a grid-cell-based model using 12-kilometer grid cells – "to simulate pollutant concentrations for the 2011 base year and the 2017 future year scenarios." 81 Fed. Reg. at 74526.[17] In identifying downwind receptors projected to be nonattainment and maintenance-only receptors in 2017, EPA evaluated projected NOx

[17] EPA described CAMx as "a grid cell-based, multi-pollutant photochemical model that simulates the formation and fate of ozone and fine particles in the atmosphere." *Id.*

concentrations in the nine grid cells that surround and include the location of the monitoring site. *See id.* at 74534.[18]

The majority of receptors that EPA identified as projected nonattainment and maintenance-only receptors in the CSAPR Update Rule are located in close proximity to large water bodies – primarily the Great Lakes, the Atlantic and Gulf Coasts, and the Chesapeake Bay. In fact, four of the six projected nonattainment receptors and ten of the thirteen projected maintenance-only receptors in the final rule are located near shorelines.[19]

In light of EPA's use of 12-kilometer grid cells in its air quality modeling, therefore, it is likely that EPA's projected ozone concentrations for many if not all of these monitors include projected concentrations over water. This is significant given evidence that air quality models have been shown to project higher ozone concentrations over water than over adjacent land. *See, e.g.*, D. Goldberg et al., *Higher surface ozone concentrations over the Chesapeake Bay than over the adjacent land: Observations and models from the DISCOVER-AQ and CBODAQ campaigns*, 84 ATMOSPHERIC ENVIRONMENT 9-19 (2014). In addition, after EPA issued the CSAPR Update Rule on September 7, 2016, the Ozone Transport Commission ("OTC") made a public presentation on September 20, 2016, that explained that EPA's land-water methodology presented the prospect of "substantial over-prediction" of ozone concentrations and

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[18] *See also* EPA, Air Quality Modeling Technical Support Document for the Final Cross-State Air Pollution Rule Update at 13 (Aug. 2016) ("AQM TSD") (EPA-HQ-OAR-2015-0500-0575) ("[EPA] considered model response in grid cells immediately surrounding the monitoring site along with the grid cell in which the monitor is located[;] [the relative response factor used to determine the DV for a monitoring site] was based on a 3 x 3 array of 12 km grid cells centered on the location of the grid cell containing the monitor").

[19] *See* 81 Fed. Reg. at 74533, Tables V.D-1 and V.D-2 (listing projected nonattainment and maintenance-only receptors). Only the two nonattainment receptors located in Tarrant County, Texas, and the maintenance-only receptors located in Jefferson County, Kentucky; Hamilton County, Ohio; and Denton County, Texas, are located away from large water bodies.

"overestimation due to water" at downwind sites, thereby risking "distort[ion] [of] the results" of the modeling.[20]

The D.C. Circuit has held that a state does not contribute to nonattainment in another state based on projected contributions to downwind concentrations over water. *See Michigan v. EPA*, 213 F.3d 663, 681 (D.C. Cir. 2000) (per curiam) (vacating EPA's inclusion of Wisconsin in the NOx SIP Call rule because "the agency does not show on the record that Wisconsin's ozone contribution affects any onshore state nonattainment"). On reconsideration of the rule, EPA should carefully reexamine its air quality modeling for the rule and analyze the significant effects this phenomenon may have had on that modeling by over-predicting downwind ozone concentrations.

III. The One-Percent-of-NAAQS Threshold that EPA Used To "Link" Upwind States to Downwind Receptors

In the CSAPR Update Rule, EPA used a threshold of one percent of the NAAQS – the same percent-of-NAAQS threshold EPA used in CSAPR – to "link" emissions from upwind states to downwind receptors that EPA projected to be nonattainment or maintenance-only receptors in 2017. 81 Fed. Reg. at 74518. Specifically, EPA used a threshold of 0.75 ppb. *Id.*

EPA's use of a one-percent-of-NAAQS threshold in the CSAPR Update Rule was misguided, as it ignores the limits of the capability of the Agency's air quality modeling techniques – and of ambient monitoring techniques – to meaningfully detect and measure ambient-air contributions at the extremely low levels represented by one percent of current or possible future NAAQS. The numerical values that result from application of EPA's one-percent

[20] OTC Presentation (Appendix B to this petition) at slides 18, 23. See *id.* at slide 28 ("Sensitivity modeling indicates that special care of relative reduction factor calculations [in EPA's modeling] needs to be taken for monitor locations near coastlines."); *see generally id.* at slides 18-28.

contribution threshold – in this case, 0.75 ppb, which is even lower than the value of 0.8 ppb that EPA used in CSAPR to link upwind states to downwind receptors projected by EPA to be in nonattainment of, or to have problems maintaining attainment of, the 1997 ozone NAAQS – are so low that they are likely below the detection capability of existing modeling and measurement tools. For that reason, EPA lacks a reasonable basis to conclude that a one-percent-of-NAAQS threshold can be deemed to reflect a "measurable contribution" to downwind nonattainment and maintenance problems, as required by the CAA as construed by the D.C. Circuit. *Michigan*, 213 F.3d at 684 (" . . . *EPA must first establish that there is a measurable [air quality] contribution.* Interstate contributions cannot be assumed out of thin air.") (emphasis in original).[21] Despite its use of one-percent-of-NAAQS thresholds in both CSAPR and the CSAPR Update Rule, EPA has yet to provide anything approaching an adequate technical justification or analysis for these extremely low thresholds as representing meaningfully "measurable" air quality contributions.

EPA's use of the one-percent-of-NAAQS threshold would become even more arbitrary and unjustified if the Agency were to apply that low threshold to revised NAAQS that are or may be established at levels even lower than those EPA addressed in CSAPR and the CSAPR Update

[21] The 0.75 ppb threshold is also well below the 1.0 ppb Significant Impact Level ("SIL") that EPA has proposed to use in the context of the Prevention of Significant Deterioration ("PSD") permitting program in determinations of whether a single proposed PSD source causes or contributes to a violation of the 8-hour ozone NAAQS or PSD increments. *See* Draft Memorandum from Stephen D. Page, Director, Office of Air Quality Planning and Standards, EPA, to Regional Air Division Directors, (Aug. 1, 2016, revised Aug. 18, 2016), *available at* https://www.epa.gov/nsr/draft-guidance-comment-significant-impact-levels-ozone-and-fine-particle-prevention-significant. EPA used an approach designed to set the SIL at a level that reflects the fact that any projected change in ambient air quality below that level would be statistically indistinguishable from air quality values that would occur without any additional emissions. According to EPA, "[c]hanges of less than this magnitude [*i.e.*, less than the 1.0 ppb SIL] may be considered to be in the 'noise' of observed design values." *Id.* at 9. Given EPA's rationale regarding the SIL, which applies to emissions from a single source, it is even more inappropriate to use a threshold as low as 0.75 ppb to link emissions from upwind states to projected problem receptors downwind.

Rule. If, for example, EPA were to use the same approach in an interstate transport rulemaking concerning the 2015 ozone NAAQS of 70 ppb, 80 Fed. Reg. 65292 (Oct. 26, 2015) – which EPA indicated it planned to begin to address in the near future[22] – the one percent threshold presumably would be even lower, at 0.70 ppb. It would make no sense for EPA to use ever-lower contribution thresholds based exclusively on changing NAAQS levels without regard to the capabilities of modeling and measurement technologies that have been demonstrated to be available, feasible, and reliable at the time the thresholds are established and used.

In the absence of a robust, verifiable technical justification that the thresholds resulting from the use of a percent-of-NAAQS approach represent meaningful, and truly measurable, air quality contributions, consistent with the D.C. Circuit's directive in *Michigan*, EPA should not rely on a percentage-based approach that uses a low percentage level such as one percent. Accordingly, EPA should reconsider its use of this approach in the CSAPR Update Rule.

Moreover, EPA characterized its percent-of-NAAQS threshold in the rule as a "screening threshold," 81 Fed. Reg. at 74508, but in fact generally has used it as a bright–line test. EPA's data reflect a wide range of projected contribution levels from upwind states to downwind receptor sites, with some states projected to contribute just slightly above one percent of the NAAQS and others projected to contribute significantly more than that.[23] In many cases, the projected contribution to a receptor from emissions from within the state in which that receptor is located is greater – and in some cases is several times greater – than the projected contribution from any other state that is regulated under the rule through application of the one-percent-of-

[22] 81 Fed. Reg. at 74573 (stating that "to facilitate the implementation of the CAA good neighbor provision with respect to the 2015 ozone NAAQS, the EPA intends to provide additional information regarding steps 1 and 2 of the CSAPR framework in the fall of 2016").

[23] Appendix C of the AQM TSD lists projected contributions from individual states and other contributors of emissions included in EPA's modeling.

NAAQS approach. *See* AQM TSD Appx. C. Estimated contributions from non-U.S. sources are also much higher at many receptor sites than are contributions from individual upwind states that EPA projected to contribute one percent of the NAAQS or more to the same sites. *Id.*; *see* sections IV and IX below (explaining that EPA should not require upwind states to reduce emissions to resolve downwind nonattainment and maintenance problems attributable to non-U.S. emissions and that EPA must consider the effects of local emissions and available local emission reductions in determining the amount of emission reductions from upwind sources that may be required to address interstate transport).

UARG notes that, in the CSAPR Update Rule, three jurisdictions that were linked to projected downwind nonattainment and/or maintenance-only areas based on their projected contributions of 0.75 ppb or more to those areas were not included in the final rule. Delaware and the District of Columbia were excluded from the rule based on technical considerations; EPA found that no emission reductions were available from sources in Delaware in 2017 at any of the cost-per-ton thresholds that EPA evaluated for the rule and that no EGUs in the District of Columbia met the applicability criteria for the rule (*i.e.*, EGUs with nameplate capacity greater than 25 MW). *See* 81 Fed. Reg. at 74548, 74553. Florida was excluded from the final rule because EPA's modeling projected that sources located in Florida contributed a maximum of exactly 0.75 ppb to projected receptors in the Houston area and EPA concluded that "if [EPA] had performed the final rule modeling [using] updated halogen chemistry, Florida's contribution would likely be below th[e] [one percent] threshold." *Id.* 74538. The rationale regarding Florida demonstrates that EPA (quite properly) did apply its contribution threshold as a screening threshold rather than as a bright-line test – but EPA did so only in this one limited circumstance. UARG emphasizes that it supports EPA's exclusion of Florida from the final rule and believes

that, on reconsideration, EPA should evaluate whether there are other states that should also be excluded from the rule, for similar reasons or reasons based on other relevant considerations, including those described in this petition.

On reconsideration, therefore, EPA should examine the projected contributions from individual upwind states that are identified as contributing to one or more projected downwind nonattainment or maintenance-only sites in an amount that exceeds an appropriate and properly justified screening – not a bright-line – threshold. In reconsidering this matter, EPA should reconsider issues related to (a) contributions from the state where the receptor is located and (b) contributions from non-U.S. sources, in determining whether and to what extent reductions in emissions from individual upwind states should be required. On reconsideration, EPA also should ensure that it has fully considered and examined projected impacts on downwind areas in light of real-world regional meteorological patterns, such as prevailing wind flows. UARG urges EPA on reconsideration to recognize that it is unreasonable to bring an upwind state within the scope of an interstate transport rule merely because EPA projects that that state's emissions will contribute more than a given percentage of the NAAQS to a downwind receptor, irrespective of all other factors.

In addition, given the stringency of many of the state budgets in the CSAPR Update Rule – several of which are even more stringent than EPA had proposed, and all of which are more stringent than the state budgets that would have applied to the CSAPR Update Rule states under Phase 2 of CSAPR, which was scheduled to begin in May 2017 – it is particularly important that EPA thoughtfully reconsider whether the promulgated budget levels for all of the covered states are justified based on the amounts of projected contributions from those states relative to those of the "home state" and non-U.S. sources.

In addition to the level of contribution of each "linked" state to downwind receptors, EPA should consider the *types* of receptors to which each upwind state is linked. As explained further below, it is inconsistent with the CAA for EPA to continue to refuse to consider making any distinction between the degree of emission reduction required of upwind states that are linked solely to maintenance-only receptors and the degree of emission reduction required of those states that are linked to nonattainment receptors.

Finally, if (and to the extent) EPA continues to apply the one-percent threshold following reconsideration, it should use a threshold of 0.76 ppb instead of 0.75 ppb. In analyzing compliance with the 8-hour ozone NAAQS, EPA truncates digits to integer values,[24] and therefore "[p]rojected [DVs] that are greater than or equal to 76.0 ppb are considered to be violating the NAAQS in 2017." *Id.* at 74532; *see also* note 16 above.[25] In recognition of the fact that DVs up to and including 75.9 ppb reflect attainment of the 2008 ozone NAAQS, a proper application of a one-percent-of-NAAQS threshold for that NAAQS would reflect the fact that any contribution below 0.76 ppb – *i.e.*, any contribution up to and including 0.759 ppb – is, by definition, insignificant. Thus, if EPA were to continue to apply a one-percent-of-NAAQS contribution threshold with respect to the 2008 ozone NAAQS -- which, for the reasons

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[24] *See, e.g.*, 80 Fed. Reg. at 75725 (citing 40 C.F.R. pt. 50, App. P – Interpretation of the Primary and Secondary National Ambient Air Quality Standards for Ozone).

[25] Although EPA did not expressly quantify the one-percent-of-NAAQS threshold in its August 4, 2015 NODA, it is notable that EPA assumed 0.76 ppb as the one-percent threshold when it issued preliminary interstate transport modeling results for the 2008 ozone NAAQS in January 2015, which comported with EPA's historic practice of truncating digits. *See* Memorandum from Stephen D. Page, EPA Director, Office of Air Quality Planning and Standards, to Regional Air Division Directors, Information on the Interstate Transport ''Good Neighbor'' Provision for the 2008 Ozone National Ambient Air Quality Standards (NAAQS) under Clean Air Act (CAA) Section 110(a)(2)(D)(i)(I) (Jan. 22, 2015) ("January 2015 Memorandum"), Attachment at 9, *available at* http://www.epa.gov/airmarkets/january-2015-memo-and-information-0.

described above, EPA should not do – the Agency should establish that threshold at 0.76 ppb rather than at 0.75 ppb.

IV. The Effects of Emissions from Non-U.S. Sources in EPA's Air Quality Modeling

In the CSAPR Update Rule, EPA "performed nationwide, state-level ozone source apportionment modeling . . . to quantify the contribution of 2017 baseline NOx and VOC emissions from all sources in each state to projected 2017 ozone concentrations at air quality monitoring sites." 81 Fed. Reg. at 74536. In doing so, EPA "tracked the ozone formed from each of [seven] contribution categories": (1) states ("anthropogenic NOx and VOC emissions from each state tracked individually"); (2) biogenic emissions; (3) boundary concentrations; (4) tribes; (5) Canada and Mexico (*i.e.*, the parts of those countries that are within the modeling domain for the rule); (6) fires; and (7) offshore. *Id.* Two of these categories – *i.e.*, boundary concentrations and Canada and Mexico – stand out from the others as representing sizeable contributions to ozone that EPA attributes to emissions from sources, including anthropogenic sources, that are located outside the United States and that are thus beyond any state's emission control authority. Emissions in the "Canada and Mexico" category include "anthropogenic emissions from sources in the portions of Canada and Mexico included in the modeling domain." *Id.* "Boundary Concentrations" include "concentrations transported into the modeling domain." *Id.* Although it is unclear from the data that EPA presented what portion of boundary concentrations is attributable to anthropogenic emissions, it is obvious that some significant percentage of those concentrations originates from anthropogenic sources.

EPA's data indicate that, in many cases, contributions from these two international contribution categories are very large. *See* AQM TSD Appx. C (showing that anthropogenic emissions from Canada and Mexico are projected to contribute over one percent of the NAAQS at all receptors that are identified as nonattainment or maintenance-only receptors and that are

located in Connecticut and New York, and showing projected contributions from boundary concentrations ranging from 11.20 ppb to 27.73 ppb). On reconsideration, EPA should reexamine these very large contributions to ozone transported into the United States and should not require upwind states to achieve emission reductions that, in effect, would be offsetting contributions to downwind ozone air quality that are attributable to non-U.S. emission sources.[26]

EPA acknowledged in a 2015 memorandum regarding implementation of the 2015 ozone NAAQS that "the CAA contains provisions in section 179B that ensure *states only need to address man-made sources within their jurisdiction*, and only need to impose emissions controls on local sources to the extent they are reasonably available."[27] Section 179B(a) of the CAA states that

> an implementation plan or plan revision . . . *shall be approved* by the Administrator if . . . such plan or revision meets all the requirements applicable to it under the [Act] other than a requirement that such plan or revision demonstrate attainment and maintenance of the relevant [NAAQS] by the [applicable] attainment date . . . and . . . the submitting State establishes . . . that the implementation plan of such State would be adequate to attain and maintain the relevant [NAAQS] by the [applicable] attainment date . . . *but for emissions emanating from outside of the United States.*

42 U.S.C. § 7509a(a) (emphases added). Likewise, in the CAA regional haze program – which addresses regional-transport issues in the visibility-protection context – EPA has made clear that

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[26] This discussion focuses on the anthropogenic component of non-U.S. emissions because the individual-state and Canada/Mexico components of EPA's contribution assessments constitute contributions from anthropogenic emissions only, with biogenic emissions placed in a separate category. 81 Fed. Reg. at 74536. This should not, however, be construed as suggesting that EPA can properly require upwind states to achieve emission reductions to offset ozone-concentration contributions from non-anthropogenic emission sources, whether those non-anthropogenic sources are located within or outside the United States.

[27] Memorandum from Janet McCabe, EPA Acting Assistant Administrator, Office of Air and Radiation, to Regional Administrators, Implementing the 2015 Ozone National Ambient Air Quality Standards (Oct. 1, 2015) ("October 2015 Memorandum"), Attachment at 6 (emphasis added), *available at* http://www3.epa.gov/ozonepollution/actions.html.

states are not responsible for addressing adverse air quality impacts that are attributable to emissions from non-U.S. sources and that it is instead EPA's responsibility to address the impacts of those emissions through diplomatic efforts:

> The EPA agrees that the projected emissions from international sources will in some cases affect the ability of States to meet reasonable progress [visibility] goals. *The EPA does not expect States to restrict emissions from domestic sources to offset the impacts of international transport of pollution.* . . . EPA will work with the governments of Canada and Mexico to seek cooperative solutions on transboundary pollution problems.

64 Fed. Reg. 35714, 35736 (July 1, 1999) (emphasis added); *see also, e.g.*, 40 C.F.R. § 51.308(h)(2)-(4) (providing that, in a state's evaluation of the adequacy of its existing implementation plan under the regional haze program, "[w]here the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources within the State, the State shall revise its implementation plan to address the plan's deficiencies" (*id.* § 51.308(h)(4)), and that "[i]f the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another State(s) . . ., the State must provide notification to the Administrator and to the other State(s) . . . [and] collaborate with the other State(s) through the regional planning process for the purpose of developing additional strategies to address the plan's deficiencies" (*id.* §51.308(h)(2)), *but* "[w]here the State determines that the implementation plan is or may be inadequate to ensure reasonable progress *due to emissions from sources in another country*, the State shall [simply] provide notification, along with available information, to the Administrator") (*id.* § 51.308(h)(3)) (emphases added).

It is unreasonable and contrary to the Act for EPA to require *upwind states*, which in many cases contribute relatively little to ozone concentrations at downwind receptors, to achieve substantial emission reductions that offset the portion of downwind concentrations that is

attributable to "emissions emanating from outside of the United States," CAA § 179B(a) – and therefore that is beyond the regulatory jurisdiction of *any* state – when *even the state where the receptor is located is not responsible* to achieve emission reductions to compensate for the effects of non-U.S. emissions. The CAA provides that states are to submit SIP provisions "prohibit[ing] . . . any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will . . . contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any [NAAQS]." 42 U.S.C. § 7410(a)(2)(D)(i)(I). It bears emphasis that the Act does *not* require upwind states to *resolve* downwind nonattainment or maintenance problems, and of course does not require upwind states to compensate for effects of non-U.S. emissions on downwind air quality problems. Under the CAA, no states – neither downwind nor upwind states – can properly be held responsible for reducing their emissions to address air quality problems that are attributable to non-U.S. emissions.

EPA's data in the CSAPR Update rulemaking reveal that a substantial number of the downwind receptors that EPA projected will be nonattainment or maintenance-only receptors in 2017 are projected to have, in 2017, average or maximum DVs below 76 ppb – and therefore attaining the NAAQS – if contributions from non-U.S. anthropogenic sources to ozone air quality at those receptors were not included in calculation of their projected DVs. For example, as shown in Table 1 below, of the 6 projected nonattainment receptors identified in the final rule, 3 would have average DVs in 2017 below 76 ppb if projected contributions from Canada and Mexico were subtracted, and 5 of the 6 would have average DVs in 2017 below 76 ppb if both

Canada-and-Mexico contributions and a conservatively calculated percentage (5%)[28] of EPA-estimated contributions[29] from boundary concentrations – *i.e.*, a percentage that represents the portion of boundary concentrations that is attributable to anthropogenic sources – were not included.

Table 1

Monitor ID	State	County	2017 Avg. DV	Canada & Mexico	2017 Avg. DV w/o Canada & Mexico	5% of Initial & Boundary	2017 Avg. DV w/o Canada & Mexico and w/o 5% of Initial & Boundary
90019003	Connecticut	Fairfield	76.5	1.19	75.31	0.81	74.50
90099002	Connecticut	New Haven	76.2	1.22	74.98	0.85	74.13
480391004	Texas	Brazoria	79.9	0.35	79.55	1.00	78.55
484392003	Texas	Tarrant	77.3	0.51	76.79	1.20	75.59
484393009	Texas	Tarrant	76.4	0.39	76.01	1.20	74.81
551170006	Wisconsin	Sheboygan	76.2	0.41	75.79	0.72	75.07

In addition, as shown in Table 2 below, of the 4 projected nonattainment receptors identified in modeling for the final rule that have 2013-2015 monitoring data in attainment of the NAAQS (which are characterized as maintenance-only receptors in the final rule), 1 would have

[28] This assumes that at least 5% of the boundary-concentration contributions to these receptors is attributable to anthropogenic sources. This percentage appears to represent a very conservative estimate based on a preliminary review of available scientific research. *See generally* Lin Zhang, et al., *Improved estimate of the policy-relevant background ozone in the United States using the GEOS-Chem global model with 1/2° x 2/3° horizontal resolution over North America*, 45 ATMOSPHERIC ENVIRONMENT 6769-76 (2011). The percentage of boundary concentrations that is attributable to anthropogenic sources varies by region and state and can be expected to be higher – perhaps substantially higher – in a number of areas than the conservative estimate of 5% used here.

[29] In its modeling for its proposed CSAPR Update rule, EPA used data on boundary conditions obtained from a 2011 run of the GEOS-Chem model. AQM TSD at 10.

an average DV in 2017 below 76 ppb if projected contributions from Canada and Mexico were subtracted, and 3 of the 4 would have average DVs below 76 ppb if both Canada-and-Mexico contributions and 5% of EPA-estimated contributions from boundary concentrations – representing the portion of boundary concentrations that is conservatively attributable to anthropogenic sources – were excluded.

Table 2

Monitor ID	State	County	2017 Avg. DV	Canada & Mexico	2017 Avg. DV w/o Canada & Mexico	5% of Initial & Boundary	2017 Avg. DV w/o Canada & Mexico and w/o 5% of Initial & Boundary
211110067	Kentucky	Jefferson	76.9	0.45	76.45	1.10	75.35
240251001	Maryland	Harford	78.8	0.55	78.25	0.78	77.47
361030002	New York	Suffolk	76.8	1.25	75.55	0.78	74.77
482011039	Texas	Harris	76.9	0.27	76.63	1.10	75.53

Moreover, as shown in Table 3 below, of the 9 projected maintenance-only receptors identified in the rule based on EPA's CSAPR methodology (*i.e.*, receptors that have projected 2017 maximum – but not projected 2017 average – DVs in excess of the NAAQS), 1 would have a maximum DV below 76 ppb if projected contributions from Canada and Mexico were excluded, and 6 of the 9 would have maximum DVs below 76 ppb if both Canada-and-Mexico contributions and 5% of EPA-estimated contributions from boundary concentrations were excluded.

Table 3

Monitor ID	State	County	2017 Max. DV	Canada & Mexico	2017 Max. DV w/o Canada & Mexico	5% of Initial & Boundary	2017 Max. DV w/o Canada & Mexico and w/o 5% of Initial & Boundary
90010017	Connecticut	Fairfield	76.6	0.95	75.65	0.79	74.86
90013007	Connecticut	Fairfield	79.7	1.20	78.50	0.82	77.68
260050003	Michigan	Allegan	77.7	0.27	77.43	0.56	76.87
360850067	New York	Richmond	77.4	1.40	76.00	0.86	75.14
390610006	Ohio	Hamilton	77.4	0.64	76.76	0.85	75.91
421010024	Pennsylvania	Philadelphia	76.9	0.45	76.45	0.78	75.67
481210034	Texas	Denton	77.4	0.39	77.01	1.21	75.80
482010024	Texas	Harris	77.9	0.13	77.77	1.39	76.38
482011034	Texas	Harris	76.6	0.21	76.39	1.16	75.23

As noted above, the estimation that only 5% of boundary concentrations is attributable to anthropogenic sources is very conservative. For each of the three categories of receptors discussed above, the result of this analysis likely would have been that even fewer downwind receptors would have remained projected nonattainment or maintenance-only receptors, respectively, if the analysis had applied a percentage even moderately higher than 5%.

EPA recognized the importance of the issue of contributions to ozone concentrations at U.S. locations from non-U.S. sources in the context of the revised ozone NAAQS that EPA promulgated in 2015, and EPA pledged to work diplomatically with foreign countries and international organizations, including Canada, Mexico, and the European Commission, to alleviate the effects of non-U.S. emissions on ozone concentrations in the United States. *See* October 2015 Memorandum, Attachment at 6; EPA White Paper, "Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone" at 8-9 (Dec. 30, 2015),

available at https://www.epa.gov/sites/production/files/2016-03/documents/whitepaper-bgo3-final.pdf. It is arbitrary and inconsistent with this Agency statement and with the CAA itself, including section 179B of the Act, for EPA to require upwind states to achieve emission reductions to compensate for the substantial problem of ozone contributions from emission sources outside the United States. UARG therefore requests that EPA address this issue on reconsideration of the rule.

V. The Emission Budget Calculation Methodology in the Final Rule

EPA failed to provide an opportunity for public comment on the emission budget calculation methodology used in the final rule. In the proposed version of the rule, EPA described a budget-setting methodology that involved multiplying the monitored historical state-level heat input by IPM-modeled state-level emission rates, a methodology that was similar to the approach EPA used to quantify emission budgets in CSAPR. *See* 81 Fed. Reg. at 74547. In the final rule, EPA used a more complex multi-step methodology that differed in very significant ways from the methodology in the proposed rule and in CSAPR. *Id.* EPA described this new methodology as "reflect[ing] EGU NOx reduction potential by using historical state-level NOx emission rates adjusted by modeled NOx reduction potential." *Id.* EPA's methodology in the final rule also involved EPA development of "an adjusted historical dataset" intended to reflect "three categories of known changes in the power sector occurring between 2015 and 2017" – *i.e.*, plans to install selective catalytic reduction ("SCR") equipment at existing EGUs, planned coal-to-gas conversions, and planned unit retirements that have been announced. *Id.*; *see id.* at 74548 (providing a more complete description of EPA's new multi-step methodology).

There is no question that EPA's new budget calculation methodology is a critical aspect of the final rule. UARG appreciates EPA's apparent efforts in the CSAPR Update rulemaking to address at least some of the serious concerns regarding the Agency's proposed methodology, but

instead of simply making substantial changes to the budget calculation methodology in the final rule without any public review or opportunity for comment, EPA should have issued a supplemental notice of proposed rulemaking that – at a minimum – would have included a detailed explanation of and rationale for the revised methodology and provided the specific, unit-level assumptions EPA used to create the adjusted historical dataset for application in its new methodology. Because it failed to take that important step, EPA left a number of issues raised in comments on the proposed version of the rule only partially resolved at best. EPA also deprived the public, including states and regulated entities, of an opportunity to comment on this central aspect of the rule and deprived the Agency of the benefit of those comments.[30]

VI. Significant and Unexplained Anomalies in EPA's Budget-Calculation Modeling

One of UARG's primary concerns about the proposed version of the rule was that EPA's modeling incorrectly and improperly assumed that an extraordinarily large amount of coal-fired electric generating capacity will be retired by 2018, with the great majority of that capacity projected by EPA to be retired by 2016, and therefore did not reflect real-world conditions. *See* UARG February 1 Comments at 43-44 & Attachment 2. UARG attached to its February 1 comments a technical report prepared by James Marchetti that provided unit-level details regarding which EGUs would retire and which would operate in 2016 and in 2018, based on information provided by owners of EGUs that EPA assumed will be retired as well as publicly available data ("Technical Report" (Attachment 2 to UARG February 1 Comments)). That Technical Report explained that EPA's modeling for the proposed rule assumed that 64,454 MW of coal-fired capacity will be retired in 2016 and that a total of 75,093 MW will be retired in

[30] As discussed elsewhere in this petition, and particularly in section VI, EPA's implementation of this methodology also raises serious concerns that it should address on reconsideration.

2018. *See* Technical Report at Section 2.5. The vast majority of these projected retirements occurred in EPA's base case modeling, and most of the retirements EPA assumed would occur involved EGUs located in the 23 states that were subject to the proposed rule[31] (the "Proposed Rule States"). In its modeling for the proposed rule, EPA assumed that 47,690 MW of coal-fired capacity would be retired in the Proposed Rule States in 2016 and that a total of 56,505 MW would be retired in the Proposed Rule States by 2018. *See id.*

UARG explained in its February 1 comments that, based on information provided by owners of EGUs that EPA assumed will be retired, as well as publicly available data, Mr. Marchetti found that, of the 75,093 MW of coal-fired capacity EPA assumed will be retired by 2018, there were, as of February 1, 2016, plans to retire only 16,713 MW by the end of 2018. *Id.* In the Proposed Rule States, 41,466 of the 47,690 MW of coal-fired capacity EPA assumed would be retired in 2016 were operating as of February 1, 2016, and, according to the owners, were expected to operate through the end of 2016. *Id.* Similarly, according to unit owners, 44,836 of the 56,505 MW that EPA's modeling assumed would be retired in the Proposed Rule States by 2018 were expected to operate through the end of 2018. *Id.*

UARG filed supplemental comments on the Proposed CSAPR Update Rule on June 1, 2016, and August 16, 2016, demonstrating that – according to unit-level operational data made available on EPA's website on a quarterly basis – the vast majority of EGUs that James Marchetti identified in the Technical Report as EGUs that EPA modeled to be retired by 2016 but that would actually operate at least through the end of 2016 were in fact operating during the first and second quarters of 2016, respectively.

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[31] The proposed rule covered the 22 states covered by the final rule as well as North Carolina, which is not subject to the final rule. *See* 80 Fed. Reg. at 75710 (Table I-A-1).

When EPA signed and issued the final rule in September 2016, the Agency asserted, without any elaboration, that it "constrained the model to prevent [EGU] retirement projections prior to the 2020 run year, except for units that have announced plans to retire." *See* Summary of EPA's Review of Comments on the National Electric Energy Data System (NEEDS) v.5.15 and the Integrated Planning Model (IPM) v.5.15 (EPA Docket No. EPA-HQ-OAR-2015-0500-0544). EPA included a reference to this document, along with similarly brief statements, in the Response to Comments on the CSAPR Update Rule.[32] Presumably, EPA intended this pre-2020 retirement "constrain[t]" as its response to comments from UARG and others objecting to EPA's severely flawed retirement-capacity projections. Yet, as far as counsel for UARG have been able to determine, aside from the rather vague, and very brief, statements described above, EPA did not explain or even discuss this putative action in the preamble to the final rule or elsewhere in the docket for the rulemaking.

After the CSAPR Update Rule became final, UARG retained Mr. Marchetti to conduct a preliminary analysis of EPA's modeling for the final rule. The results of this analysis indicated apparent, potentially significant anomalies in the modeling for the final rule. First, Mr. Marchetti determined that EPA modeled 23,732 MW of capacity in the 22 states covered by the final rule that will operate as coal-fired in 2018 as co-firing coal and biomass and as being "idled" in 2018. If this is the way in which EPA purported to "constrain[] the model," although that constraint may technically have prevented unit "retirements" prior to 2020, "idling" this capacity might well have had the same effect as retirement in EPA's modeling. EPA offered no explanation of –

[32] *See* EPA, "Cross State Air Pollution Update Rule – Response to Comment," at 328 ("Given the necessity of near-term forecasting for this rule, EPA constrained the model to prevent retirement projections prior to the 2020 run year, except for units that have announced plans to retire. Consequently, these retirements will not occur in the final rule budgets or impacts[.]"); *see also id.* at 321.

indeed, did not even identify – this phenomenon in its final-rule modeling documentation (as far as UARG counsel have been able to ascertain), and the Agency provided no rationale for it.

Second, according to Mr. Marchetti, it appears that EPA may not have used a consistent methodology for determining NOx emission rates in the modeling. In the proposed rule, EPA assumed that a NOx emission rate of 0.075 lb/mmBtu was widely achievable for SCR-equipped units, but in response to comments from UARG and others, EPA stated that it revised its assumption for the final rule to reflect 0.10 lb/mmBtu as a widely achievable NOx emission rate for SCR-equipped units. *See* 81 Fed. Reg. at 74544 ("for the purposes of evaluating EGU NOx reduction potential, the EPA uses an EGU NOx emission rate for units with SCR of 0.10 lbs/mmBtu as a ceiling in the IPM model"). EPA explained in its EGU NOx Mitigation Strategies TSD for the final rule that "[i]n the setting of the state budgets, . . . units were given the lower of their actual rate from NEEDS or 0.10 lbs/mmBtu."[33] Mr. Marchetti noted that several EGUs equipped with SCRs were modeled with emission rates well below 0.10 lb/mmBtu. It is unclear from the rulemaking record which "actual rate from NEEDS" EPA in fact used in the final rule as an alternative to the 0.10 lb/mmBtu ceiling in individual cases. UARG does not disagree in principle with using historical emission rates for units in the modeling, provided that the rates that are used have been shown to be both attainable and actually attained on a consistent and sustained basis under real-world conditions. Whether the appropriate actual rate for each of the affected EGUs is below 0.10 lb/mmBtu and consistent with the rate that EPA used for that unit in its final-rule modeling does not appear to be addressed in EPA's rulemaking documents. On reconsideration, therefore, EPA should address and resolve this matter in an appropriate way.

[33] EPA, EGU NOx Mitigation Strategies Final Rule TSD (Aug. 2016) at 5 n.6 ("Mitigation Strategies TSD") (EPA-HQ-OAR-2015-0500-0554).

Finally, EPA has stated unequivocally throughout this rulemaking that it assumed installation of new SCRs was not feasible by 2017. *See* 81 Fed. Reg. at 74540; 80 Fed. Reg. at 75731. Nevertheless, it appears, based on Mr. Marchetti's preliminary analysis, that IPM retrofitted an SCR on a small amount of capacity at at least one EGU located in Kentucky. UARG's understanding is that there have been no announcements of any plan to retrofit this unit with an SCR and that no such plan exists. In addition to the fact that this would appear to contradict the assumption EPA says it used in its modeling, installation of SCR equipment on a fraction of the capacity at a single unit is not feasible.

There may be other anomalies in EPA's modeling for the final rule's emission budgets that Mr. Marchetti was unable to detect based on his limited preliminary analysis. Such anomalies may have inappropriately reduced the levels of state budgets that the final rule imposes. It is possible that EPA's approach may also have resulted in EPA setting some state budgets at levels higher than they otherwise would have been. To the extent this is the case, any such increases should be preserved on reconsideration, in light of facility owners and operators' need to rely on emission budgets no lower than those in the final CSAPR Update rule as they prepare, to the extent possible, to comply with the rule. On reconsideration of the rule, EPA should carefully reexamine the modeling and the effects it may have had in artificially reducing states' ozone-season NOx emission budgets, should provide an adequate explanation of this issue, and should make any upward adjustments in those budgets that may be warranted.[34]

[34] For reasons discussed in this petition, EPA on reconsideration must not in any event *reduce* any of the state emission budgets established in the final CSAPR Update Rule. In addition to other reasons why none of those budgets should be reduced are the reliance interests, as discussed herein, of affected EGUs' owners and operators, which have had to make plans to try to comply with those already-stringent budgets beginning barely four months after the date of this petition, with the start of the 2017 ozone season on May 1, 2017.

VII. EPA's Assessment of Installation Schedules for Control Equipment

In the CSAPR Update Rule, EPA allowed for inadequate installation time for "state-of-the-art" NOx combustion controls – one of the emission reduction strategies EPA cited as available at the $1,400 per ton cost threshold it used in the rule to establish state emission budgets. *See* 81 Fed. Reg. at 74541 (identifying $1,400 per ton as a level of uniform control stringency that represents "turning on idled existing SCRs and installing state-of-the-art NOx combustion controls"). In the preamble to the final rule, EPA asserted that "[s]tate-of-the-art combustion controls such as low-NOx burners (LNB) and over-fire air (OFA) can be installed quickly" and characterized these controls as "a readily available approach for EGUs to reduce NOx emissions." *Id.* EPA referred to the Mitigation Strategies TSD for details regarding EPA's assessment of these controls. *Id.* at 74541 n.134. That TSD, in turn, refers to another TSD – dated July 2010 and issued in support of the proposed version of CSAPR – for EPA's assessment of the construction time needed to install these combustion controls.[35] That TSD states that "EPA anticipates finalizing the Transport Rule [*i.e.*, CSAPR] by about June 2011. LNB installations, burner modifications, or other NOx reduction controls would likely have to be installed during fall 2011 or spring 2012 outages in order to achieve significant reductions for [the] 2012 [ozone season]," a schedule EPA characterized as "aggressive."[36]

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[35] *See* Mitigation Strategies TSD at 11 ("Construction time for installing combustion controls was examined by the EPA during the original CSAPR development and are [*sic*] reported in the TSD for that rulemaking entitled, 'Installation Timing for Low NOx Burners (LNB)', Docket ID No. EPA-HQ-OAR-2009-0491-0051").

[36] EPA, "Installation Timing for Low NO_x Burners (LNB)" at 2 (July 2010), EPA-HQ-OAR-2009-0491-0051. This TSD is also in the docket for the CSAPR Update rulemaking at EPA-HQ-OAR-2015-0500-0493.

Even if this concededly "aggressive" installation schedule were feasible – which, as the rulemaking record shows, it is not[37] – the timeframe EPA provided for implementation of the CSAPR Update Rule is much shorter than the timeframe EPA anticipated for CSAPR at the time it prepared the July 2010 TSD. As noted above, in that TSD, EPA anticipated that CSAPR would be finalized by June 2011, and EPA projected that EGU owners would have time for "engineering, fabrication [and] delivery" of the controls in time for installation during outages in the fall of 2011 and the spring of 2012 (the fall and spring outages immediately preceding the start of the 2012 ozone season, which was to be the first ozone season under CSAPR until the D.C. Circuit stayed that rule on December 30, 2011). *Id.* EPA apparently anticipated a similar schedule for the CSAPR Update Rule.[38] But EPA did not finalize the CSAPR Update Rule until September 2016 – three months after its anticipated June 2016 finalization date. Moreover, because the rule was finalized just before the fall of 2016, installation of controls during fall 2016 outages to comply with the final rule was infeasible because EPA's schedule left no time for engineering, fabrication, or delivery of controls in that season.

For these reasons, EPA should not anticipate that regulated EGUs will be able to install state-of-the-art NOx combustion controls in time to achieve emission reductions during ozone season 2017. Consequently, EPA on reconsideration of the rule should reexamine the stringency of the final rule's state emission budgets in light of that fact and increase those budgets as

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[37] As explained in the Technical Report submitted as Attachment 2 to UARG's February 1 comments on the proposed version of the CSAPR Update Rule, installation of state-of-the-art NOx combustion control equipment generally takes a minimum of 18 months and must be planned years in advance. Technical Report at Sections 5.2.1 and 5.2.2.

[38] *See* 80 Fed. Reg. at 75731 ("EPA determined that the power sector could implement . . . NOx mitigation strategies [including installation of LNB and OFA] between finalization of this proposal in summer of 2016 and the 2017 ozone season"); EPA, NOx Mitigation Strategies Proposed Rule TSD, EPA-HQ-OAR-2015-0500-0101, at 9 (referencing the schedule described in EPA, "Installation Timing for Low NOx Burners (LNB)," EPA-HQ-OAR-2009-0491-0051).

appropriate. EPA should also reconsider its assumption that the inappropriately accelerated schedule it described in its July 2010 TSD for installation of LNB is feasible in the real world.

VIII. Over-Control of Upwind States' Emissions

The methodology EPA used to evaluate over-control in the CSAPR Update Rule failed to ensure that the rule avoided over-control of upwind states' emissions. EPA established NOx emission budgets for states subject to the rule based on EGU NOx emission reductions achieved in those states at uniform cost-per-ton thresholds.[39] 80 Fed. Reg. at 77439-40. In the CSAPR Update Rule, EPA used the same "multi-factor test" that it used in CSAPR to evaluate the effects of EGU NOx emission reductions that it projected are available at uniform cost-per-ton thresholds, ranging from $800 per ton to $6,400 per ton, on ozone air quality at projected downwind nonattainment and maintenance-only receptors. *Id.* at 74540-42. According to EPA, application of this multi-factor analysis in the CSAPR Update Rule included an "evaluat[ion] [of] potential over-control" at each of the cost-per-ton levels that the Agency evaluated, *id.* at 74551, and EPA concluded, based on this analysis, that "there is not over-control with respect to the one percent threshold at any of the evaluated uniform cost emission budget levels in any upwind state." *Id.* at 74552.

Despite the inherently interconnected nature of interstate emission transport, EPA in conducting this analysis improperly evaluated the effect at each downwind receptor of EGU NOx emission reductions *only in those upwind states that are "linked" to that receptor by a one-percent-of-NAAQS contribution. See id.* at 74550 ("In order to assess the air quality impacts of

[39] There is a limited exception to the use of uniform cost-per-ton thresholds in the CSAPR Update Rule for Arkansas. EPA established an ozone-season 2017 NOx emission budget for Arkansas based on a cost threshold of $800 per ton due to unique local circumstances in that state; EPA established an ozone-season NOx budget for Arkansas that will apply in 2018 and subsequent years based on the same $1,400 per ton cost threshold used for other states. *See* 81 Fed. Reg. at 74552-53.

the various control stringencies, the EPA evaluated changes resulting from the application of the emission budgets *to states that are linked to each receptor as well as the state containing the receptor.*") (emphasis added). By arbitrarily truncating its analysis in this way, EPA underestimated the effect that reductions achieved at each cost-per-ton level can be projected to have on ozone air quality at downwind nonattainment and maintenance-only receptors.

Each receptor identified in the CSAPR Update Rule as a downwind nonattainment or maintenance-only receptor receives contributions from emissions in a number of upwind states, although only some of these upwind states contribute as much as one percent of the 2008 ozone NAAQS – and thus are "linked" by EPA – to any given receptor. *See* AQM TSD Appx. C. Many states that contribute less than one percent of the NAAQS to certain downwind receptors are subject to the rule due to their one-percent-of-NAAQS-or-greater linkages to one or more *other* downwind receptors and thus will make emission reductions pursuant to the rule that can be projected to affect ozone concentrations to some extent even at receptors to which those states are not "linked" by EPA. Thus, the *aggregated* effects at a given downwind receptor of NOx emission reductions from *all* of the states included in the rule – including "linked" and "un-linked" states – can be expected to be greater than EPA's analysis indicated. It makes no sense for EPA to have evaluated effects of "on-the-books" regulations, *see* 81 Fed. Reg. at 74528, but not the projected full downwind air quality effects of the rule itself.

For this reason, EPA's analysis failed to properly assess whether the rule over-controls. As the D.C. Circuit explained, "'[i]f EPA requires an upwind State to reduce emissions by more than the amount necessary to achieve attainment in *every* downwind State to which it is linked, the Agency will have overstepped its authority.'" *EME Homer City II*, 795 F.3d at 130 (quoting *EPA v. EME Homer City*, 134 S. Ct. 1584, 1608 (2014)) (emphasis in original). By ignoring the

air quality effects at a given receptor that are attributable to emission reductions required by the rule from states that are not "linked" to that receptor (but that are subject to the rule), EPA overestimated the remaining nonattainment or maintenance problem at that receptor, and thus may well have overestimated the emission reductions that may permissibly be required of upwind states before the point of statutorily prohibited over-control is reached. Accordingly, EPA's approach creates the prospect that, in the CSAPR Update Rule, it violated the substantive constraints on its section 110(a)(2)(D)(i)(I) authority, as construed by the Supreme Court and the D.C. Circuit. An adequate air quality analysis would have been one that considered the full degree of the effects of emission reductions from *all* upwind states that are subject to the rule under each cost-per-ton threshold that EPA assessed, and not merely the effects on each downwind receptor of emission reductions from the more limited set of states that EPA deemed "linked" to that receptor.

In addition, EPA's approach in the CSAPR Update Rule to the interference with maintenance clause of section 110(a)(2)(D)(i) of the Act, as well as its failure to properly consider local nonattainment emission control measures in downwind states and emissions from non-U.S. sources, may well have produced statutorily proscribed over-control of upwind states covered by the rule. These issues are addressed in sections XI, IX, and IV, respectively, of this petition. On reconsideration, EPA should evaluate each of these issues carefully and take steps to ensure that the CSAPR Update Rule is revised to avoid all forms of over-control.

IX. EPA's Failure To Give Proper Consideration to Required Local Nonattainment Emission Control Measures in Downwind States

In the CSAPR Update Rule, EPA should have considered effects of local emissions and available local emission reductions before requiring upwind-state reductions. The state in which a nonattainment area (or, for that matter, a maintenance-only area) is located has the primary

responsibility for achieving and maintaining the NAAQS in that area. Section 107(a) of the CAA states that "[e]ach State *shall have the primary responsibility* for assuring air quality within the entire geographic area comprising such State," 42 U.S.C. § 7407(a) (emphasis added), and section 110(a)(1) of the Act requires each state to submit a SIP that "provides for implementation, maintenance, and enforcement" of the NAAQS "in each air quality control region . . . within such State," *id.* § 7410(a)(1). Accordingly, in the CSAPR Update rulemaking, EPA should have recognized that the primary responsibility for attaining and maintaining NAAQS within a given state rests with that state.

One consequence of this principle is that, in developing an interstate transport rule, EPA must account for local emission controls in the first instance. EPA recognized this principle in the NOx SIP Call rule and CAIR, at least to a degree. Both of those rules were based in part on the concept of residual nonattainment, under which downwind states that have designated nonattainment areas would be unable to reach attainment in those areas through adoption and implementation of reasonable in-state controls (and/or controls on sources located in other states but within the same multi-state nonattainment area). *See* 63 Fed. Reg. at 57377 (NOx SIP Call rule) ("The fact that a nonattainment problem persists, *notwithstanding fulfillment of CAA requirements by the downwind sources*, is a factor suggesting that it is reasonable for the upwind sources to be part of the solution to the ongoing nonattainment problem.") (emphasis added); 70 Fed. Reg. at 25184 (CAIR) (explaining that, in EPA's view, regional emission reductions are necessary because "it would be difficult if not impossible for many nonattainment areas to reach attainment *through local measures alone*") (emphasis added). In CAIR, for example, EPA explained that it evaluated emission control options to determine the average emission reductions that it concluded were reasonable in nonattainment areas implementing local controls, and then

determined, based on this analysis, that reductions from sources in upwind states were necessary – *in addition to the local controls* – in order for downwind states to reach attainment. *Id.* at 25194. This reasoning – an element of both the NOx SIP Call rule and CAIR that was neither challenged nor set aside, questioned, or criticized by the D.C. Circuit in litigation challenging those rules[40] – recognized, at least to an extent, the requirements of sections 107(a) and 110(a)(1) that place on a state the primary responsibility for assuring attainment air quality within its borders. On reconsideration, EPA should likewise recognize and give effect to this core statutory principle in this rulemaking.[41]

X. The Disproportionate Stringency of State Emission Budgets Compared to the Relatively Small Projected Reductions in Downwind Ozone Concentrations

The emission reductions required of upwind states under the CSAPR Update Rule are disproportionate to the relatively limited projected reductions in downwind ozone concentrations. EPA characterizes the rule's NOx emission reduction requirements as "a partial remedy" that reflects the emission reductions EPA asserts are achievable from EGUs by 2017 but that, according to EPA, does not fully eliminate most of the 22 covered states' EPA-projected contributions to downwind nonattainment and maintenance problems for the 2008 ozone NAAQS.[42] 81 Fed. Reg. at 74508. EPA has imposed NOx emission reduction

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[40] *See North Carolina v. EPA,* 531 F.3d 896 (D.C. Cir.), *modified on other grounds,* 550 F.3d 1176 (D.C. Cir. 2008) (CAIR); *Michigan*, 213 F.3d 663 (NOx SIP Call rule).

[41] For example, EPA on reconsideration should consider an approach similar to the approach used in its CAIR rulemaking, where EPA developed and considered various local emission reduction scenarios to evaluate whether and to what extent states could reach attainment of the NAAQS with local emission reduction measures. *See* 69 Fed. Reg. at 4596-99.

[42] EPA concluded that the CSAPR Update Rule budget for one state – Tennessee – fully addresses that state's interstate transport obligations. 81 Fed. Reg. at 74551-52. EPA also concluded that Tennessee's ozone-season NOx budget did not constitute over-control for Tennessee because the downwind receptors to which Tennessee is linked "would just be maintaining the standard" after implementation of the rule. *Id.*

requirements on EGUs in a succession of interstate transport rules addressing ozone transport – the NOx SIP Call, CAIR, and CSAPR (including two successive sets of increasingly stringent ozone-season NOx budgets, *i.e.*, Phase 1 of CSAPR followed by Phase 2 of CSAPR) – and stated in the CSAPR Update Rule that it "believes that it is beneficial to implement, without further delay, [yet further] EGU NOx reductions that are achievable in the near term," *id.*

According to EPA's analyses, however, the CSAPR Update Rule's effects on ozone air quality at projected downwind nonattainment and maintenance-only receptors would be very limited. *See id.* at 74551-52 (explaining that emission budgets reflecting $1,400 per ton would resolve EPA-projected maintenance problems at three maintenance-only receptors – in Jefferson County, Kentucky; Hamilton County, Ohio; and Philadelphia County, Pennsylvania – but that all of the projected nonattainment receptors identified in the rule would remain nonattainment receptors and the remaining 10 maintenance-only receptors would remain maintenance-only receptors). This is despite the stringency of the emission budgets the rule would impose on many states. *See, e.g., id.* at 74553 (Table VI.E-2) (indicating that the CSAPR Update Rule NOx emission budgets are, for several states, far lower than those states' 2015 emissions).

In short, EPA failed to demonstrate in the CSAPR Update rulemaking that further EGU NOx emission reductions are justified based on the marginal ozone air quality improvements that EPA projected would result from those reductions. This deficiency should be addressed on reconsideration of the rule.

XI. EPA's Approach to the "Interference with Maintenance" Clause of CAA Section 110(a)(2)(D)(i)

The approach to interference with maintenance that EPA used in the CSAPR Update Rule (and in CSAPR) is inconsistent with the terms and structure of the CAA. Under the Act, a "maintenance area" is an area that at one point was designated nonattainment and later is

redesignated attainment, with an approved maintenance plan. *See* CAA §§ 107(d)(3)(E)(iv), 175A, 42 U.S.C. §§ 7407(d)(3)(E)(iv), 7505a. EPA has acknowledged this fact. *See* EPA's Green Book website, https://www.epa.gov/green-book/green-book-8-hour-ozone-2008-area-information (referring to areas which EPA has redesignated from nonattainment to attainment and for which EPA has approved a maintenance plan as "Maintenance Area Selections") *and* http://www3.epa.gov/airquality/greenbook/hfrnrpt1.html (categorizing proposed and final EPA rules published in the Federal Register in response to state requests to redesignate areas from nonattainment to attainment, and to approve maintenance plans for those areas, as Federal Register notices addressing "Redesignation to Maintenance").

In *EME Homer City II*, the D.C. Circuit concluded that "the Transport Rule complied with *North Carolina*'s requirement that EPA give the nonattainment and maintenance prongs 'independent significance.'" 795 F.3d at 136 (quoting *North Carolina*, 531 F.3d at 910). The D.C. Circuit did *not* hold, however, that the approach EPA took in CSAPR necessarily complied with the Act and was otherwise lawful with respect to interference with maintenance. In fact, the D.C. Circuit in its opinion declined to address the merits of arguments that EPA's approach in CSAPR to interference with maintenance conflicted with the Act because, the court said, petitioners challenging CSAPR had not presented those arguments in the litigation in the form of "as-applied challenges" in which they "contest[ed] [specific] instances of over-control." *Id.* at 137 ("[T]he Supreme Court made clear in *EME Homer* that the way to contest instances of over-control is not through generalized claims that EPA's methodology would lead to over-control, but rather through a 'particularized, as-applied challenge.' *EME Homer*, 134 S. Ct. at 1609. And petitioners do not point to any actual such instances of over-control at downwind locations."). Thus, the merits of this issue have not been adjudicated by any court.

EPA first purported to address interference with maintenance independently of nonattainment in CSAPR, based on the D.C. Circuit's holding in *North Carolina*. In CAIR, EPA "applied the interference with maintenance provision 'in conjunction with the significant contribution to nonattainment provision and so did not use the maintenance prong to separately identify upwind States subject to CAIR.'" *Id.* at 136 (quoting *North Carolina*, 531 F.3d at 910). The *North Carolina* court found that EPA's approach in CAIR gave rise to the problem that "areas that found 'themselves barely meeting attainment . . . due in part to upwind sources interfering with that attainment ha[d] no recourse under EPA's interpretation of the interference [with maintenance] prong' in CAIR." *Id.* (quoting *North Carolina*, 531 F.3d at 910). Consequently, according to the court, CAIR "provide[d] no protection for downwind areas that, despite EPA's predictions, still find themselves struggling to meet NAAQS due to upwind interference." *North Carolina*, 531 F.3d at 910-11. "For this reason," the court "grant[ed] North Carolina's petition [for review of CAIR] on this issue." *Id.* at 911.

The approach EPA took to addressing interference with maintenance in CSAPR and the CSAPR Update Rule, however, creates the potential for an effect that, while different from the effect that led to the *North Carolina* court's ruling with respect to CAIR, risks transgressing limitations imposed by the Act as interpreted by the Supreme Court and the D.C. Circuit. EPA's CSAPR and CSAPR Update Rule approach creates the risk that EPA will require emission reductions that exceed the amount of reductions that can be justified to avoid interference with maintenance because that approach imposes the *same degree* of required emission reductions for interference with maintenance that EPA requires to address significant contribution to nonattainment. This approach contravenes the Supreme Court's admonition that "under the 'interfere with maintenance' prong, EPA may only limit emissions 'by *just enough* to permit an

already-attaining State to maintain satisfactory air quality.'" *EME Homer City II*, 795 F.3d at 137 (quoting *EME Homer City*, 134 S. Ct. at 1604 n.18) (emphasis added). Indeed, the D.C. Circuit found that EPA's approach to interference with maintenance in CSAPR in effect resulted in over-control: 10 of the 11 CSAPR ozone-season NOx emission budgets that the D.C. Circuit remanded were established for states that EPA had linked *only* to maintenance-only monitors for the 1997 ozone NAAQS.[43]

The over-control that the D.C. Circuit noted in its CSAPR remand decision in *EME Homer City II* was based on EPA's projections of the effects on downwind air quality of required upwind-state emission reductions that are available at various cost-per-ton levels. In fact, it is likely that EPA's approach to interference with maintenance in CSAPR resulted in even more over-control than could be quantified based on the information in the rulemaking record assembled in CSAPR. This is because, by using the future-year *maximum* design values as the basis for its "interference with maintenance" analysis, EPA failed to take account of the strong nationwide trend toward decreasing ozone DVs and improving ozone air quality. The same flaw affects the CSAPR Update Rule as well. In addition, as discussed above in Section VIII of this petition, EPA in the CSAPR Update Rule failed to account for the effects of emission reductions in non-linked upwind states subject to the rule.

Accordingly, EPA should, on reconsideration of the CSAPR Update Rule, reevaluate its approach to interference with maintenance. In addition to identifying projected maintenance-only receptors separately from projected nonattainment receptors, EPA should use a different approach to address requirements of states "linked" solely to downwind maintenance-only

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[43] *See* 76 Fed. Reg. at 48246 (Tables V.D-8 and V.D-9) (showing that Florida, Maryland, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Virginia, and West Virginia were linked only to maintenance-only receptors for the 1997 ozone NAAQS).

receptors. Four states included in the CSAPR Update Rule are linked solely to one or more maintenance-only monitors: Iowa, Kentucky, Tennessee, and Wisconsin. *See* 81 Fed. Reg. at 74538-39 (Tables V.E-2 and V.E-3). EPA's use of a single approach for quantifying an upwind state's ozone transport obligation with respect to both nonattainment and maintenance receptors removes any meaningful distinction between a nonattainment receptor and a maintenance-only receptor under the rule.

EPA should consider adopting an approach to establishing state budgets that truly gives independent significance to the interference with maintenance prong of CAA section 110(a)(2)(D)(i)(I), such as an approach that would require states linked solely to maintenance-only receptors to take steps to ensure only that their contributions to those receptors do not increase. Such an approach would mirror the requirements of a "home" state with a maintenance plan under section 175A of the Act. The Act does not authorize EPA to require an upwind state deemed to interfere with maintenance of the NAAQS in a downwind area to *reduce* its emissions. Rather, the Act requires states to include in their SIPs provisions that are adequate to prohibit emissions from within its borders that "will . . . interfere with maintenance by[] any other State with respect to any [NAAQS]." 42 U.S.C. § 7410(a)(2)(D)(i)(I). Thus, for example, if all of the downwind receptors to which a given upwind state is linked are projected to maintain the NAAQS, taking into account the air quality contribution from that upwind state and other contributors, then no additional emission reductions from that upwind state are needed – and thus none can be required – to allow the downwind receptor to continue maintaining that NAAQS, particularly in light of both the home state's obligation to avoid increasing its own emissions and the overall downward trend in ozone concentrations.

XII. Restrictions on Use of Banked CSAPR Emission Allowances

As discussed above, the CSAPR Update Rule's emission budgets are much more stringent than those that would apply under Phase 2 of CSAPR and lower than 2015 EGU emissions in covered states. EPA should have allowed unrestricted use of banked CSAPR emission allowances for compliance with the CSAPR Update Rule, or should have imposed a less stringent restriction on the use of those banked allowances to ease the transition to compliance with the CSAPR Update Rule. Instead, EPA promulgated provisions to severely restrict use of banked allowances through a one-time conversion of banked CSAPR allowances that EPA estimated in the final rule would be equivalent to a 3.5-to-1 turn-in ratio. 81 Fed. Reg. at 74560. This provision makes transition to the new trading program established by the rule much more difficult and unnecessarily costly.

This approach also punishes EGUs in states that managed to meet their 2015 and 2016 CSAPR budgets through emission reductions by depriving them of a commodity that they earned under the rules of the CSAPR program that EPA established. Allowing unrestricted use of banked CSAPR allowances would reward and encourage states that met their emission budgets under CSAPR through emission reductions and that in good faith built a bank of allowances through early emission-reduction actions. Other, related reasons for making the transition to the CSAPR Update Rule as seamless as possible is to avoid damage to market reliance and efficiency and the loss of trust that results from changing allowance trading rules. Indeed, imposing new trading ratios in a trading program that is already established, as EPA has done here, is akin to devaluing currency and is likely to disrupt the environmental markets.[44] Equally

[44] *See, e.g.*, Matthew Polesetsky, *Will a Market in Air Pollution Clean the Nation's Dirtiest Air?: A Study of the South Coast Air Quality Management District's Regional Clean Air Incentives Market*, 22 ECOLOGY L. Q. 359, 374-75 (1995) ("[P]ollution credit markets operate on the assumption that polluters will develop rational responses to the incentives that the market

important, the variability limits and assurance provisions that EPA included in CSAPR Phase 2 and that the Agency retained in the CSAPR Update Rule establish an effective upper limit on the number of banked and purchased allowances that can be used in any compliance period. The CSAPR Update Rule's *additional* restriction on use of banked allowances has the effect of making the variability limit of 21 percent of each state's budget more stringent in the CSAPR Update program than it is under CSAPR.

On reconsideration, EPA should correct these defects in the rule and should also assess deferral of the applicability of the assurance penalty provisions for a period of two years, a feature that EPA included in the CSAPR trading programs.

XIII. Deadline To Convert Banked CSAPR Allowances to CSAPR Update Allowances

In the CSAPR Update Rule, EPA established the date for EPA's conversion of banked 2015 and 2016 vintage year CSAPR allowances to 2017 vintage year CSAPR Update Rule allowances as "[a]s soon as practicable . . . but not later than March 1, 2018." 81 Fed. Reg. at 74612. March 1, 2018 is also the allowance transfer (or "compliance") deadline for the 2017 control period. *Id.* at 74623; *see also id.* at 74560 ("As soon as practicable and not later than March 1, 2018, which is the compliance deadline for the 2017 control period, and pending notification of all allowance holders, the EPA will freeze allowance accounts and convert the original CSAPR NOx ozone season 2015 and 2016 banked allowances to the 2017 vintage CSAPR Update rule NOx ozone season Group 2 allowances"). The possibility that conversion

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creates. Sources that find it extremely costly to reduce their emissions have an interest in negotiating with sources that can reduce emissions relatively inexpensively. This process of pollution credit transfer requires planning. Planning, in turn, requires the ability to predict the future with some degree of certainty. If market participants believe that regulators will whimsically change the rules of the market, firms lose the ability to plan for the future. In the worst case scenario, market participants may fear that regulators will confiscate the credits that the participants generate.").

of banked allowances could occur as late as the same day as the compliance deadline under the CSAPR Update Rule (or on a date not long before that compliance deadline) could lead to significant and unnecessary uncertainty, both for owners and operators of EGUs subject to the rule and for the allowance trading markets. For these reasons, EPA should reconsider the March 1, 2018 outside allowance-conversion deadline and should move that deadline forward to a date months in advance of the March 1, 2018 allowance transfer deadline for the 2017 control period.

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For all of the reasons discussed above, EPA should promptly grant reconsideration of the CSAPR Update Rule insofar as the rule imposes more stringent emission budgets than the budgets that apply under CSAPR or is otherwise more stringent than CSAPR.

REQUEST FOR PARTIAL ADMINISTRATIVE STAY OF THE RULE

As discussed above, given the critical importance of the issues addressed in this petition, UARG respectfully requests that the Administrator issue a partial administrative stay of the CSAPR Update Rule under section 307(d)(7)(B) of the Act during the period of administrative reconsideration. Specifically, UARG requests that EPA issue an administrative stay of the CSAPR Update Rule to the extent that the rule establishes ozone-season NOx emission budgets for states covered by the rule that are more stringent than the ozone-season NOx budgets that would have applied in 2017 (and subsequent years) under Phase 2 of CSAPR. As noted above, Kansas would not be subject to an ozone-season NOx budget during the period the stay is in effect, as that state is not included in CSAPR with respect to the ozone NAAQS and therefore has no CSAPR Phase 2 ozone-season NOx budget.[45] Also as noted above, the stay would not

[45] During the period of a stay, Georgia would remain subject to its CSAPR Phase 2 ozone-season NOx budget because Georgia was included in CSAPR but not in the CSAPR Update Rule. *See* 81 Fed. Reg. at 74506.

affect in any way the continuing validity and effectiveness of the parts of the rule in which EPA determined that Florida, North Carolina, and South Carolina are excluded from the CSAPR Update Rule (and thus excluded from the ozone-season NOx program under CSAPR as well as under the CSAPR Update Rule); EPA's determination to exclude those three states from the rule would remain fully in effect regardless of any stay of the budgets established by the CSAPR Update Rule.[46]

In addition, as noted above, several states and other parties, including UARG, have filed petitions for review of the CSAPR Update Rule in the D.C. Circuit. *State of Wisconsin, et al. v. EPA*, No. 16-1406 and consolidated cases; *Utility Air Regulatory Group v. EPA*, No. 16-1435. UARG requests that the Administrator issue a stay of the provisions of the rule for which UARG requests a CAA section 307(d)(7)(B) stay, under the authority conferred by the Administrative Procedure Act, 5 U.S.C. § 705 ("When an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review.").

During the period of the stay, CSAPR Phase 2 budgets should take effect only for those states included in the CSAPR Update Rule that were also included in CSAPR (and thus, as noted above, no such budgets would be in effect for Florida, Kansas, North Carolina, and South Carolina).

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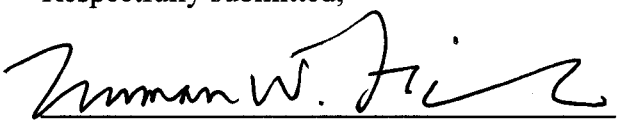
[46] In addition, as noted above, EPA should take no action on reconsideration that would result in establishment of a more stringent ozone-season NOx emission budget for any state than the budget established for that state by the CSAPR Update Rule. Owners and operators of EGUs in the states covered by the CSAPR Update Rule have already had to begin planning for compliance with that rule and must have the certainty that they can rely on an ozone-season NOx emission budget that is no lower than that established in the final rule that EPA published on October 26, 2016.

Respectfully submitted,



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Dated: December 23, 2016

Appendix A

Supplemental Comments on the Proposed CSAPR Update Rule, submitted by UARG on the following dates:

June 1, 2016

June 9, 2016

August 16, 2016

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June 1, 2016

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Docket ID No. EPA-HQ-OAR-2015-0500

Supplemental Comments of the Utility Air Regulatory Group on the Proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS 80 Fed. Reg. 75706 (Dec. 3, 2015), EPA-HQ-OAR-2015-0500

Dear Administrator McCarthy:

On February 1, 2016, the Utility Air Regulatory Group ("UARG") submitted extensive legal and technical comments on EPA's proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS, 80 Fed. Reg. 75706 (Dec. 3, 2015) ("Proposed Rule").[1] As those comments explained, one of UARG's primary concerns about the Proposed Rule is that EPA's 2017 base case modeling incorrectly and improperly assumes that an extraordinarily large amount of coal-fired electric generating capacity will be retired by 2018—with the great majority of that capacity projected by EPA to be retired by 2016—and therefore does not reflect real-world conditions. As discussed below, data recently made available on EPA's website confirms that EPA's modeling in this rulemaking, and therefore proposed statewide emission budgets based on that modeling, relies on severely flawed assumptions of coal-fired capacity retirements. This fact alone is a compelling reason for EPA not to finalize the Proposed Rule without first proposing major substantive revisions, which would have to undergo a public-comment process. In addition, the Proposed Rule is in part premised on EPA's assumption that its so-called Clean Power Plan ("CPP") will take effect on the schedule set out in that rule. On February 9, 2016, the U.S. Supreme Court

[1] UARG's comments are in the docket for the Proposed Rule at EPA-HQ-OAR-2015-0500-0253 ("UARG Comments").

stayed the CPP,[2] and it is therefore clear now that the CPP's schedule is inoperative. It is highly uncertain whether the CPP will take effect on any timetable, and even if it does, it is certain that it would do so on a much different timetable than the one on which the Proposed Rule relied. For these reasons, if EPA plans to promulgate a final rule, EPA will first need to revisit the modeling for the Proposed Rule, substitute corrected, realistic assumptions in new modeling, and provide the public an opportunity to comment on the new modeling and its results, including revised proposed emission budgets.

First, as UARG explained in its comments and in the technical report submitted as Attachment 2 to those comments,[3] EPA's modeling, using the Integrated Planning Model ("IPM"), assumed that a total of 75,093 MW of coal-fired electric generating capacity will be retired by 2018, with 64,454 MW of that capacity projected by EPA to be retired in 2016. *See* UARG Comments at 43; Technical Report at 2-3 through 2-4 & Tables 2-1 & 2-2. Based on information provided by owners of coal-fired electric generating units ("EGUs" or "units") that EPA's modeling projected would be retired, as well as other, publicly available information, UARG found that there were plans to retire only 16,713 MW of that capacity by 2018 and only 6,869 MW of that capacity in 2016. *Id.* at 2-3 to 2-4 & Table 2-2. The foregoing figures reflect EGU capacity and projected retirements nationwide.

With respect to the region covered by the Proposed Rule (the "CSAPR II Region"), EPA's modeling projected that 56,505 MW of coal-fired electric generating capacity will be retired by 2018 in that region, with 47,690 MW of that capacity projected to be retired in 2016. *Id.* at 2-3 to 2-4 & Tables 2-1 & 2-2. Based on information provided by owners of EGUs that EPA's modeling projected would be retired, as well as other, publicly available information, UARG found that there were plans to retire only 11,669 MW of that capacity in the CSAPR II Region by 2018 and only 6,224 MW of that capacity in 2016. *Id.*

An appendix to the Technical Report[4] identified the EGUs that EPA's modeling projected would be retired by 2016 and 2018 and indicated whether there were plans to retire

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[2] *West Virginia v. EPA*, Order No. 15A773, 577 U.S. --- (U.S. Feb. 9, 2016); *Basin Elec. Power Coop. v. EPA*, Order No. 15A776, 577 U.S. --- (U.S. Feb. 9, 2016); *Murray Energy Corp. v. EPA*, Order No. 15A778, 577 U.S. --- (U.S. Feb. 9, 2016); *Chamber of Commerce v. EPA*, Order No. 15A787, 577 U.S. --- (U.S. Feb. 9, 2016); *North Dakota v. EPA*, Order No. 15A793, 577 U.S. --- (U.S. Feb. 9, 2016).

[3] J. Marchetti and J. E. Cichanowicz, "Critique of the Technical Basis for the Proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS," Feb. 1, 2016.

[4] "Appendix to 'Critique of the Technical Basis for the Proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS,'" Feb. 1, 2016 ("Appendix").

each such unit by 2016 or 2018. The first table in the Appendix lists 234 coal-fired electric generating units in the CSAPR II Region that EPA projected would retire by 2016 and indicates that UARG found, based on real-world information, that 161 of these 234 units were *not* in fact expected to retire by 2016.

Since UARG submitted its comments on the Proposed Rule, unit-level operational data for the first quarter of 2016 have been reported and have become publicly available. Attached to this letter are reports generated by EPA's Air Market Program Data ("AMPD") website (https://ampd.epa.gov/ampd/)[5] that show that 152 of the 161 CSAPR Region II coal-fired units that EPA projected would retire by 2016—and that UARG found were not expected to retire by 2016—in fact reported data showing that they operated during the first quarter of 2016.[6] Of the nine other units, four were not required to report quarterly data to EPA because each of those units' nameplate capacity is below 25 MW;[7] one unit (Dan E Karn unit 1 in Michigan) did not operate during the first quarter of 2016 but has not been retired and is expected to operate in the future; and another unit (Chesterfield Power Station unit 3 in Virginia) did not operate during the first quarter of 2016 but is expected to remain commercially operable for at least the next several years. Although first-quarter 2016 data for one of the three remaining units—WPS Westwood Generation unit 031 in Pennsylvania—appear to be unavailable on the AMPD website at this time, UARG understands that that unit

[5] We printed three reports, rather than only one report, from EPA's AMPD website because of that website's limitation on the number of units for which data may be included in any given report that the website generates.

[6] The parameters established by the query options on EPA's AMPD website result in generation of reports for all data-reporting EGUs located at a given facility. The reports attached to this letter, therefore, list *all* units for which reported operating data are available on the AMPD website for the first quarter of 2016 and which are located at a facility that includes *any* unit that (a) is listed in the first table in the Appendix and (b) UARG found was *not* expected to retire by 2016 (as noted in that table). Accordingly, due to the report-generating function on EPA's website, the reports attached to this letter list a large number of units that are not relevant to this analysis. Units that UARG found are—contrary to EPA's modeling projections—not expected to retire by 2016 are highlighted in the attached reports; the non-highlighted units listed in the attached reports are not relevant to this analysis. Facilities are listed in the attached reports in alphabetical order by state (by two-character state postal abbreviation); the order of facilities listed in the Appendix is somewhat different.

[7] These four units are Muscatine Plant #1 unit 7 in Iowa, Streeter Station unit 6 in Iowa, White Pine Electric Power unit BLR 1 in Michigan, and Orrville unit 12 in Ohio. Please note that the "Capacity" for each unit indicated in the tenth column of the Appendix comes from IPM and is not equivalent to nameplate capacity for all units.

has not been retired. The other two remaining units, S A Carlson units 5 and 6 in New York, are very small units that are operating as natural gas-fired steam units.

These EPA data confirm that critically important assumptions regarding unit retirements on which the Agency relied in its modeling for the Proposed Rule have no basis and undermine its analysis and the Proposed Rule, including proposed statewide emission budgets. As UARG explained in its February 1, 2016 comments, if EPA intends to proceed to promulgation of a final rule, it would first have to correct its seriously defective projections regarding retirements of coal-fired generating capacity, along with the numerous other legal and technical problems in the Proposed Rule that UARG identified in its comments. EPA then would have to develop and publish a new public rulemaking notice that reflects corrections of the Proposed Rule's defects and provide an adequate period for public comment on the new information.

Second, as noted above, the Supreme Court's stay of the CPP provides an additional reason why EPA should not proceed to final promulgation of the rule without first proposing major substantive changes and providing public notice of and an opportunity to comment on those changes. UARG's comments explain that EPA should not use for this rulemaking an "adjusted base case" applying IPM version 5.15, which includes the CPP. UARG Comments at 37-39; *see also id.* at 43-44 n.34. By the terms established by the Supreme Court's orders of February 9, 2016, the stay of the CPP extends not only throughout the pending litigation proceedings on the CPP in the U.S. Court of Appeals for the D.C. Circuit[8] but also through disposition of, or issuance of the Supreme Court's judgment on the merits after grant of, any petition for a writ of certiorari that may be filed seeking review of the D.C. Circuit's decision. As a result, the duration of the stay will almost certainly extend well into 2017—the "target" year for EPA's CSAPR Update analysis—and most likely into 2018. The duration of the CPP stay is especially significant because, in its February 9, 2016 ruling, the Supreme Court granted without qualification emergency stay applications that explicitly sought a tolling and extension of all of the CPP's sequential deadlines during the pendency of the litigation, including deadlines for state CPP implementation plan submissions that otherwise would have been due in 2016 and 2018 as well as the CPP's 2022 initial compliance period and its 2030-2031 final compliance deadline.[9] Thus, even hypothesizing that the CPP ultimately survives

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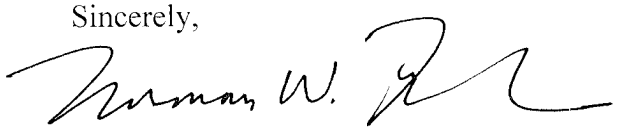
[8] *See West Virginia, et al. v. EPA, et al.*, No. 15-1363 and consolidated cases (D.C. Cir. May 16, 2016) (rescheduling oral argument for September 27, 2016, before the en banc court).

[9] *See* Memorandum for the Federal Respondents in Opposition, *West Virginia, et al. v. EPA, et al.*, at 2-3, 70-71, Nos. 15A773, 15A776, 15A778, 15A787, 15A793 (U.S. Feb. 4, 2016); Application of Utility and Allied Parties for Immediate Stay of Final Agency Action

appellate review, the Supreme Court stay makes it even clearer that any EPA-projected unit retirements or dispatching changes resulting from the CPP that might actually occur will occur, if at all, on a much later timetable than EPA assumed in the Proposed Rule.

UARG emphasizes that although correction of EPA's unfounded CPP assumption reflected in the Proposed Rule is necessary, that correction would not by any means remedy the full range of errors underlying the Proposed Rule's modeling analysis. Indeed, as UARG's February 1, 2016 comments explain, the majority of the improperly "retired" coal-fired generating capacity in EPA's modeling is assumed by EPA to be retired *in the base case for the CPP itself*, not assumed by the Agency to be retired *because of the CPP*. Thus, correction by EPA of *both* categories of inaccurate and improper unit-retirement assumptions, and issuance of comprehensive corrected information for public review and comment, would be necessary before EPA could proceed with the CSAPR Update rulemaking.

Sincerely,



Norman W. Fichthorn
Counsel to the Utility Air Regulatory Group

Attachment
cc (via electronic mail): Janet McCabe
Sarah W. Dunham
Reid Harvey
Norman C. Possiel
David P. Risley

Pending Appellate Review, *Basin Elec. Power Coop., et al. v. EPA, et al.*, at 22, No. 15A776 (U.S. Jan. 27, 2016).

Emissions - Unit Level Data Report
May 20, 2016

Your query will return 31 Facility(s) and 100 Unit(s)

Program: All Programs

Data Set: Emissions - Unit Level Data

Time Frame: Emissions :
Quarterly : 2016 Q1

Criteria: Facility Name/ID : Barry (3), Charles R Lowman (56), Gorgas (8), Independence (6641), Muscatine (1167), Prairie Creek (1073), Streeter Station (1131), Burlington (IA), George Neal North (1091), Dallman (963), E D Edwards (856), Hennepin Power Station (892), Joppa Steam (887), Newton (6017), Will County (884), Baldwin Energy Complex (889), Powerton (879), Bailly Generating Station (995), Michigan City Generating Station (997), R Gallagher (1008), R M Schahfer Generating Station (6085), Whitewater Valley (1040), Tecumseh Energy Center (1252), D B Wilson (6823), E W Brown (1355), John S. Cooper (1384), Shawnee (1379), Mill Creek (1364), Big Cajun 2 (6055), Brame Energy Center (6190), R S Nelson (1393)

Aggregate Criteria: No Aggregation (Unit Level)

Columns: State, Facility Name, Facility ID (ORISPL), Unit ID, Year, Quarter, Heat Input (MMBtu)

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
1	AL	Barry	3	1	2016	1	56,473
2	AL	Barry	3	2	2016	1	57,778
3	AL	Barry	3	4	2016	1	3,043,349
4	AL	Barry	3	5	2016	1	6,443,452
5	AL	Barry	3	6A	2016	1	3,469,513
6	AL	Barry	3	6B	2016	1	3,526,367
7	AL	Barry	3	7A	2016	1	3,977,661
8	AL	Barry	3	7B	2016	1	3,913,365
9	AL	Charles R Lowman	56	1	2016	1	53,911
10	AL	Charles R Lowman	56	2	2016	1	1,588,610
11	AL	Charles R Lowman	56	3	2016	1	1,967,397

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
12	AL	Gorgas	8	10	2016	1	9,591,239
13	AL	Gorgas	8	8	2016	1	1,970,188
14	AL	Gorgas	8	9	2016	1	1,553,337
15	AR	Independence	6641	1	2016	1	3,409,267
16	AR	Independence	6641	2	2016	1	8,329,163
17	IA	Burlington (IA)	1104	1	2016	1	2,686,357
18	IA	George Neal North	1091	1	2016	1	147,705
19	IA	George Neal North	1091	2	2016	1	919,554
20	IA	George Neal North	1091	3	2016	1	1,201,521
21	IA	Muscatine	1167	8	2016	1	1,202,403
22	IA	Muscatine	1167	9	2016	1	1,901,433
23	IA	Prairie Creek	1073	3	2016	1	719,082
24	IA	Prairie Creek	1073	4	2016	1	1,058,860
25	IA	Streeter Station	1131	7	2016	1	6,137
26	IL	Baldwin Energy Complex	889	1	2016	1	6,528,670
27	IL	Baldwin Energy Complex	889	2	2016	1	7,364,236
28	IL	Baldwin Energy Complex	889	3	2016	1	8,076,768
29	IL	Dallman	963	31	2016	1	76,338
30	IL	Dallman	963	32	2016	1	183,666
31	IL	Dallman	963	33	2016	1	1,560,080
32	IL	Dallman	963	4	2016	1	2,090,837
33	IL	E D Edwards	856	2	2016	1	2,866,629
34	IL	E D Edwards	856	3	2016	1	3,008,497
35	IL	Hennepin Power Station	892	1	2016	1	713,656
36	IL	Hennepin Power Station	892	2	2016	1	2,610,000
37	IL	Joppa Steam	887	1	2016	1	1,360,411
38	IL	Joppa Steam	887	2	2016	1	1,753,684
39	IL	Joppa Steam	887	3	2016	1	848,700
40	IL	Joppa Steam	887	4	2016	1	1,648,515

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
41	IL	Joppa Steam	887	5	2016	1	907,240
42	IL	Joppa Steam	887	6	2016	1	843,583
43	IL	Newton	6017	1	2016	1	6,925,211
44	IL	Newton	6017	2	2016	1	2,959,886
45	IL	Powerton	879	51	2016	1	1,367,271
46	IL	Powerton	879	52	2016	1	1,307,868
47	IL	Powerton	879	61	2016	1	1,963,362
48	IL	Powerton	879	62	2016	1	1,963,185
49	IL	Will County	884	3	2016	1	
50	IL	Will County	884	4	2016	1	7,853,235
51	IN	Bailly Generating Station	995	10	2016	1	562
52	IN	Bailly Generating Station	995	7	2016	1	2,087,839
53	IN	Bailly Generating Station	995	8	2016	1	2,578,667
54	IN	Michigan City Generating Station	997	12	2016	1	3,066,703
55	IN	R Gallagher	1008	2	2016	1	92,227
56	IN	R Gallagher	1008	4	2016	1	122,563
57	IN	R M Schahfer Generating Station	6085	14	2016	1	
58	IN	R M Schahfer Generating Station	6085	15	2016	1	3,978,631
59	IN	R M Schahfer Generating Station	6085	16A	2016	1	2,894
60	IN	R M Schahfer Generating Station	6085	16B	2016	1	
61	IN	R M Schahfer Generating Station	6085	17	2016	1	2,918,791
62	IN	R M Schahfer Generating Station	6085	18	2016	1	3,436,956
63	IN	Whitewater Valley	1040	1	2016	1	76,980
64	IN	Whitewater Valley	1040	2	2016	1	181,911
65	KS	Tecumseh Energy Center	1252	9	2016	1	625,803
66	KY	D B Wilson	6823	W1	2016	1	8,620,149

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
67	KY	E W Brown	1355	1	2016	1	443,047
68	KY	E W Brown	1355	10	2016	1	794,562
69	KY	E W Brown	1355	11	2016	1	277,012
70	KY	E W Brown	1355	2	2016	1	811,370
71	KY	E W Brown	1355	3	2016	1	2,105,988
72	KY	E W Brown	1355	5	2016	1	99,257
73	KY	E W Brown	1355	6	2016	1	108,044
74	KY	E W Brown	1355	7	2016	1	116,594
75	KY	E W Brown	1355	8	2016	1	421,858
76	KY	E W Brown	1355	9	2016	1	708,779
77	KY	John S. Cooper	1384	1	2016	1	936,819
78	KY	John S. Cooper	1384	2	2016	1	1,008,523
79	KY	Mill Creek	1364	1	2016	1	4,038,129
80	KY	Mill Creek	1364	2	2016	1	4,107,287
81	KY	Mill Creek	1364	3	2016	1	5,092,981
82	KY	Mill Creek	1364	4	2016	1	7,288,970
83	KY	Shawnee	1379	1	2016	1	1,851,768
84	KY	Shawnee	1379	2	2016	1	2,269,258
85	KY	Shawnee	1379	3	2016	1	2,519,392
86	KY	Shawnee	1379	4	2016	1	754,645
87	KY	Shawnee	1379	5	2016	1	2,265,281
88	KY	Shawnee	1379	6	2016	1	2,177,403
89	KY	Shawnee	1379	7	2016	1	2,014,737
90	KY	Shawnee	1379	8	2016	1	2,278,503
91	KY	Shawnee	1379	9	2016	1	2,180,257
92	LA	Big Cajun 2	6055	2B1	2016	1	1,886,689
93	LA	Big Cajun 2	6055	2B2	2016	1	10,530,234
94	LA	Big Cajun 2	6055	2B3	2016	1	4,897,725
95	LA	Brame Energy Center	6190	1	2016	1	413,961
96	LA	Brame Energy Center	6190	2	2016	1	4,196,249

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
97	LA	Brame Energy Center	6190	3-1	2016	1	3,693,014
98	LA	Brame Energy Center	6190	3-2	2016	1	4,715,458
99	LA	R S Nelson	1393	4	2016	1	145,283
100	LA	R S Nelson	1393	6	2016	1	4,821,274

Emissions - Unit Level Data Report
May 20, 2016

Your query will return 36 Facility(s) and 96 Unit(s)

Program: All Programs

Data Set: Emissions - Unit Level Data

Time Frame: Emissions :
Quarterly : 2016 Q1

Criteria: Facility Name/ID : Dickerson (1572), Dan E Karn (1702), Shiras (1843), St. Clair (1743), TES Filer City Station (50835), Eckert Station (1831), Endicott Generating (4259), Erickson (1832), J B Sims (1825), J H Campbell (1710), Monroe (1733), Presque Isle (1769), Lake Road (2098), Sibley (2094), Thomas Hill Energy Center (2168), R D Morrow Senior Generating Plant (6061), G G Allen (2718), Marshall (2727), Roxboro (2712), Westmoreland Partners Roanoke Valley II (54755), Hudson Generating Station (2403), Mercer Generating Station (2408), Cayuga Operating Company, LLC (2535), S A Carlson (2682), Conesville (2840), Hugo (6772), Muskogee (2952), Brunner Island, LLC (3140), Cambria Cogen (10641), Ebensburg Power Company (10603), Gilberton Power Company (10113), Northampton Generating Plant (50888), Northeastern Power Company (50039), P H Glatfelter Company (50397), St. Nicholas Cogeneration Project (54634), Wheelabrator - Frackville (50879)

Aggregate Criteria: No Aggregation (Unit Level)

Columns: State, Facility Name, Facility ID (ORISPL), Unit ID, Year, Quarter, Heat Input (MMBtu)

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
1	MD	Dickerson	1572	1	2016	1	486,693
2	MD	Dickerson	1572	2	2016	1	228,702
3	MD	Dickerson	1572	3	2016	1	614,576
4	MD	Dickerson	1572	GT2	2016	1	130,116
5	MD	Dickerson	1572	GT3	2016	1	162,769
6	MI	Dan E Karn	1702	1	2016	1	
7	MI	Dan E Karn	1702	2	2016	1	3,088,164
8	MI	Dan E Karn	1702	3	2016	1	432
9	MI	Dan E Karn	1702	4	2016	1	1,908
10	MI	Dan E Karn	1702	A	2016	1	68

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
11	MI	Dan E Karn	1702	B	2016	1	18,523
12	MI	Eckert Station	1831	1	2016	1	
13	MI	Eckert Station	1831	3	2016	1	
14	MI	Eckert Station	1831	4	2016	1	124,916
15	MI	Eckert Station	1831	5	2016	1	563,650
16	MI	Eckert Station	1831	6	2016	1	430,543
17	MI	Endicott Generating	4259	1	2016	1	708,692
18	MI	Erickson	1832	1	2016	1	2,729,071
19	MI	J B Sims	1825	3	2016	1	615,288
20	MI	J H Campbell	1710	1	2016	1	1,442,326
21	MI	J H Campbell	1710	2	2016	1	3,199,087
22	MI	J H Campbell	1710	3	2016	1	9,398,506
23	MI	Monroe	1733	1	2016	1	7,977,997
24	MI	Monroe	1733	2	2016	1	5,993,365
25	MI	Monroe	1733	3	2016	1	10,584,733
26	MI	Monroe	1733	4	2016	1	9,879,770
27	MI	Presque Isle	1769	5	2016	1	1,090,864
28	MI	Presque Isle	1769	6	2016	1	984,996
29	MI	Presque Isle	1769	7	2016	1	1,154,019
30	MI	Presque Isle	1769	8	2016	1	1,588,321
31	MI	Presque Isle	1769	9	2016	1	850,051
32	MI	Shiras	1843	3	2016	1	869,088
33	MI	St. Clair	1743	1	2016	1	1,817,564
34	MI	St. Clair	1743	2	2016	1	1,197,195
35	MI	St. Clair	1743	3	2016	1	1,462,587
36	MI	St. Clair	1743	4	2016	1	1,815,308
37	MI	St. Clair	1743	6	2016	1	3,041,543
38	MI	St. Clair	1743	7	2016	1	5,004,684
39	MI	TES Filer City Station	50835	1	2016	1	906,677
40	MI	TES Filer City Station	50835	2	2016	1	879,724
41	MO	Lake Road	2098	6	2016	1	885,225

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
42	MO	Lake Road	2098	GT5	2016	1	
43	MO	Sibley	2094	1	2016	1	492,901
44	MO	Sibley	2094	2	2016	1	150
45	MO	Sibley	2094	3	2016	1	4,035,906
46	MO	Thomas Hill Energy Center	2168	MB1	2016	1	1,531,488
47	MO	Thomas Hill Energy Center	2168	MB2	2016	1	4,613,712
48	MO	Thomas Hill Energy Center	2168	MB3	2016	1	13,551,823
49	MS	R D Morrow Senior Generating Plant	6061	1	2016	1	1,259,321
50	MS	R D Morrow Senior Generating Plant	6061	2	2016	1	1,189,300
51	NC	G G Allen	2718	1	2016	1	427,343
52	NC	G G Allen	2718	2	2016	1	359,534
53	NC	G G Allen	2718	3	2016	1	370,955
54	NC	G G Allen	2718	4	2016	1	1,888,074
55	NC	G G Allen	2718	5	2016	1	619,282
56	NC	Marshall	2727	1	2016	1	2,329,899
57	NC	Marshall	2727	2	2016	1	2,070,225
58	NC	Marshall	2727	3	2016	1	9,669,190
59	NC	Marshall	2727	4	2016	1	9,527,327
60	NC	Roxboro	2712	1	2016	1	1,716,301
61	NC	Roxboro	2712	2	2016	1	4,339,523
62	NC	Roxboro	2712	3A	2016	1	1,443,585
63	NC	Roxboro	2712	3B	2016	1	1,482,664
64	NC	Roxboro	2712	4A	2016	1	2,325,812
65	NC	Roxboro	2712	4B	2016	1	2,313,302
66	NC	Westmoreland Partners Roanoke Valley II	54755	2	2016	1	28,771
67	NJ	Hudson Generating Station	2403	2	2016	1	345,786
68	NJ	Mercer Generating Station	2408	1	2016	1	49,352

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
69	NJ	Mercer Generating Station	2408	2	2016	1	51,422
70	NY	Cayuga Operating Company, LLC	2535	1	2016	1	188,914
71	NY	Cayuga Operating Company, LLC	2535	2	2016	1	494,869
72	NY	S A Carlson	2682	10	2016	1	6,863
73	NY	S A Carlson	2682	20	2016	1	673,691
74	NY	S A Carlson	2682	9	2016	1	30,033
75	OH	Conesville	2840	4	2016	1	7,728,516
76	OH	Conesville	2840	5	2016	1	2,738,495
77	OH	Conesville	2840	6	2016	1	3,933,314
78	OK	Hugo	6772	1	2016	1	5,914,739
79	OK	Muskogee	2952	4	2016	1	5,669,226
80	OK	Muskogee	2952	5	2016	1	3,965,999
81	OK	Muskogee	2952	6	2016	1	2,624,533
82	PA	Brunner Island, LLC	3140	1	2016	1	1,962,136
83	PA	Brunner Island, LLC	3140	2	2016	1	2,975,239
84	PA	Brunner Island, LLC	3140	3	2016	1	3,081,224
85	PA	Cambria Cogen	10641	1	2016	1	1,072,767
86	PA	Cambria Cogen	10641	2	2016	1	1,133,473
87	PA	Ebensburg Power Company	10603	031	2016	1	696,273
88	PA	Gilberton Power Company	10113	031	2016	1	997,241
89	PA	Gilberton Power Company	10113	032	2016	1	998,630
90	PA	Northampton Generating Plant	50888	NGC01	2016	1	1,558,939
91	PA	Northeastern Power Company	50039	031	2016	1	787,548
92	PA	P H Glatfelter Company	50397	034	2016	1	469,366
93	PA	P H Glatfelter Company	50397	035	2016	1	364,592
94	PA	P H Glatfelter Company	50397	036	2016	1	872,596

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
95	PA	St. Nicholas Cogeneration Project	54634	1	2016	1	2,698,425
96	PA	Wheelabrator - Frackville	50879	GEN1	2016	1	1,317,277

Emissions - Unit Level Data Report
May 20, 2016

Your query will return 16 Facility(s) and 83 Unit(s)

Program: All Programs

Data Set: Emissions - Unit Level Data

Time Frame: Emissions :
Quarterly : 2016 Q1

Criteria: Facility Name/ID : Johnsonville (3406), Gallatin (3403), Harrington Station (6193), J T Deely (6181), San Miguel (6183), Welsh Power Plant (6139), Chesterfield Power Station (3797), Mecklenburg Power Station (52007), Yorktown Power Station (3809), Columbia (8023), Manitowoc (4125), Pulliam (4072), South Oak Creek (4041), Weston (4078), Grant Town Power Plant (10151), Mount Storm Power Station (3954)

Aggregate Criteria: No Aggregation (Unit Level)

Columns: State, Facility Name, Facility ID (ORISPL), Unit ID, Year, Quarter, Heat Input (MMBtu)

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
1	TN	Gallatin	3403	1	2016	1	3,495,777
2	TN	Gallatin	3403	2	2016	1	2,274,905
3	TN	Gallatin	3403	3	2016	1	2,392,116
4	TN	Gallatin	3403	4	2016	1	3,059,241
5	TN	Gallatin	3403	GCT1	2016	1	
6	TN	Gallatin	3403	GCT2	2016	1	31,798
7	TN	Gallatin	3403	GCT3	2016	1	37,551
8	TN	Gallatin	3403	GCT4	2016	1	35,092
9	TN	Gallatin	3403	GCT5	2016	1	37,397
10	TN	Gallatin	3403	GCT6	2016	1	72,285
11	TN	Gallatin	3403	GCT7	2016	1	
12	TN	Gallatin	3403	GCT8	2016	1	43,541
13	TN	Johnsonville	3406	1	2016	1	2,121,672

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
14	TN	Johnsonville	3406	10	2016	1	
15	TN	Johnsonville	3406	2	2016	1	1,416,309
16	TN	Johnsonville	3406	3	2016	1	1,995,019
17	TN	Johnsonville	3406	4	2016	1	1,306,383
18	TN	Johnsonville	3406	5	2016	1	
19	TN	Johnsonville	3406	6	2016	1	
20	TN	Johnsonville	3406	7	2016	1	
21	TN	Johnsonville	3406	8	2016	1	
22	TN	Johnsonville	3406	9	2016	1	
23	TN	Johnsonville	3406	JCT1	2016	1	11,763
24	TN	Johnsonville	3406	JCT10	2016	1	2,478
25	TN	Johnsonville	3406	JCT11	2016	1	5,226
26	TN	Johnsonville	3406	JCT12	2016	1	5,375
27	TN	Johnsonville	3406	JCT13	2016	1	6,263
28	TN	Johnsonville	3406	JCT14	2016	1	8,147
29	TN	Johnsonville	3406	JCT15	2016	1	6,450
30	TN	Johnsonville	3406	JCT16	2016	1	5,557
31	TN	Johnsonville	3406	JCT17	2016	1	49,476
32	TN	Johnsonville	3406	JCT18	2016	1	34,054
33	TN	Johnsonville	3406	JCT19	2016	1	46,252
34	TN	Johnsonville	3406	JCT2	2016	1	7,527
35	TN	Johnsonville	3406	JCT20	2016	1	392,628
36	TN	Johnsonville	3406	JCT3	2016	1	4,661
37	TN	Johnsonville	3406	JCT4	2016	1	3,104
38	TN	Johnsonville	3406	JCT5	2016	1	4,957
39	TN	Johnsonville	3406	JCT6	2016	1	4,718
40	TN	Johnsonville	3406	JCT7	2016	1	2,544
41	TN	Johnsonville	3406	JCT8	2016	1	1,788
42	TN	Johnsonville	3406	JCT9	2016	1	3,644
43	TX	Harrington Station	6193	061B	2016	1	3,054,790
44	TX	Harrington Station	6193	062B	2016	1	3,052,216
45	TX	Harrington Station	6193	063B	2016	1	5,167,409

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
46	TX	J T Deely	6181	1	2016	1	1,530,697
47	TX	J T Deely	6181	2	2016	1	890,494
48	TX	San Miguel	6183	SM-1	2016	1	6,352,754
49	TX	Welsh Power Plant	6139	1	2016	1	1,681,504
50	TX	Welsh Power Plant	6139	2	2016	1	4,820,205
51	TX	Welsh Power Plant	6139	3	2016	1	1,228,343
52	VA	Chesterfield Power Station	3797	**8A	2016	1	2,329,498
53	VA	Chesterfield Power Station	3797	3	2016	1	
54	VA	Chesterfield Power Station	3797	4	2016	1	2,358,053
55	VA	Chesterfield Power Station	3797	5	2016	1	5,631,432
56	VA	Chesterfield Power Station	3797	6	2016	1	8,072,598
57	VA	Chesterfield Power Station	3797	7	2016	1	3,499,713
58	VA	Mecklenburg Power Station	52007	1	2016	1	502,543
59	VA	Mecklenburg Power Station	52007	2	2016	1	521,836
60	VA	Yorktown Power Station	3809	1	2016	1	289,835
61	VA	Yorktown Power Station	3809	2	2016	1	2,080,195
62	VA	Yorktown Power Station	3809	3	2016	1	775,539
63	WI	Columbia	8023	1	2016	1	4,262,706
64	WI	Columbia	8023	2	2016	1	3,789,069
65	WI	Manitowoc	4125	8	2016	1	169,958
66	WI	Manitowoc	4125	9	2016	1	119,434
67	WI	Pulliam	4072	32	2016	1	136,236
68	WI	Pulliam	4072	7	2016	1	86,303
69	WI	Pulliam	4072	8	2016	1	158,739
70	WI	South Oak Creek	4041	5	2016	1	3,976,738
71	WI	South Oak Creek	4041	6	2016	1	2,250,951

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
72	WI	South Oak Creek	4041	7	2016	1	1,966,444
73	WI	South Oak Creek	4041	8	2016	1	1,536,383
74	WI	Weston	4078	2	2016	1	
75	WI	Weston	4078	3	2016	1	2,985,303
76	WI	Weston	4078	32A	2016	1	7,387
77	WI	Weston	4078	32B	2016	1	7,946
78	WI	Weston	4078	4	2016	1	7,341,077
79	WV	Grant Town Power Plant	10151	1A	2016	1	1,256,785
80	WV	Grant Town Power Plant	10151	1B	2016	1	1,160,805
81	WV	Mount Storm Power Station	3954	1	2016	1	10,816,323
82	WV	Mount Storm Power Station	3954	2	2016	1	10,016,747
83	WV	Mount Storm Power Station	3954	3	2016	1	6,555,417

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Submitted via Email and www.regulations.gov

June 9, 2016

The Honorable Gina McCarthy
Administrator, U.S. Environmental Protection Agency
William Jefferson Clinton Building
1200 Pennsylvania Avenue, NW
Mail Code 1101A
Washington, DC 20460

Comments of the Utility Air Regulatory Group on the Proposed Rule, "Approval and Promulgation of Air Quality Implementation Plans; Interstate Transport for Utah," 81 Fed. Reg. 28807 (May 10, 2016), EPA-R08-OAR-2016-0107, and Supplemental Comments of the Utility Air Regulatory Group on the Proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS, 80 Fed. Reg. 75706 (Dec. 3, 2015), EPA-HQ-OAR-2015-0500

Dear Administrator McCarthy:

On May 10, 2016, the United States Environmental Protection Agency ("EPA" or the "Agency") published a proposed rule, titled "Approval and Promulgation of Air Quality Implementation Plans; Interstate Transport for Utah." 81 Fed. Reg. 28807 ("Proposed Utah Rule"). In the Proposed Utah Rule, EPA proposes to disapprove a Utah state implementation plan ("SIP") submittal addressing Clean Air Act ("CAA") infrastructure SIP requirements with respect to interstate transport for the 2008 ozone national ambient air quality standard ("NAAQS") of 75 parts per billion.[1] The Utility Air Regulatory Group ("UARG")[2] respectfully submits the following comments on the Proposed Utah Rule.

[1] The Proposed Utah Rule would also approve Utah's SIP submittal with respect to interstate transport for the 2008 NAAQS for lead. These comments address only the part of the Proposed Utah Rule that addresses interstate transport for the 2008 ozone NAAQS.

[2] UARG is a voluntary group of electric generating companies and national trade associations. The vast majority of electric energy in the United States is generated by individual members of UARG or other members of UARG's trade association members.

The Proposed Utah Rule is based in large part on information from EPA's modeling analyses that it made available through a notice of data availability published in the Federal Register on August 4, 2015. 80 Fed. Reg. 46271. EPA used the results of those modeling analyses in its proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS. 80 Fed. Reg. 75706 (Dec. 3, 2015) ("Proposed CSAPR Update").[3] In the Proposed CSAPR Update, EPA proposed to find that ozone-season emissions of nitrogen oxides ("NOx") from 23 states in the eastern United States "affect the ability of downwind states to attain and maintain the 2008 ozone NAAQS" and proposed to issue federal implementation plans ("FIPs") establishing ozone-season NOx emission budgets for electric generating units ("EGUs") in those states. *Id.* at 75706. EPA said it was proposing not to include the 11 western contiguous states[4] in the rule because "there may be additional criteria [for EPA] to evaluate regarding transported air pollution in the West" and "the near-term 2017 implementation timeframe [in the CSAPR Update Rule as proposed] constrains the opportunity to conduct a further evaluation of western states." *Id.* at 75715. EPA also asserted, without further explanation, that "analyses developed to support [the Proposed CSAPR Update], including air quality modeling and the EPA's assessment of EGU NOx mitigation potential, contain data that could be useful for states in developing SIPs or could be used to develop FIPs [for western states], where necessary." *Id.* at 75716.

In addressing this issue, UARG commented that "EPA should identify and explain" the "'additional criteria'" that may be relevant to western states "and whether it is necessary and appropriate also to evaluate the same criteria with respect to eastern states." UARG Comments at 9 (quoting 80 Fed. Reg. at 75715). UARG also explained that EPA's failure to address this issue in the Proposed CSAPR Update had the effect of "den[ying] the public a meaningful opportunity to comment on this critical issue." *Id.* Because of their relevance to the pending rulemaking on the Proposed CSAPR Update, the present comments are also being submitted as supplemental comments of UARG in that rulemaking.

This is not the first rulemaking initiated after publication of the Proposed CSAPR Update in which EPA addresses a SIP submitted by a western state with respect to interstate transport for the 2008 ozone NAAQS. On May 19, 2016, EPA published a final rule

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UARG participates on behalf of its members in CAA proceedings that affect the interests of electric generators.

[3] UARG submitted comments on the Proposed CSAPR Update on February 1, 2016 (docketed at EPA-HQ-OAR-2015-0500-0253 ("UARG Comments")), and submitted supplemental comments on the Proposed CSAPR Update on June 1, 2016.

[4] These states are Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming. 80 Fed. Reg. at 75715 n.37.

approving the provisions of Arizona's interstate transport SIP submittal pertaining to significant contribution to nonattainment and interference with maintenance of the 2008 ozone NAAQS in another state. 81 Fed. Reg. 31513; *see also* 81 Fed. Reg. 15200 (Mar. 22, 2016) (proposing approval of the Arizona SIP submittal and stating EPA's rationale for its action), *cited in* 81 Fed. Reg. at 31514. In the Proposed Utah Rule, EPA indicates that, for states that are in the western half of the country, EPA plans to consider questions concerning significant contribution to nonattainment and interference with maintenance with respect to the 2008 ozone NAAQS "on a case-by-case basis." 81 Fed. Reg. at 28809.

EPA proposes to disapprove Utah's SIP submittal because, according to EPA, emissions from Utah contribute amounts above EPA's one-percent-of-NAAQS contribution threshold (*i.e.*, 0.75 ppb) to EPA-projected nonattainment or maintenance problems at four receptors in three counties in the Denver area. *Id.* at 28810-11 (Tables 1 and 2). Also of significance, according to EPA, is the fact that, based on EPA's modeling, "EPA found that the total upwind states' [projected] contribution to ozone concentrations (from linked and unlinked states) to identified downwind [ozone] air quality problems in Colorado is about 11 percent," which EPA characterizes as "a large portion of the ozone concentrations at projected nonattainment and maintenance receptors in Colorado." *Id.* at 28810 (footnote omitted). EPA states in the Proposed Utah Rule that it "believes contribution from an individual state equal to or above one percent of the NAAQS could be considered significant where the collective contribution of emissions from one or more upwind states is responsible for a considerable portion of the downwind air quality problem regardless of where the receptor is geographically located." *Id.* According to EPA, in the case of the Denver-area receptors, "five of the states contributing to those identified receptors, including Utah, contribute emissions greater than or equal to one percent of the 2008 ozone NAAQS." *Id.*

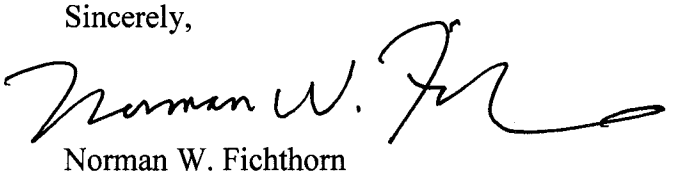
In the rulemaking on Arizona's SIP submittal, although EPA's modeling showed that emissions from Arizona contributed more than one percent of the 2008 ozone NAAQS to two projected nonattainment receptors in California, EPA approved the SIP pertaining to interstate transport for the 2008 ozone NAAQS based on "the total weight of all the evidence taken together." 81 Fed. Reg. at 15203. In that rulemaking, EPA concluded that the total projected contribution from upwind states' emissions to ozone concentrations at the two California receptors to which Arizona is linked—4.4 percent and 2.5 percent—was "negligible, particularly when compared to the relatively large contributions from upwind states in the East or in certain other areas of the West." *Id.* EPA also considered Arizona's predictions of declining volatile organic compound ("VOC") and NOx emissions from its sources. *Id.* Based on these factors, EPA concluded that additional requirements for "[e]missions reductions from Arizona are not necessary to address interstate transport because the total collective upwind state ozone contribution to these receptors is relatively low compared to the air quality problems typically addressed by the good neighbor provision" (*i.e.*, CAA §

110(a)(2)(D)(i)) and because "Arizona has demonstrated that both VOC and NOx emissions are going down and will continue to go down." *Id.*

EPA's statements regarding the Arizona and Utah SIP submittals demonstrate that, through these and possibly additional state-specific rulemakings, the Agency is developing criteria it is using—at least for western states—in determining which states contribute significantly to nonattainment or interfere with maintenance of the 2008 ozone NAAQS (and potentially, in the future, other NAAQS) in another state. This is an inappropriate method of developing policy on this critically important issue. Instead, EPA should describe in a comprehensive rulemaking the criteria that it proposes to use in making these determinations, its rationale for selecting those criteria, and how it proposes to apply them. Equally important, EPA should provide an adequate opportunity for public comment on these issues. The course that EPA appears to be taking—establishing *de facto* Agency regulatory policy in piecemeal fashion through separate, case-by-case rulemakings—leads to confusion and uncertainty among state officials, the public, and the regulated community. It also deprives interested parties of an opportunity to comment meaningfully and comprehensively on this important issue and deprives EPA of the benefit of the ideas and perspectives on the issue that could be offered through public comment in a properly structured proceeding.

For the foregoing reasons, EPA should not finalize the Proposed Utah Rule with respect to the 2008 ozone NAAQS, and should not develop or publish similar rulemaking proposals for other western states, in the absence of a comprehensive regulatory proposal and a commensurate opportunity for public review and comment on this critical issue.

Sincerely,



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August 16, 2016

Via First-Class Mail and Electronic Mail

The Honorable Gina McCarthy
Administrator, U.S. Environmental Protection Agency
William Jefferson Clinton Building
1200 Pennsylvania Avenue, NW
Mail Code 1101A
Washington, D.C. 20460

Docket ID No. EPA-HQ-OAR-2015-0500

Supplemental Comments of the Utility Air Regulatory Group on the Proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS 80 Fed. Reg. 75706 (Dec. 3, 2015), EPA-HQ-OAR-2015-0500

Dear Administrator McCarthy:

On February 1, 2016, the Utility Air Regulatory Group ("UARG") submitted extensive legal and technical comments on EPA's proposed Cross-State Air Pollution Rule ["CSAPR"] Update for the 2008 Ozone NAAQS, 80 Fed. Reg. 75706 (Dec. 3, 2015) ("Proposed Rule").[1] One of UARG's primary concerns about the Proposed Rule is that EPA's 2017 base case modeling incorrectly and improperly assumed that an extraordinarily large amount of coal-fired electric generating capacity will be retired by 2018—with the great majority of that capacity projected by EPA to be retired by 2016—and therefore does not reflect real-world conditions.

As UARG explained in its February 1 comments and in the technical report submitted as Attachment 2 to those comments,[2] EPA's modeling, using the Integrated Planning Model ("IPM"), assumed that a total of 75,093 MW of coal-fired electric generating capacity will be retired by 2018, with 64,454 MW of that capacity projected by EPA to be retired in 2016. *See* UARG February 1 Comments at 43; Technical Report (Attachment 2 to UARG February 1 Comments) at 2-3 to 2-4 & Tables 2-1 & 2-2. Based on information provided by owners of

[1] UARG's comments are in the docket for the Proposed Rule at EPA-HQ-OAR-2015-0500-0253 ("UARG February 1 Comments"). Those comments are incorporated herein by reference.

[2] J. Marchetti and J. E. Cichanowicz, "Critique of the Technical Basis for the Proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS," Feb. 1, 2016.

coal-fired electric generating units ("EGUs" or "units") that EPA's modeling projected would be retired, as well as other, publicly available information, UARG found that there were plans to retire only 16,713 MW of that capacity by 2018 and only 6,869 MW of that capacity in 2016. Technical Report (Attachment 2 to UARG February 1 Comments) at 2-3 to 2-4 & Table 2-2. The foregoing figures reflect EGU capacity and projected retirements nationwide.

With respect to the region covered by the Proposed Rule (the "CSAPR II Region"), EPA's modeling projected that 56,505 MW of coal-fired electric generating capacity will be retired by 2018 in that region, with 47,690 MW of that capacity projected to be retired in 2016. *Id.* at 2-3 to 2-4 & Tables 2-1 & 2-2. Based on information provided by owners of EGUs that EPA's modeling projected would be retired, as well as other, publicly available information, UARG found that there were plans to retire only 11,669 MW of that capacity in the CSAPR II Region by 2018 and only 6,224 MW of that capacity in 2016. *Id.* at 2-4 & Table 2-2.

An appendix to the Technical Report[3] identified the EGUs that EPA's modeling projected would be retired by 2016 and 2018 and indicated whether there were plans to retire each such unit by 2016 or 2018. The first table in the Appendix lists 234 coal-fired EGUs in the CSAPR II Region that EPA projected would retire by 2016 and indicates that UARG found, based on real-world information, that 161 of these 234 units were *not* in fact expected to retire by 2016.

On June 1, 2016, UARG submitted supplemental comments on the Proposed Rule to EPA, citing unit-level operational data for the first quarter of 2016 that EPA made available on its website.[4] UARG attached to those comments reports generated by EPA's Air Markets Program Data ("AMPD") website (https://ampd.epa.gov/ampd/)[5] that showed that 152 of the 161 CSAPR II Region coal-fired units that EPA projected would retire by 2016—and that UARG found were not expected to retire by 2016—in fact reported data showing that they

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[3] "Appendix to 'Critique of the Technical Basis for the Proposed Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS,'" Feb. 1, 2016 ("Appendix").

[4] A copy of those comments ("UARG June 1 Comments") is attached hereto (Attachment 1 to this letter). Those comments are incorporated herein by reference. Because a draft of the final CSAPR Update rule is undergoing interagency review and review by the Office of Management and Budget ("OMB") at this time, UARG is submitting the present comments, together with the UARG June 1 Comments, to OMB as well as to EPA.

[5] *See* UARG June 1 Comments at 3 n.6 (explanation of reports generated using EPA's AMPD website results).

operated during the first quarter of 2016. As those comments explained, of the nine remaining units, four were not required to report quarterly data to EPA because of their very small size (*i.e.*, nameplate capacity below 25 MW);[6] one unit (Dan E Karn unit 1 in Michigan) did not operate during the first quarter of 2016 but has not been retired and is expected to operate in future years; and another unit (Chesterfield Power Station unit 3 in Virginia) did not operate during the first quarter of 2016 but is expected to remain commercially operable. UARG June 1 Comments at 3. First-quarter 2016 data for one of the three remaining units—WPS Westwood Generation unit 031 in Pennsylvania—appeared to be unavailable on the AMPD website at that time, but UARG reported that it understood that that unit was not retired. *Id.* at 3-4. UARG's comments also noted that the other two remaining units, S A Carlson units 5 and 6 in New York, are very small units that were operating as natural gas-fired steam units. *Id.* at 4. Accordingly, the operational data for the first quarter of 2016 confirmed that EPA's modeling in this rulemaking, and therefore EPA's proposed statewide emission budgets that the Agency calculated based on that modeling, relied on seriously flawed assumptions of coal-fired capacity retirements.

Unit-level operational data for the second quarter of 2016 have recently been reported and have become publicly available. These data show that, contrary to EPA's projections, the vast majority of the 161 relevant units continued to operate in the second quarter of 2016.

Submitted with this letter as Attachment 2 hereto are reports generated by EPA's AMPD website in the same manner in which the reports submitted with UARG's June 1 comments were generated.[7] These reports show that 140 of the 161 relevant units reported

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[6] *See* UARG June 1 Comments at 3 n.7 (listing these four small units as Muscatine Plant #1 unit 7 in Iowa, Streeter Station unit 6 in Iowa, White Pine Electric Power unit BLR 1 in Michigan, and Orrville unit 12 in Ohio).

[7] As UARG explained in its June 1 comments, *see* UARG June 1 Comments at 3 n.6, the parameters established by the query options on EPA's AMPD website result in generation of reports for all data-reporting EGUs located at a given facility. Thus, the reports attached to UARG's June 1 comment letter and to this letter list *all* units for which operating data were available on the AMPD website for the first quarter and the second quarter of 2016, respectively, and which are located at a facility that includes *any* unit that (a) is listed in the first table in the Appendix and (b) UARG found was *not* in fact expected to retire by 2016 (as noted in that table). Accordingly, due to the parameters of the report-generating function on the AMPD website, the reports attached to UARG's June 1 comments and to this letter list a large number of units that are not relevant to this analysis. Units that UARG found are—contrary to EPA's modeling projections—not expected to retire by 2016 are highlighted in

data showing that they operated during the second quarter of 2016.[8] With respect to the 21 other units, the status of seven of those units during the second quarter of 2016 remains the same as those units' reported status for the first quarter of 2016, which was addressed in the UARG June 1 Comments.[9] Although second-quarter 2016 data for two of the 14 remaining units—J. H. Campbell units 1 and 2 in Michigan—appear to be unavailable on the AMPD website at this time, the owner of those units has advised UARG that both of those units operated during the second quarter of 2016. UARG also understands that major emission control technology was installed at these two units during the second quarter of 2016,[10] a fact that indicates they likely will remain operational for at least the next few years (*e.g.*, past the 2016-2018 timeframe applicable to EPA's retirement projections). Similarly, Weston unit 3 in Wisconsin—which the available data indicate did not operate during the second quarter of 2016—is currently undergoing installation of a Regenerative Activated Coke Technology system; installation of that technology is expected to be completed by the end of 2016, a fact that indicates continued operation of that unit in the future. Of the 11 remaining units, one (Brunner Island unit 1 in Pennsylvania) is undergoing conversion to become a natural gas co-fired unit, and the conversion project is currently expected to be completed by the end of 2016; one (G G Allen unit 5 in North Carolina) recently was taken out of service to allow for replacement of a low-pressure turbine and has since resumed operation; two (Northampton unit NGC01 and WPS Westwood Generation unit 031, each located in Pennsylvania) are

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yellow in the reports; the non-highlighted units listed in the reports are not pertinent to this analysis.

[8] In the present comments and its June 1 comments, UARG has used recorded heat input as an indicator of operation. This is consistent with the CSAPR definition of "operate" as meaning "to combust fuel." *See* 76 Fed. Reg. 48208, 48383 (Aug. 8, 2011). There is one relevant unit (Sibley unit 2 in Missouri) that reported unit operating time during the second quarter of 2016 but reported no heat input for that quarter.

[9] As noted above, four of these seven units—Muscatine Plant #1 unit 7 in Iowa, Streeter Station unit 6 in Iowa, White Pine Electric Power unit BLR 1 in Michigan, and Orrville unit 12 in Ohio—were not required to report quarterly data to EPA because each of those units' nameplate capacity is below 25 MW. Chesterfield Power Station unit 3 in Virginia did not operate during the first or second quarter of 2016 but is expected to remain commercially operable for at least the next several years. As noted above, S A Carlson units 5 and 6 in New York are very small units that are operating as natural gas-fired steam units.

[10] UARG understands that in spring 2016, a baghouse and dry sorbent injection ("DSI") system were added to J. H. Campbell unit 1 and a DSI system was added to J. H. Campbell unit 2.

small waste-coal fluidized bed combustion units and do not operate continuously;[11] and one (Yorktown unit 1 in Virginia) is expected to continue to be operational through the end of 2016 and is not scheduled to retire until the second quarter of 2017 at the earliest. Another unit, Sibley unit 2 in Missouri, reported an operating time of 33.79 hours in the second quarter of 2016. UARG understands that Sibley unit 2 has not been retired and is expected to continue to operate as a coal-fired unit past 2018.

UARG is aware of no information indicating that any of the remaining five units[12] that did not report data showing that they operated during the second quarter of 2016 have been retired, or that any of these units will be retired by the end of 2016. All five units operated during the first quarter of 2016. *See* reports attached to UARG June 1 Comments. In fact, 14 of the 21 relevant units that did not report data indicating that they operated during the second quarter of 2016 *did* report data indicating that they operated during the first quarter of 2016.[13] Thus, in the absence of any announcement regarding planned retirement of these units, it stands to reason that the absence at the present time of data showing second-quarter 2016 operation is attributable to factors other than retirement and that these units will continue to operate in the future. Indeed, information on EPA's website indicates that Dan E Karn unit 1 in Michigan, which did not operate during the first quarter of 2016, resumed operation during the second quarter of 2016. *Compare* reports attached to UARG June 1 Comments *with* Attachment 2 hereto.

In sum, EPA's own publicly available data for the second quarter of 2016 reconfirm the conclusion that critically important assumptions regarding unit retirements on which EPA relied in determining statewide emission budgets lack any sound basis and undermine the

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[11] Although, as noted above, first-quarter 2016 data did not appear to be available for WPS Westwood Generation unit 031 in Pennsylvania at the time UARG prepared its June 1 comments, EPA's AMPD website now provides data indicating that this unit *did* operate during the first quarter of 2016.

[12] These five units are Charles R. Lowman unit 1 in Alabama, John S. Cooper unit 2 in Kentucky, Westmoreland Partners Roanoke Valley II unit 2 in North Carolina, and Mercer units 1 and 2 in New Jersey.

[13] The only relevant units that did not report data indicating that they operated during either the first quarter or the second quarter of 2016 were the seven units described in footnote 9 above (*i.e.*, the four units that were not required to report quarterly data due to their small size; one unit that is expected to remain commercially operable for at least the next several years; and two very small units that are operating as natural gas-fired steam units).

Agency's analysis and the calculations and levels of those emission budgets in this rulemaking.

Thank you in advance for your consideration of UARG's comments. Please let me know if you have any questions regarding the matters addressed in these comments.

Sincerely,

Norman W. Fichthorn
Counsel to the Utility Air Regulatory Group

Attachments (2)

cc (w/ Attachments) (via electronic mail):
Janet McCabe, Acting Assistant Administrator, EPA Office of Air and Radiation
Sarah W. Dunham, Director, EPA OAR Office of Atmospheric Programs
Steve Page, Director, EPA OAR Office of Air Quality Planning and Standards
Reid Harvey, Director, EPA OAR OAP Clean Air Markets Division
Norman C. Possiel, EPA Office of Air Quality Planning and Standards
David P. Risley, EPA Clean Air Markets Division
Howard A. Shelanski, Administrator, OMB Office of Information and Regulatory Affairs
Dominic J. Mancini, Deputy Administrator, OMB OIRA
Michael J. Hickey, Chief, OMB OIRA Environment Branch
Aaron L. Szabo, OMB OIRA

Attachment 1

Emissions - Unit Level Data Report
May 20, 2016

Your query will return 31 Facility(s) and 100 Unit(s)

Program: All Programs

Data Set: Emissions - Unit Level Data

Time Frame: Emissions :
Quarterly : 2016 Q1

Criteria: Facility Name/ID : Barry (3), Charles R Lowman (56), Gorgas (8), Independence (6641), Muscatine (1167), Prairie Creek (1073), Streeter Station (1131), Burlington (IA), George Neal North (1091), Dallman (963), E D Edwards (856), Hennepin Power Station (892), Joppa Steam (887), Newton (6017), Will County (884), Baldwin Energy Complex (889), Powerton (879), Bailly Generating Station (995), Michigan City Generating Station (997), R Gallagher (1008), R M Schahfer Generating Station (6085), Whitewater Valley (1040), Tecumseh Energy Center (1252), D B Wilson (6823), E W Brown (1355), John S. Cooper (1384), Shawnee (1379), Mill Creek (1364), Big Cajun 2 (6055), Brame Energy Center (6190), R S Nelson (1393)

Aggregate Criteria: No Aggregation (Unit Level)

Columns: State, Facility Name, Facility ID (ORISPL), Unit ID, Year, Quarter, Heat Input (MMBtu)

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
1	AL	Barry	3	1	2016	1	56,473
2	AL	Barry	3	2	2016	1	57,778
3	AL	Barry	3	4	2016	1	3,043,349
4	AL	Barry	3	5	2016	1	6,443,452
5	AL	Barry	3	6A	2016	1	3,469,513
6	AL	Barry	3	6B	2016	1	3,526,367
7	AL	Barry	3	7A	2016	1	3,977,661
8	AL	Barry	3	7B	2016	1	3,913,365
9	AL	Charles R Lowman	56	1	2016	1	53,911
10	AL	Charles R Lowman	56	2	2016	1	1,588,610
11	AL	Charles R Lowman	56	3	2016	1	1,967,397

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
12	AL	Gorgas	8	10	2016	1	9,591,239
13	AL	Gorgas	8	8	2016	1	1,970,188
14	AL	Gorgas	8	9	2016	1	1,553,337
15	AR	Independence	6641	1	2016	1	3,409,267
16	AR	Independence	6641	2	2016	1	8,329,163
17	IA	Burlington (IA)	1104	1	2016	1	2,686,357
18	IA	George Neal North	1091	1	2016	1	147,705
19	IA	George Neal North	1091	2	2016	1	919,554
20	IA	George Neal North	1091	3	2016	1	1,201,521
21	IA	Muscatine	1167	8	2016	1	1,202,403
22	IA	Muscatine	1167	9	2016	1	1,901,433
23	IA	Prairie Creek	1073	3	2016	1	719,082
24	IA	Prairie Creek	1073	4	2016	1	1,058,860
25	IA	Streeter Station	1131	7	2016	1	6,137
26	IL	Baldwin Energy Complex	889	1	2016	1	6,528,670
27	IL	Baldwin Energy Complex	889	2	2016	1	7,364,236
28	IL	Baldwin Energy Complex	889	3	2016	1	8,076,768
29	IL	Dallman	963	31	2016	1	76,338
30	IL	Dallman	963	32	2016	1	183,666
31	IL	Dallman	963	33	2016	1	1,560,080
32	IL	Dallman	963	4	2016	1	2,090,837
33	IL	E D Edwards	856	2	2016	1	2,866,629
34	IL	E D Edwards	856	3	2016	1	3,008,497
35	IL	Hennepin Power Station	892	1	2016	1	713,656
36	IL	Hennepin Power Station	892	2	2016	1	2,610,000
37	IL	Joppa Steam	887	1	2016	1	1,360,411
38	IL	Joppa Steam	887	2	2016	1	1,753,684
39	IL	Joppa Steam	887	3	2016	1	848,700
40	IL	Joppa Steam	887	4	2016	1	1,648,515

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
41	IL	Joppa Steam	887	5	2016	1	907,240
42	IL	Joppa Steam	887	6	2016	1	843,583
43	IL	Newton	6017	1	2016	1	6,925,211
44	IL	Newton	6017	2	2016	1	2,959,886
45	IL	Powerton	879	51	2016	1	1,367,271
46	IL	Powerton	879	52	2016	1	1,307,868
47	IL	Powerton	879	61	2016	1	1,963,362
48	IL	Powerton	879	62	2016	1	1,963,185
49	IL	Will County	884	3	2016	1	
50	IL	Will County	884	4	2016	1	7,853,235
51	IN	Bailly Generating Station	995	10	2016	1	562
52	IN	Bailly Generating Station	995	7	2016	1	2,087,839
53	IN	Bailly Generating Station	995	8	2016	1	2,578,667
54	IN	Michigan City Generating Station	997	12	2016	1	3,066,703
55	IN	R Gallagher	1008	2	2016	1	92,227
56	IN	R Gallagher	1008	4	2016	1	122,563
57	IN	R M Schahfer Generating Station	6085	14	2016	1	
58	IN	R M Schahfer Generating Station	6085	15	2016	1	3,978,631
59	IN	R M Schahfer Generating Station	6085	16A	2016	1	2,894
60	IN	R M Schahfer Generating Station	6085	16B	2016	1	
61	IN	R M Schahfer Generating Station	6085	17	2016	1	2,918,791
62	IN	R M Schahfer Generating Station	6085	18	2016	1	3,436,956
63	IN	Whitewater Valley	1040	1	2016	1	76,980
64	IN	Whitewater Valley	1040	2	2016	1	181,911
65	KS	Tecumseh Energy Center	1252	9	2016	1	625,803
66	KY	D B Wilson	6823	W1	2016	1	8,620,149

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
67	KY	E W Brown	1355	1	2016	1	443,047
68	KY	E W Brown	1355	10	2016	1	794,562
69	KY	E W Brown	1355	11	2016	1	277,012
70	KY	E W Brown	1355	2	2016	1	811,370
71	KY	E W Brown	1355	3	2016	1	2,105,988
72	KY	E W Brown	1355	5	2016	1	99,257
73	KY	E W Brown	1355	6	2016	1	108,044
74	KY	E W Brown	1355	7	2016	1	116,594
75	KY	E W Brown	1355	8	2016	1	421,858
76	KY	E W Brown	1355	9	2016	1	708,779
77	KY	John S. Cooper	1384	1	2016	1	936,819
78	KY	John S. Cooper	1384	2	2016	1	1,008,523
79	KY	Mill Creek	1364	1	2016	1	4,038,129
80	KY	Mill Creek	1364	2	2016	1	4,107,287
81	KY	Mill Creek	1364	3	2016	1	5,092,981
82	KY	Mill Creek	1364	4	2016	1	7,288,970
83	KY	Shawnee	1379	1	2016	1	1,851,768
84	KY	Shawnee	1379	2	2016	1	2,269,258
85	KY	Shawnee	1379	3	2016	1	2,519,392
86	KY	Shawnee	1379	4	2016	1	754,645
87	KY	Shawnee	1379	5	2016	1	2,265,281
88	KY	Shawnee	1379	6	2016	1	2,177,403
89	KY	Shawnee	1379	7	2016	1	2,014,737
90	KY	Shawnee	1379	8	2016	1	2,278,503
91	KY	Shawnee	1379	9	2016	1	2,180,257
92	LA	Big Cajun 2	6055	2B1	2016	1	1,886,689
93	LA	Big Cajun 2	6055	2B2	2016	1	10,530,234
94	LA	Big Cajun 2	6055	2B3	2016	1	4,897,725
95	LA	Brame Energy Center	6190	1	2016	1	413,961
96	LA	Brame Energy Center	6190	2	2016	1	4,196,249

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
97	LA	Brame Energy Center	6190	3-1	2016	1	3,693,014
98	LA	Brame Energy Center	6190	3-2	2016	1	4,715,458
99	LA	R S Nelson	1393	4	2016	1	145,283
100	LA	R S Nelson	1393	6	2016	1	4,821,274

Emissions - Unit Level Data Report
May 20, 2016

Your query will return 36 Facility(s) and 96 Unit(s)

Program: All Programs

Data Set: Emissions - Unit Level Data

Time Frame: Emissions :
Quarterly : 2016 Q1

Criteria: Facility Name/ID : Dickerson (1572), Dan E Karn (1702), Shiras (1843), St. Clair (1743), TES Filer City Station (50835), Eckert Station (1831), Endicott Generating (4259), Erickson (1832), J B Sims (1825), J H Campbell (1710), Monroe (1733), Presque Isle (1769), Lake Road (2098), Sibley (2094), Thomas Hill Energy Center (2168), R D Morrow Senior Generating Plant (6061), G G Allen (2718), Marshall (2727), Roxboro (2712), Westmoreland Partners Roanoke Valley II (54755), Hudson Generating Station (2403), Mercer Generating Station (2408), Cayuga Operating Company, LLC (2535), S A Carlson (2682), Conesville (2840), Hugo (6772), Muskogee (2952), Brunner Island, LLC (3140), Cambria Cogen (10641), Ebensburg Power Company (10603), Gilberton Power Company (10113), Northampton Generating Plant (50888), Northeastern Power Company (50039), P H Glatfelter Company (50397), St. Nicholas Cogeneration Project (54634), Wheelabrator - Frackville (50879)

Aggregate Criteria: No Aggregation (Unit Level)

Columns: State, Facility Name, Facility ID (ORISPL), Unit ID, Year, Quarter, Heat Input (MMBtu)

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
1	MD	Dickerson	1572	1	2016	1	486,693
2	MD	Dickerson	1572	2	2016	1	228,702
3	MD	Dickerson	1572	3	2016	1	614,576
4	MD	Dickerson	1572	GT2	2016	1	130,116
5	MD	Dickerson	1572	GT3	2016	1	162,769
6	MI	Dan E Karn	1702	1	2016	1	
7	MI	Dan E Karn	1702	2	2016	1	3,088,164
8	MI	Dan E Karn	1702	3	2016	1	432
9	MI	Dan E Karn	1702	4	2016	1	1,908
10	MI	Dan E Karn	1702	A	2016	1	68

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
11	MI	Dan E Karn	1702	B	2016	1	18,523
12	MI	Eckert Station	1831	1	2016	1	
13	MI	Eckert Station	1831	3	2016	1	
14	MI	Eckert Station	1831	4	2016	1	124,916
15	MI	Eckert Station	1831	5	2016	1	563,650
16	MI	Eckert Station	1831	6	2016	1	430,543
17	MI	Endicott Generating	4259	1	2016	1	708,692
18	MI	Erickson	1832	1	2016	1	2,729,071
19	MI	J B Sims	1825	3	2016	1	615,288
20	MI	J H Campbell	1710	1	2016	1	1,442,326
21	MI	J H Campbell	1710	2	2016	1	3,199,087
22	MI	J H Campbell	1710	3	2016	1	9,398,506
23	MI	Monroe	1733	1	2016	1	7,977,997
24	MI	Monroe	1733	2	2016	1	5,993,365
25	MI	Monroe	1733	3	2016	1	10,584,733
26	MI	Monroe	1733	4	2016	1	9,879,770
27	MI	Presque Isle	1769	5	2016	1	1,090,864
28	MI	Presque Isle	1769	6	2016	1	984,996
29	MI	Presque Isle	1769	7	2016	1	1,154,019
30	MI	Presque Isle	1769	8	2016	1	1,588,321
31	MI	Presque Isle	1769	9	2016	1	850,051
32	MI	Shiras	1843	3	2016	1	869,088
33	MI	St. Clair	1743	1	2016	1	1,817,564
34	MI	St. Clair	1743	2	2016	1	1,197,195
35	MI	St. Clair	1743	3	2016	1	1,462,587
36	MI	St. Clair	1743	4	2016	1	1,815,308
37	MI	St. Clair	1743	6	2016	1	3,041,543
38	MI	St. Clair	1743	7	2016	1	5,004,684
39	MI	TES Filer City Station	50835	1	2016	1	906,677
40	MI	TES Filer City Station	50835	2	2016	1	879,724
41	MO	Lake Road	2098	6	2016	1	885,225

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
42	MO	Lake Road	2098	GT5	2016	1	
43	MO	Sibley	2094	1	2016	1	492,901
44	MO	Sibley	2094	2	2016	1	150
45	MO	Sibley	2094	3	2016	1	4,035,906
46	MO	Thomas Hill Energy Center	2168	MB1	2016	1	1,531,488
47	MO	Thomas Hill Energy Center	2168	MB2	2016	1	4,613,712
48	MO	Thomas Hill Energy Center	2168	MB3	2016	1	13,551,823
49	MS	R D Morrow Senior Generating Plant	6061	1	2016	1	1,259,321
50	MS	R D Morrow Senior Generating Plant	6061	2	2016	1	1,189,300
51	NC	G G Allen	2718	1	2016	1	427,343
52	NC	G G Allen	2718	2	2016	1	359,534
53	NC	G G Allen	2718	3	2016	1	370,955
54	NC	G G Allen	2718	4	2016	1	1,888,074
55	NC	G G Allen	2718	5	2016	1	619,282
56	NC	Marshall	2727	1	2016	1	2,329,899
57	NC	Marshall	2727	2	2016	1	2,070,225
58	NC	Marshall	2727	3	2016	1	9,669,190
59	NC	Marshall	2727	4	2016	1	9,527,327
60	NC	Roxboro	2712	1	2016	1	1,716,301
61	NC	Roxboro	2712	2	2016	1	4,339,523
62	NC	Roxboro	2712	3A	2016	1	1,443,585
63	NC	Roxboro	2712	3B	2016	1	1,482,664
64	NC	Roxboro	2712	4A	2016	1	2,325,812
65	NC	Roxboro	2712	4B	2016	1	2,313,302
66	NC	Westmoreland Partners Roanoke Valley II	54755	2	2016	1	28,771
67	NJ	Hudson Generating Station	2403	2	2016	1	345,786
68	NJ	Mercer Generating Station	2408	1	2016	1	49,352

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
69	NJ	Mercer Generating Station	2408	2	2016	1	51,422
70	NY	Cayuga Operating Company, LLC	2535	1	2016	1	188,914
71	NY	Cayuga Operating Company, LLC	2535	2	2016	1	494,869
72	NY	S A Carlson	2682	10	2016	1	6,863
73	NY	S A Carlson	2682	20	2016	1	673,691
74	NY	S A Carlson	2682	9	2016	1	30,033
75	OH	Conesville	2840	4	2016	1	7,728,516
76	OH	Conesville	2840	5	2016	1	2,738,495
77	OH	Conesville	2840	6	2016	1	3,933,314
78	OK	Hugo	6772	1	2016	1	5,914,739
79	OK	Muskogee	2952	4	2016	1	5,669,226
80	OK	Muskogee	2952	5	2016	1	3,965,999
81	OK	Muskogee	2952	6	2016	1	2,624,533
82	PA	Brunner Island, LLC	3140	1	2016	1	1,962,136
83	PA	Brunner Island, LLC	3140	2	2016	1	2,975,239
84	PA	Brunner Island, LLC	3140	3	2016	1	3,081,224
85	PA	Cambria Cogen	10641	1	2016	1	1,072,767
86	PA	Cambria Cogen	10641	2	2016	1	1,133,473
87	PA	Ebensburg Power Company	10603	031	2016	1	696,273
88	PA	Gilberton Power Company	10113	031	2016	1	997,241
89	PA	Gilberton Power Company	10113	032	2016	1	998,630
90	PA	Northampton Generating Plant	50888	NGC01	2016	1	1,558,939
91	PA	Northeastern Power Company	50039	031	2016	1	787,548
92	PA	P H Glatfelter Company	50397	034	2016	1	469,366
93	PA	P H Glatfelter Company	50397	035	2016	1	364,592
94	PA	P H Glatfelter Company	50397	036	2016	1	872,596

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
95	PA	St. Nicholas Cogeneration Project	54634	1	2016	1	2,698,425
96	PA	Wheelabrator - Frackville	50879	GEN1	2016	1	1,317,277

Emissions - Unit Level Data Report
May 20, 2016

Your query will return 16 Facility(s) and 83 Unit(s)

Program: All Programs

Data Set: Emissions - Unit Level Data

Time Frame: Emissions :
Quarterly : 2016 Q1

Criteria: Facility Name/ID : Johnsonville (3406), Gallatin (3403), Harrington Station (6193), J T Deely (6181), San Miguel (6183), Welsh Power Plant (6139), Chesterfield Power Station (3797), Mecklenburg Power Station (52007), Yorktown Power Station (3809), Columbia (8023), Manitowoc (4125), Pulliam (4072), South Oak Creek (4041), Weston (4078), Grant Town Power Plant (10151), Mount Storm Power Station (3954)

Aggregate Criteria: No Aggregation (Unit Level)

Columns: State, Facility Name, Facility ID (ORISPL), Unit ID, Year, Quarter, Heat Input (MMBtu)

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
1	TN	Gallatin	3403	1	2016	1	3,495,777
2	TN	Gallatin	3403	2	2016	1	2,274,905
3	TN	Gallatin	3403	3	2016	1	2,392,116
4	TN	Gallatin	3403	4	2016	1	3,059,241
5	TN	Gallatin	3403	GCT1	2016	1	
6	TN	Gallatin	3403	GCT2	2016	1	31,798
7	TN	Gallatin	3403	GCT3	2016	1	37,551
8	TN	Gallatin	3403	GCT4	2016	1	35,092
9	TN	Gallatin	3403	GCT5	2016	1	37,397
10	TN	Gallatin	3403	GCT6	2016	1	72,285
11	TN	Gallatin	3403	GCT7	2016	1	
12	TN	Gallatin	3403	GCT8	2016	1	43,541
13	TN	Johnsonville	3406	1	2016	1	2,121,672

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
14	TN	Johnsonville	3406	10	2016	1	
15	TN	Johnsonville	3406	2	2016	1	1,416,309
16	TN	Johnsonville	3406	3	2016	1	1,995,019
17	TN	Johnsonville	3406	4	2016	1	1,306,383
18	TN	Johnsonville	3406	5	2016	1	
19	TN	Johnsonville	3406	6	2016	1	
20	TN	Johnsonville	3406	7	2016	1	
21	TN	Johnsonville	3406	8	2016	1	
22	TN	Johnsonville	3406	9	2016	1	
23	TN	Johnsonville	3406	JCT1	2016	1	11,763
24	TN	Johnsonville	3406	JCT10	2016	1	2,478
25	TN	Johnsonville	3406	JCT11	2016	1	5,226
26	TN	Johnsonville	3406	JCT12	2016	1	5,375
27	TN	Johnsonville	3406	JCT13	2016	1	6,263
28	TN	Johnsonville	3406	JCT14	2016	1	8,147
29	TN	Johnsonville	3406	JCT15	2016	1	6,450
30	TN	Johnsonville	3406	JCT16	2016	1	5,557
31	TN	Johnsonville	3406	JCT17	2016	1	49,476
32	TN	Johnsonville	3406	JCT18	2016	1	34,054
33	TN	Johnsonville	3406	JCT19	2016	1	46,252
34	TN	Johnsonville	3406	JCT2	2016	1	7,527
35	TN	Johnsonville	3406	JCT20	2016	1	392,628
36	TN	Johnsonville	3406	JCT3	2016	1	4,661
37	TN	Johnsonville	3406	JCT4	2016	1	3,104
38	TN	Johnsonville	3406	JCT5	2016	1	4,957
39	TN	Johnsonville	3406	JCT6	2016	1	4,718
40	TN	Johnsonville	3406	JCT7	2016	1	2,544
41	TN	Johnsonville	3406	JCT8	2016	1	1,788
42	TN	Johnsonville	3406	JCT9	2016	1	3,644
43	TX	Harrington Station	6193	061B	2016	1	3,054,790
44	TX	Harrington Station	6193	062B	2016	1	3,052,216
45	TX	Harrington Station	6193	063B	2016	1	5,167,409

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
46	TX	J T Deely	6181	1	2016	1	1,530,697
47	TX	J T Deely	6181	2	2016	1	890,494
48	TX	San Miguel	6183	SM-1	2016	1	6,352,754
49	TX	Welsh Power Plant	6139	1	2016	1	1,681,504
50	TX	Welsh Power Plant	6139	2	2016	1	4,820,205
51	TX	Welsh Power Plant	6139	3	2016	1	1,228,343
52	VA	Chesterfield Power Station	3797	**8A	2016	1	2,329,498
53	VA	Chesterfield Power Station	3797	3	2016	1	
54	VA	Chesterfield Power Station	3797	4	2016	1	2,358,053
55	VA	Chesterfield Power Station	3797	5	2016	1	5,631,432
56	VA	Chesterfield Power Station	3797	6	2016	1	8,072,598
57	VA	Chesterfield Power Station	3797	7	2016	1	3,499,713
58	VA	Mecklenburg Power Station	52007	1	2016	1	502,543
59	VA	Mecklenburg Power Station	52007	2	2016	1	521,836
60	VA	Yorktown Power Station	3809	1	2016	1	289,835
61	VA	Yorktown Power Station	3809	2	2016	1	2,080,195
62	VA	Yorktown Power Station	3809	3	2016	1	775,539
63	WI	Columbia	8023	1	2016	1	4,262,706
64	WI	Columbia	8023	2	2016	1	3,789,069
65	WI	Manitowoc	4125	8	2016	1	169,958
66	WI	Manitowoc	4125	9	2016	1	119,434
67	WI	Pulliam	4072	32	2016	1	136,236
68	WI	Pulliam	4072	7	2016	1	86,303
69	WI	Pulliam	4072	8	2016	1	158,739
70	WI	South Oak Creek	4041	5	2016	1	3,976,738
71	WI	South Oak Creek	4041	6	2016	1	2,250,951

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
72	WI	South Oak Creek	4041	7	2016	1	1,966,444
73	WI	South Oak Creek	4041	8	2016	1	1,536,383
74	WI	Weston	4078	2	2016	1	
75	WI	Weston	4078	3	2016	1	2,985,303
76	WI	Weston	4078	32A	2016	1	7,387
77	WI	Weston	4078	32B	2016	1	7,946
78	WI	Weston	4078	4	2016	1	7,341,077
79	WV	Grant Town Power Plant	10151	1A	2016	1	1,256,785
80	WV	Grant Town Power Plant	10151	1B	2016	1	1,160,805
81	WV	Mount Storm Power Station	3954	1	2016	1	10,816,323
82	WV	Mount Storm Power Station	3954	2	2016	1	10,016,747
83	WV	Mount Storm Power Station	3954	3	2016	1	6,555,417

Attachment 2

Emissions - Unit Level Data Report
Aug 10, 2016

Your query will return 30 Facility(s) and 99 Unit(s)

Program: All Programs

Data Set: Emissions - Unit Level Data

Time Frame: Emissions :
Quarterly : 2016 Q2

Criteria: Facility Name/ID : Barry (3), Charles R Lowman (56), Gorgas (8), Independence (6641), Burlington (IA), George Neal North (1091), Muscatine (1167), Prairie Creek (1073), Baldwin Energy Complex (889), Dallman (963), E D Edwards (856), Hennepin Power Station (892), Joppa Steam (887), Newton (6017), Powerton (879), Will County (884), Bailly Generating Station (995), Michigan City Generating Station (997), R Gallagher (1008), R M Schahfer Generating Station (6085), Whitewater Valley (1040), Tecumseh Energy Center (1252), D B Wilson (6823), E W Brown (1355), John S. Cooper (1384), Mill Creek (1364), Shawnee (1379), Big Cajun 2 (6055), Brame Energy Center (6190), R S Nelson (1393)

Aggregate Criteria: No Aggregation (Unit Level)

Columns: State, Facility Name, Facility ID (ORISPL), Unit ID, Year, Quarter, Heat Input (MMBtu)

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
1	AL	Barry	3	1	2016	2	50,168
2	AL	Barry	3	2	2016	2	51,870
3	AL	Barry	3	4	2016	2	3,014,011
4	AL	Barry	3	5	2016	2	6,757,196
5	AL	Barry	3	6A	2016	2	3,807,916
6	AL	Barry	3	6B	2016	2	2,806,029
7	AL	Barry	3	7A	2016	2	3,531,083
8	AL	Barry	3	7B	2016	2	3,897,452
9	AL	Charles R Lowman	56	1	2016	2	
10	AL	Charles R Lowman	56	2	2016	2	611,240
11	AL	Charles R Lowman	56	3	2016	2	3,493,751

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
12	AL	Gorgas	8	10	2016	2	10,061,687
13	AL	Gorgas	8	8	2016	2	1,731,141
14	AL	Gorgas	8	9	2016	2	1,611,223
15	AR	Independence	6641	1	2016	2	10,356,607
16	AR	Independence	6641	2	2016	2	10,863,604
17	IA	Burlington (IA)	1104	1	2016	2	3,081,053
18	IA	George Neal North	1091	1	2016	2	
19	IA	George Neal North	1091	2	2016	2	51,223
20	IA	George Neal North	1091	3	2016	2	3,866,180
21	IA	Muscatine	1167	8	2016	2	985,072
22	IA	Muscatine	1167	9	2016	2	2,007,574
23	IA	Prairie Creek	1073	3	2016	2	569,312
24	IA	Prairie Creek	1073	4	2016	2	1,324,509
25	IL	Baldwin Energy Complex	889	1	2016	2	7,320,175
26	IL	Baldwin Energy Complex	889	2	2016	2	9,933,387
27	IL	Baldwin Energy Complex	889	3	2016	2	8,425,057
28	IL	Dallman	963	31	2016	2	778,530
29	IL	Dallman	963	32	2016	2	221,937
30	IL	Dallman	963	33	2016	2	2,279,681
31	IL	Dallman	963	4	2016	2	3,348,364
32	IL	E D Edwards	856	2	2016	2	2,687,284
33	IL	E D Edwards	856	3	2016	2	4,651,249
34	IL	Hennepin Power Station	892	1	2016	2	1,112,951
35	IL	Hennepin Power Station	892	2	2016	2	2,378,035
36	IL	Joppa Steam	887	1	2016	2	1,535,030
37	IL	Joppa Steam	887	2	2016	2	1,127,922
38	IL	Joppa Steam	887	3	2016	2	781,543
39	IL	Joppa Steam	887	4	2016	2	962,492
40	IL	Joppa Steam	887	5	2016	2	470,399

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
41	IL	Joppa Steam	887	6	2016	2	743,873
42	IL	Newton	6017	1	2016	2	2,818,813
43	IL	Newton	6017	2	2016	2	2,987,870
44	IL	Powerton	879	51	2016	2	1,753,461
45	IL	Powerton	879	52	2016	2	1,657,613
46	IL	Powerton	879	61	2016	2	4,564,698
47	IL	Powerton	879	62	2016	2	4,408,593
48	IL	Will County	884	3	2016	2	
49	IL	Will County	884	4	2016	2	2,906,357
50	IN	Bailly Generating Station	995	10	2016	2	13,924
51	IN	Bailly Generating Station	995	7	2016	2	1,811,457
52	IN	Bailly Generating Station	995	8	2016	2	2,593,927
53	IN	Michigan City Generating Station	997	12	2016	2	5,075,876
54	IN	R Gallagher	1008	2	2016	2	223,633
55	IN	R Gallagher	1008	4	2016	2	148,939
56	IN	R M Schahfer Generating Station	6085	14	2016	2	2,412,915
57	IN	R M Schahfer Generating Station	6085	15	2016	2	3,714,740
58	IN	R M Schahfer Generating Station	6085	16A	2016	2	13,936
59	IN	R M Schahfer Generating Station	6085	16B	2016	2	
60	IN	R M Schahfer Generating Station	6085	17	2016	2	6,230,278
61	IN	R M Schahfer Generating Station	6085	18	2016	2	474,403
62	IN	Whitewater Valley	1040	1	2016	2	24,209
63	IN	Whitewater Valley	1040	2	2016	2	51,048
64	KS	Tecumseh Energy Center	1252	9	2016	2	738,126
65	KY	D B Wilson	6823	W1	2016	2	8,858,607
66	KY	E W Brown	1355	1	2016	2	801,764

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
67	KY	E W Brown	1355	10	2016	2	514,629
68	KY	E W Brown	1355	11	2016	2	173,096
69	KY	E W Brown	1355	2	2016	2	1,451,300
70	KY	E W Brown	1355	3	2016	2	3,972,672
71	KY	E W Brown	1355	5	2016	2	446,663
72	KY	E W Brown	1355	6	2016	2	57,883
73	KY	E W Brown	1355	7	2016	2	65,542
74	KY	E W Brown	1355	8	2016	2	412,105
75	KY	E W Brown	1355	9	2016	2	285,670
76	KY	John S. Cooper	1384	1	2016	2	237,245
77	KY	John S. Cooper	1384	2	2016	2	
78	KY	Mill Creek	1364	1	2016	2	4,544,726
79	KY	Mill Creek	1364	2	2016	2	4,506,163
80	KY	Mill Creek	1364	3	2016	2	2,432,783
81	KY	Mill Creek	1364	4	2016	2	7,496,338
82	KY	Shawnee	1379	1	2016	2	390,792
83	KY	Shawnee	1379	2	2016	2	2,490,755
84	KY	Shawnee	1379	3	2016	2	2,524,658
85	KY	Shawnee	1379	4	2016	2	2,194,559
86	KY	Shawnee	1379	5	2016	2	2,390,290
87	KY	Shawnee	1379	6	2016	2	2,187,282
88	KY	Shawnee	1379	7	2016	2	1,895,828
89	KY	Shawnee	1379	8	2016	2	2,342,675
90	KY	Shawnee	1379	9	2016	2	2,283,284
91	LA	Big Cajun 2	6055	2B1	2016	2	3,392,784
92	LA	Big Cajun 2	6055	2B2	2016	2	8,388,587
93	LA	Big Cajun 2	6055	2B3	2016	2	8,069,502
94	LA	Brame Energy Center	6190	1	2016	2	2,497,082
95	LA	Brame Energy Center	6190	2	2016	2	4,216,462
96	LA	Brame Energy Center	6190	3-1	2016	2	6,132,501

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
97	LA	Brame Energy Center	6190	3-2	2016	2	5,781,462
98	LA	R S Nelson	1393	4	2016	2	2,390,946
99	LA	R S Nelson	1393	6	2016	2	6,657,924

Emissions - Unit Level Data Report
Aug 10, 2016

Your query will return 36 Facility(s) and 92 Unit(s)

Program: All Programs

Data Set: Emissions - Unit Level Data

Time Frame: Emissions :
Quarterly : 2016 Q2

Criteria: Facility Name/ID : Dickerson (1572), Dan E Karn (1702), Eckert Station (1831), Endicott Generating (4259), Erickson (1832), J B Sims (1825), J H Campbell (1710), Monroe (1733), Presque Isle (1769), Shiras (1843), St. Clair (1743), TES Filer City Station (50835), Lake Road (2098), Sibley (2094), Thomas Hill Energy Center (2168), R D Morrow Senior Generating Plant (6061), G G Allen (2718), Marshall (2727), Roxboro (2712), Westmoreland Partners Roanoke Valley II (54755), Hudson Generating Station (2403), Mercer Generating Station (2408), Cayuga Operating Company, LLC (2535), Conesville (2840), Hugo (6772), Muskogee (2952), Brunner Island, LLC (3140), Cambria Cogen (10641), Ebensburg Power Company (10603), Gilberton Power Company (10113), Northampton Generating Plant (50888), Northeastern Power Company (50039), P H Glatfelter Company (50397), St. Nicholas Cogeneration Project (54634), Wheelabrator - Frackville (50879), WPS Westwood Generation, LLC (50611)

Aggregate Criteria: No Aggregation (Unit Level)

Columns: State, Facility Name, Facility ID (ORISPL), Unit ID, Year, Quarter, Heat Input (MMBtu)

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
1	MD	Dickerson	1572	1	2016	2	374,261
2	MD	Dickerson	1572	2	2016	2	568,703
3	MD	Dickerson	1572	3	2016	2	475,416
4	MD	Dickerson	1572	GT2	2016	2	573,984
5	MD	Dickerson	1572	GT3	2016	2	336,021
6	MI	Dan E Karn	1702	1	2016	2	1,732,120
7	MI	Dan E Karn	1702	2	2016	2	3,418,218
8	MI	Dan E Karn	1702	3	2016	2	328
9	MI	Dan E Karn	1702	4	2016	2	191,154

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
10	MI	Dan E Karn	1702	A	2016	2	9,367
11	MI	Dan E Karn	1702	B	2016	2	10,567
12	MI	Eckert Station	1831	1	2016	2	
13	MI	Eckert Station	1831	3	2016	2	
14	MI	Eckert Station	1831	4	2016	2	458,678
15	MI	Eckert Station	1831	5	2016	2	886,685
16	MI	Eckert Station	1831	6	2016	2	57,251
17	MI	Endicott Generating	4259	1	2016	2	521,999
18	MI	Erickson	1832	1	2016	2	3,395,674
19	MI	J B Sims	1825	3	2016	2	610,457
20	MI	J H Campbell	1710	3	2016	2	202,488
21	MI	Monroe	1733	1	2016	2	5,742,780
22	MI	Monroe	1733	2	2016	2	10,801,497
23	MI	Monroe	1733	3	2016	2	13,402,675
24	MI	Monroe	1733	4	2016	2	12,411,503
25	MI	Presque Isle	1769	5	2016	2	1,070,885
26	MI	Presque Isle	1769	6	2016	2	559,938
27	MI	Presque Isle	1769	7	2016	2	1,529,390
28	MI	Presque Isle	1769	8	2016	2	931,493
29	MI	Presque Isle	1769	9	2016	2	1,731,424
30	MI	Shiras	1843	3	2016	2	944,083
31	MI	St. Clair	1743	1	2016	2	2,050,498
32	MI	St. Clair	1743	2	2016	2	1,901,507
33	MI	St. Clair	1743	3	2016	2	1,985,350
34	MI	St. Clair	1743	4	2016	2	1,639,546
35	MI	St. Clair	1743	6	2016	2	2,156,377
36	MI	St. Clair	1743	7	2016	2	3,123,770
37	MI	TES Filer City Station	50835	1	2016	2	917,594
38	MI	TES Filer City Station	50835	2	2016	2	882,809
39	MO	Lake Road	2098	6	2016	2	294,221
40	MO	Lake Road	2098	GT5	2016	2	638

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
41	MO	Sibley	2094	1	2016	2	327,610
42	MO	Sibley	2094	2	2016	2	0
43	MO	Sibley	2094	3	2016	2	1,852,347
44	MO	Thomas Hill Energy Center	2168	MB1	2016	2	1,749,000
45	MO	Thomas Hill Energy Center	2168	MB2	2016	2	3,485,628
46	MO	Thomas Hill Energy Center	2168	MB3	2016	2	11,222,526
47	MS	R D Morrow Senior Generating Plant	6061	1	2016	2	282,269
48	MS	R D Morrow Senior Generating Plant	6061	2	2016	2	329,916
49	NC	G G Allen	2718	1	2016	2	539,561
50	NC	G G Allen	2718	2	2016	2	590,384
51	NC	G G Allen	2718	3	2016	2	812,370
52	NC	G G Allen	2718	4	2016	2	94,318
53	NC	G G Allen	2718	5	2016	2	
54	NC	Marshall	2727	1	2016	2	3,487,157
55	NC	Marshall	2727	2	2016	2	1,273
56	NC	Marshall	2727	3	2016	2	8,457,320
57	NC	Marshall	2727	4	2016	2	8,075,009
58	NC	Roxboro	2712	1	2016	2	1,626,308
59	NC	Roxboro	2712	2	2016	2	7,292,820
60	NC	Roxboro	2712	3A	2016	2	2,352,642
61	NC	Roxboro	2712	3B	2016	2	2,339,413
62	NC	Roxboro	2712	4A	2016	2	1,752,427
63	NC	Roxboro	2712	4B	2016	2	1,816,921
64	NC	Westmoreland Partners Roanoke Valley II	54755	2	2016	2	
65	NJ	Hudson Generating Station	2403	2	2016	2	29,688
66	NJ	Mercer Generating Station	2408	1	2016	2	
67	NJ	Mercer Generating Station	2408	2	2016	2	

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
68	NY	Cayuga Operating Company, LLC	2535	1	2016	2	1,967,324
69	NY	Cayuga Operating Company, LLC	2535	2	2016	2	14,791
70	OH	Conesville	2840	4	2016	2	7,505,672
71	OH	Conesville	2840	5	2016	2	907,275
72	OH	Conesville	2840	6	2016	2	3,426,540
73	OK	Hugo	6772	1	2016	2	1,890,626
74	OK	Muskogee	2952	4	2016	2	3,568,443
75	OK	Muskogee	2952	5	2016	2	4,719,932
76	OK	Muskogee	2952	6	2016	2	1,235,152
77	PA	Brunner Island, LLC	3140	1	2016	2	
78	PA	Brunner Island, LLC	3140	2	2016	2	2,688,749
79	PA	Brunner Island, LLC	3140	3	2016	2	2,070,899
80	PA	Cambria Cogen	10641	1	2016	2	1,227,355
81	PA	Cambria Cogen	10641	2	2016	2	1,216,202
82	PA	Ebensburg Power Company	10603	031	2016	2	722,485
83	PA	Gilberton Power Company	10113	031	2016	2	1,058,301
84	PA	Gilberton Power Company	10113	032	2016	2	1,048,625
85	PA	Northampton Generating Plant	50888	NGC01	2016	2	
86	PA	Northeastern Power Company	50039	031	2016	2	358,313
87	PA	P H Glatfelter Company	50397	034	2016	2	533,550
88	PA	P H Glatfelter Company	50397	035	2016	2	273,024
89	PA	P H Glatfelter Company	50397	036	2016	2	744,287
90	PA	St. Nicholas Cogeneration Project	54634	1	2016	2	2,252,513
91	PA	WPS Westwood Generation, LLC	50611	031	2016	2	
92	PA	Wheelabrator - Frackville	50879	GEN1	2016	2	1,143,293

Emissions - Unit Level Data Report
Aug 10, 2016

Your query will return 16 Facility(s) and 83 Unit(s)

Program: All Programs

Data Set: Emissions - Unit Level Data

Time Frame: Emissions :
Quarterly : 2016 Q2

Criteria: Facility Name/ID : Gallatin (3403), Johnsonville (3406), Harrington Station (6193), J T Deely (6181), San Miguel (6183), Welsh Power Plant (6139), Chesterfield Power Station (3797), Mecklenburg Power Station (52007), Yorktown Power Station (3809), Columbia (8023), Manitowoc (4125), Pulliam (4072), South Oak Creek (4041), Weston (4078), Grant Town Power Plant (10151), Mount Storm Power Station (3954)

Aggregate Criteria: No Aggregation (Unit Level)

Columns: State, Facility Name, Facility ID (ORISPL), Unit ID, Year, Quarter, Heat Input (MMBtu)

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
1	TN	Gallatin	3403	1	2016	2	1,823,488
2	TN	Gallatin	3403	2	2016	2	3,916,548
3	TN	Gallatin	3403	3	2016	2	4,068,908
4	TN	Gallatin	3403	4	2016	2	4,473,280
5	TN	Gallatin	3403	GCT1	2016	2	
6	TN	Gallatin	3403	GCT2	2016	2	
7	TN	Gallatin	3403	GCT3	2016	2	30,335
8	TN	Gallatin	3403	GCT4	2016	2	30,114
9	TN	Gallatin	3403	GCT5	2016	2	73,421
10	TN	Gallatin	3403	GCT6	2016	2	72,699
11	TN	Gallatin	3403	GCT7	2016	2	
12	TN	Gallatin	3403	GCT8	2016	2	77,774
13	TN	Johnsonville	3406	1	2016	2	1,540,959

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
14	TN	Johnsonville	3406	10	2016	2	
15	TN	Johnsonville	3406	2	2016	2	1,984,027
16	TN	Johnsonville	3406	3	2016	2	1,500,522
17	TN	Johnsonville	3406	4	2016	2	1,517,248
18	TN	Johnsonville	3406	5	2016	2	
19	TN	Johnsonville	3406	6	2016	2	
20	TN	Johnsonville	3406	7	2016	2	
21	TN	Johnsonville	3406	8	2016	2	
22	TN	Johnsonville	3406	9	2016	2	
23	TN	Johnsonville	3406	JCT1	2016	2	778
24	TN	Johnsonville	3406	JCT10	2016	2	97
25	TN	Johnsonville	3406	JCT11	2016	2	1,949
26	TN	Johnsonville	3406	JCT12	2016	2	3,089
27	TN	Johnsonville	3406	JCT13	2016	2	3,314
28	TN	Johnsonville	3406	JCT14	2016	2	3,215
29	TN	Johnsonville	3406	JCT15	2016	2	3,274
30	TN	Johnsonville	3406	JCT16	2016	2	3,303
31	TN	Johnsonville	3406	JCT17	2016	2	113,011
32	TN	Johnsonville	3406	JCT18	2016	2	113,056
33	TN	Johnsonville	3406	JCT19	2016	2	128,081
34	TN	Johnsonville	3406	JCT2	2016	2	697
35	TN	Johnsonville	3406	JCT20	2016	2	
36	TN	Johnsonville	3406	JCT3	2016	2	10,622
37	TN	Johnsonville	3406	JCT4	2016	2	10,749
38	TN	Johnsonville	3406	JCT5	2016	2	9,224
39	TN	Johnsonville	3406	JCT6	2016	2	14,818
40	TN	Johnsonville	3406	JCT7	2016	2	3,557
41	TN	Johnsonville	3406	JCT8	2016	2	117
42	TN	Johnsonville	3406	JCT9	2016	2	125
43	TX	Harrington Station	6193	061B	2016	2	5,182,282
44	TX	Harrington Station	6193	062B	2016	2	5,318,365
45	TX	Harrington Station	6193	063B	2016	2	4,476,948

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
46	TX	J T Deely	6181	1	2016	2	3,886,849
47	TX	J T Deely	6181	2	2016	2	4,171,804
48	TX	San Miguel	6183	SM-1	2016	2	7,051,299
49	TX	Welsh Power Plant	6139	1	2016	2	5,010,467
50	TX	Welsh Power Plant	6139	2	2016	2	772,383
51	TX	Welsh Power Plant	6139	3	2016	2	6,038,769
52	VA	Chesterfield Power Station	3797	**8A	2016	2	671,888
53	VA	Chesterfield Power Station	3797	3	2016	2	
54	VA	Chesterfield Power Station	3797	4	2016	2	2,107,009
55	VA	Chesterfield Power Station	3797	5	2016	2	2,799,402
56	VA	Chesterfield Power Station	3797	6	2016	2	10,381,461
57	VA	Chesterfield Power Station	3797	7	2016	2	3,004,320
58	VA	Mecklenburg Power Station	52007	1	2016	2	599,846
59	VA	Mecklenburg Power Station	52007	2	2016	2	455,594
60	VA	Yorktown Power Station	3809	1	2016	2	
61	VA	Yorktown Power Station	3809	2	2016	2	197,194
62	VA	Yorktown Power Station	3809	3	2016	2	315,142
63	WI	Columbia	8023	1	2016	2	8,672,556
64	WI	Columbia	8023	2	2016	2	5,653,226
65	WI	Manitowoc	4125	8	2016	2	87,415
66	WI	Manitowoc	4125	9	2016	2	342,125
67	WI	Pulliam	4072	32	2016	2	382,588
68	WI	Pulliam	4072	7	2016	2	119,176
69	WI	Pulliam	4072	8	2016	2	1,128,793
70	WI	South Oak Creek	4041	5	2016	2	4,424,400
71	WI	South Oak Creek	4041	6	2016	2	4,427,382

Record Number	State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Quarter	Heat Input (MMBtu)
72	WI	South Oak Creek	4041	7	2016	2	563,065
73	WI	South Oak Creek	4041	8	2016	2	669,386
74	WI	Weston	4078	2	2016	2	48,015
75	WI	Weston	4078	3	2016	2	
76	WI	Weston	4078	32A	2016	2	48,323
77	WI	Weston	4078	32B	2016	2	47,658
78	WI	Weston	4078	4	2016	2	7,960,831
79	WV	Grant Town Power Plant	10151	1A	2016	2	1,365,654
80	WV	Grant Town Power Plant	10151	1B	2016	2	1,346,506
81	WV	Mount Storm Power Station	3954	1	2016	2	9,547,787
82	WV	Mount Storm Power Station	3954	2	2016	2	8,715,430
83	WV	Mount Storm Power Station	3954	3	2016	2	3,264,192

Appendix B

Ozone Transport Commission Presentation (September 20, 2016)

Modeling Committee Update

OTC Committee Meeting

September 20, 2016

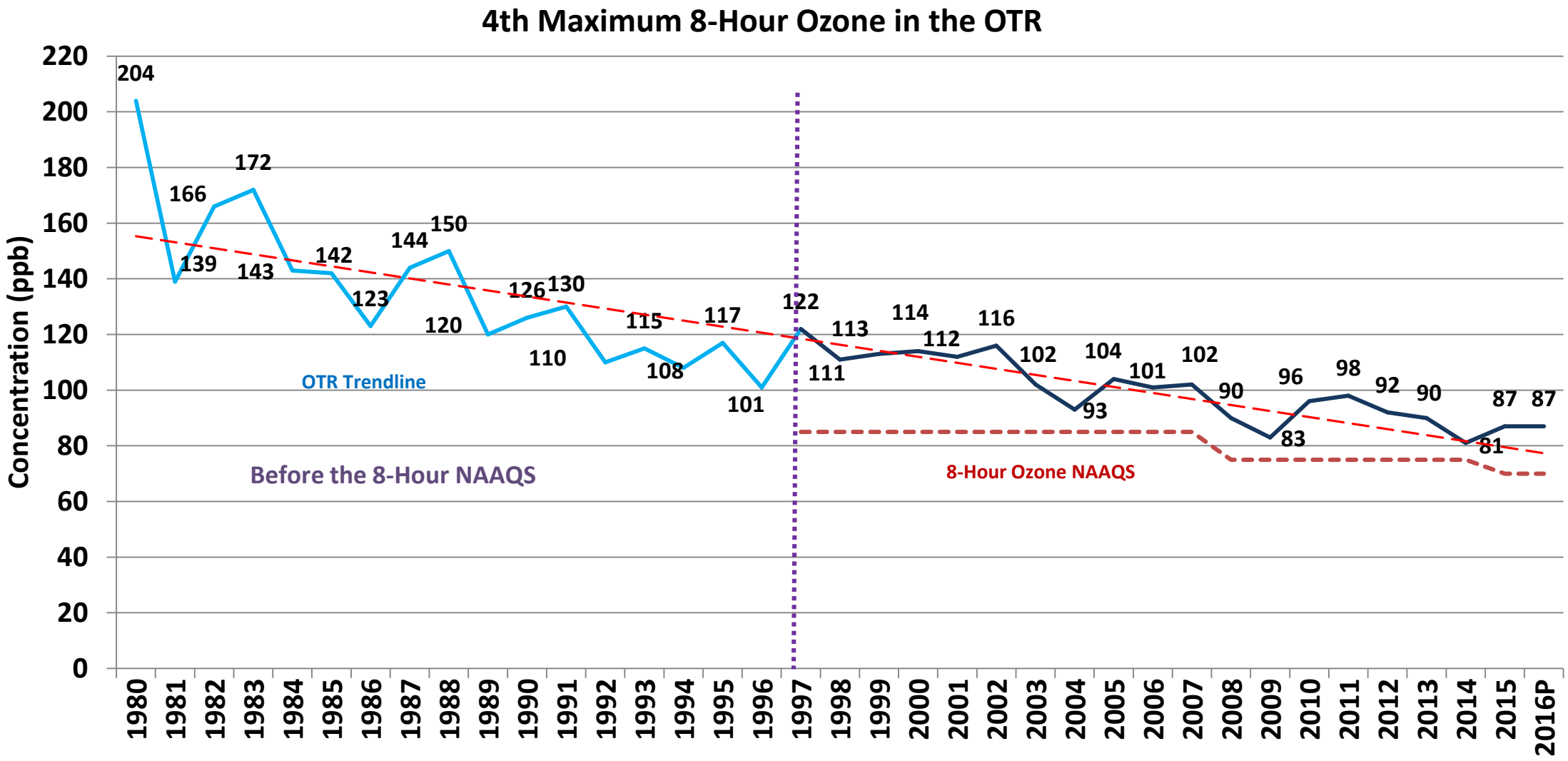
Washington, DC

Overview

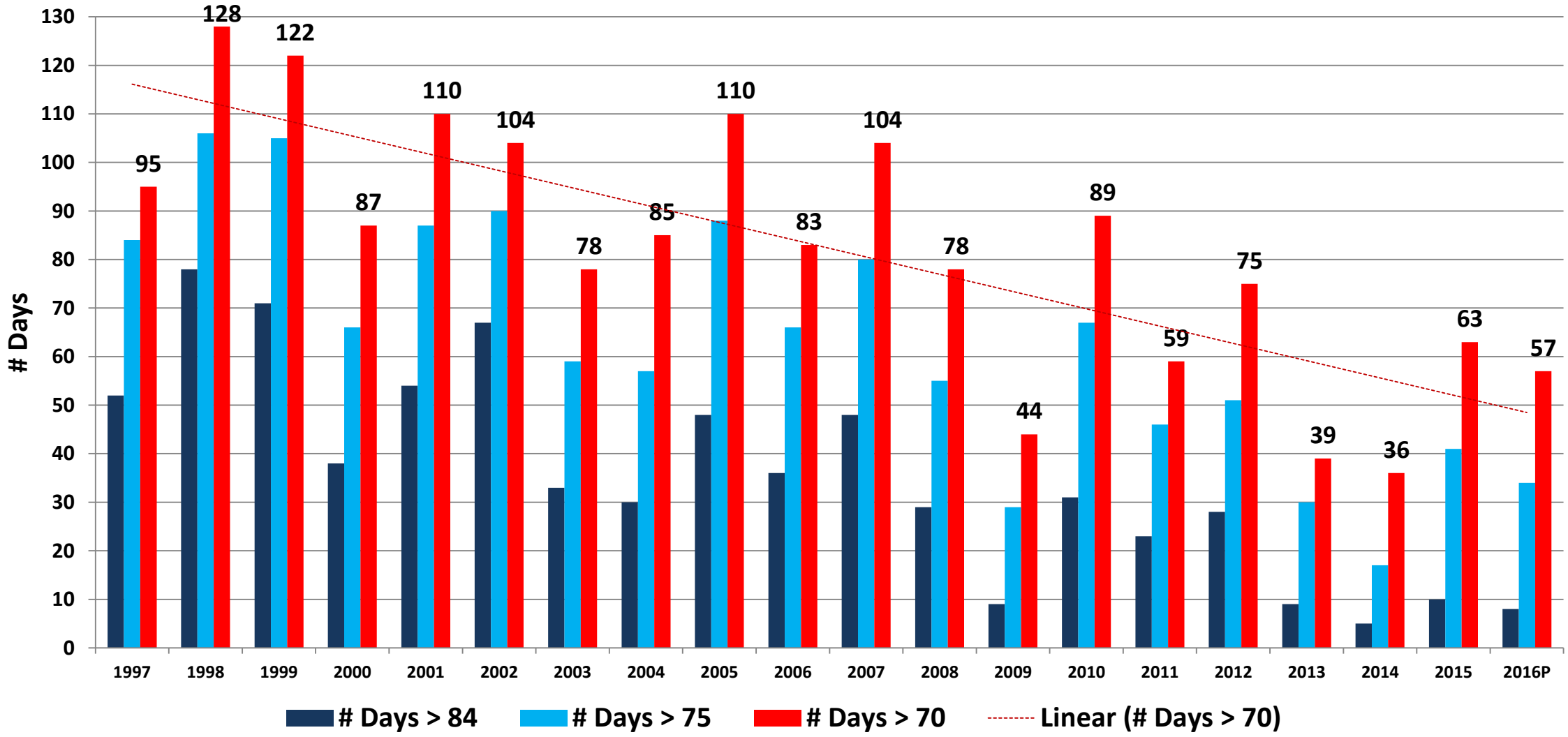
1. Monitored Results
2. Ozone NAAQS Schedule
3. OTC 2011 Modeling Platform
   a) TSD
   b) Inventory
   c) Modeling
      i. Episodic Results
      ii. Land-water Results

Monitor Results

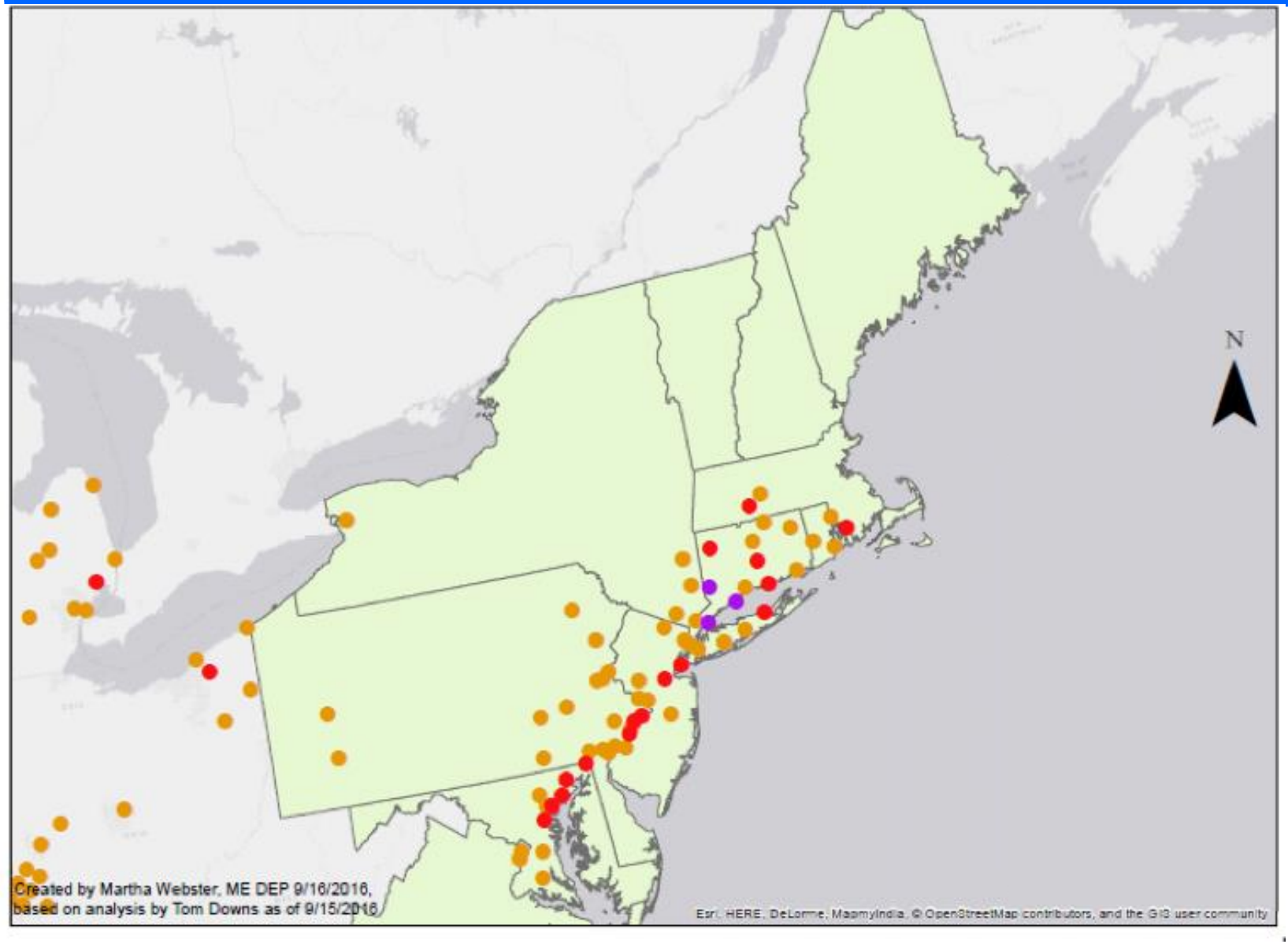
Ozone Trends in the OTR



Trends for OTR Exceedance Days to 9/15/16



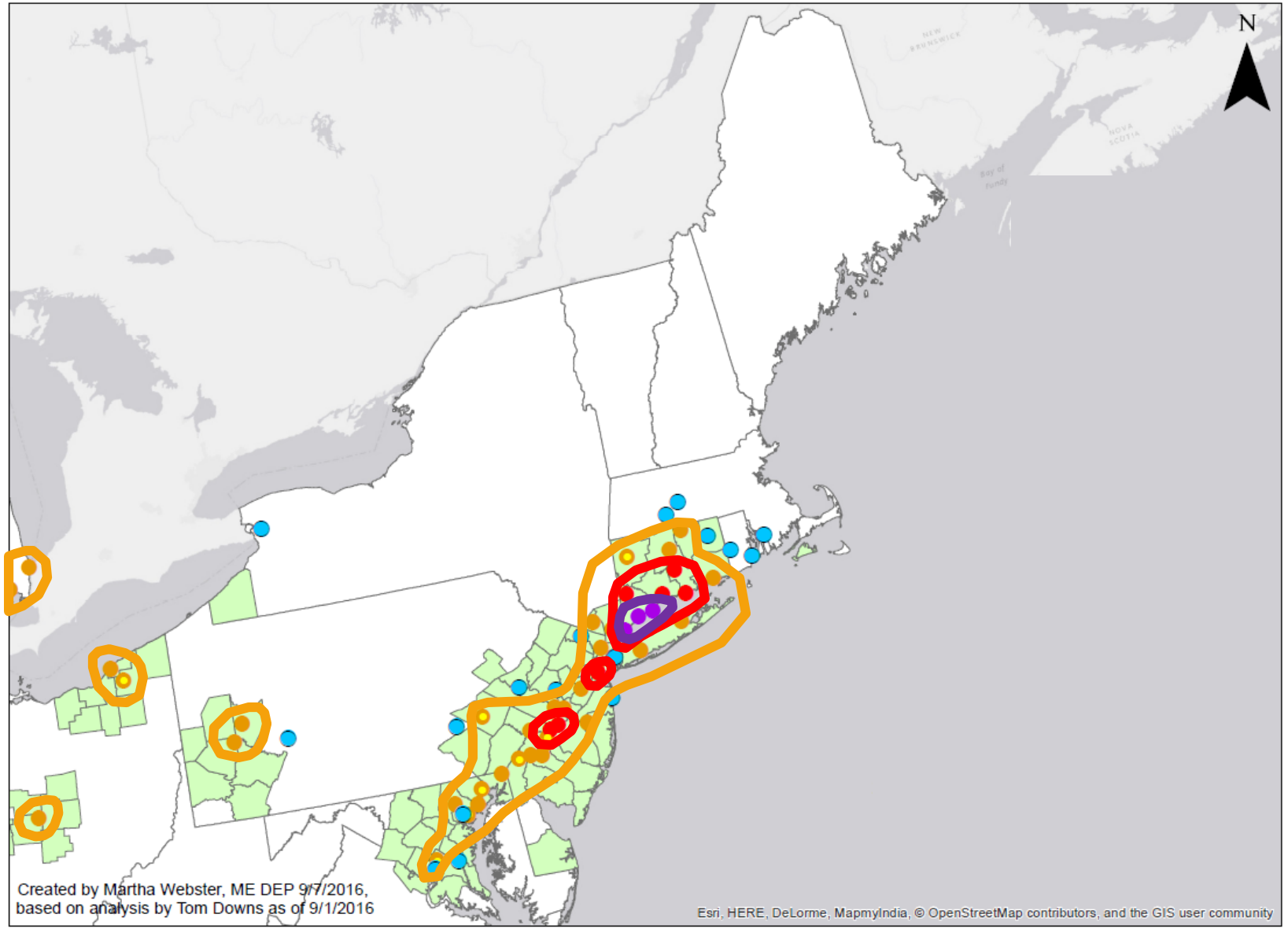
2016 4th High 8hr Ozone Value (Preliminary)



Legend

- 71-75 ppb
- 76-80 ppb
- >80 ppb

2014-16 8hr Ozone Preliminary Design Value



Legend

- 71-75 ppb
- 76-80 ppb
- >80 ppb
- New NA
- Potential NA
- 2008 NAAQS NAA

2017 Potential NA is when either:

- **2014-16 DV and 2017 Threshold are below 71ppb**

or

- **2013-15 DV > 70 ppb**

Ozone NAAQS Schedule

Ozone Planning Timeline

October 2015
Final 2015 NAAQS

December 2015
Effective Date for 2015 NAAQS

October 2016
Submit 2015 NAAQS Nonattainment Designation Recommendations (2013-15)

January 1, 2017
NYC/Greater CT 2008 Ozone Demonstration Due

October 2017
EPA Nonattainment Area Designations for 2015 NAAQS

October 2018
Infrastructure/Transport SIP for 2015 NAAQS Due

October 2020
2015 Ozone Nonattainment SIPs Due

Attainment by (October):

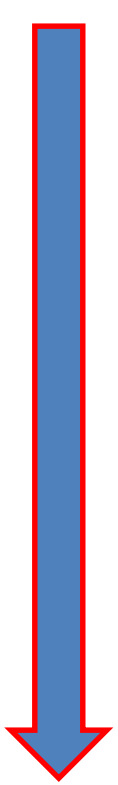
2020 - Marginal	**2023** - Moderate	**2026** - Serious

OTC 2011 Modeling Platform

2011 SIP Modeling Platform TSD

- Draft is Available and Covers both Ozone and Regional Haze
- Includes:
  - Evaluations
    - Meteorological Model (Ch. 2)
    - Biogenic Emission Model (Ch. 3)
  - Documentation of Emissions Processing (Chs. 4, 8)
  - Photochemical Model
    - Setup (Ch. 5)
    - 2011 Performance Evaluation for Ozone & Haze (Ch. 6)
  - Nested Gridding Work (Ch. 7)
  - RRF Calculations & Land-Water Interface Issues (Ch. 9)
  - Future Year Base Case Modeling Results (Ch. 10)
  - Episodic Modeling Protocol (Ch. 11)
- Comments Due 10/21 – email jjakuta@otcair.org

OTC/MARAMA Emission Inventories



Alpha

- 2011

Alpha 2

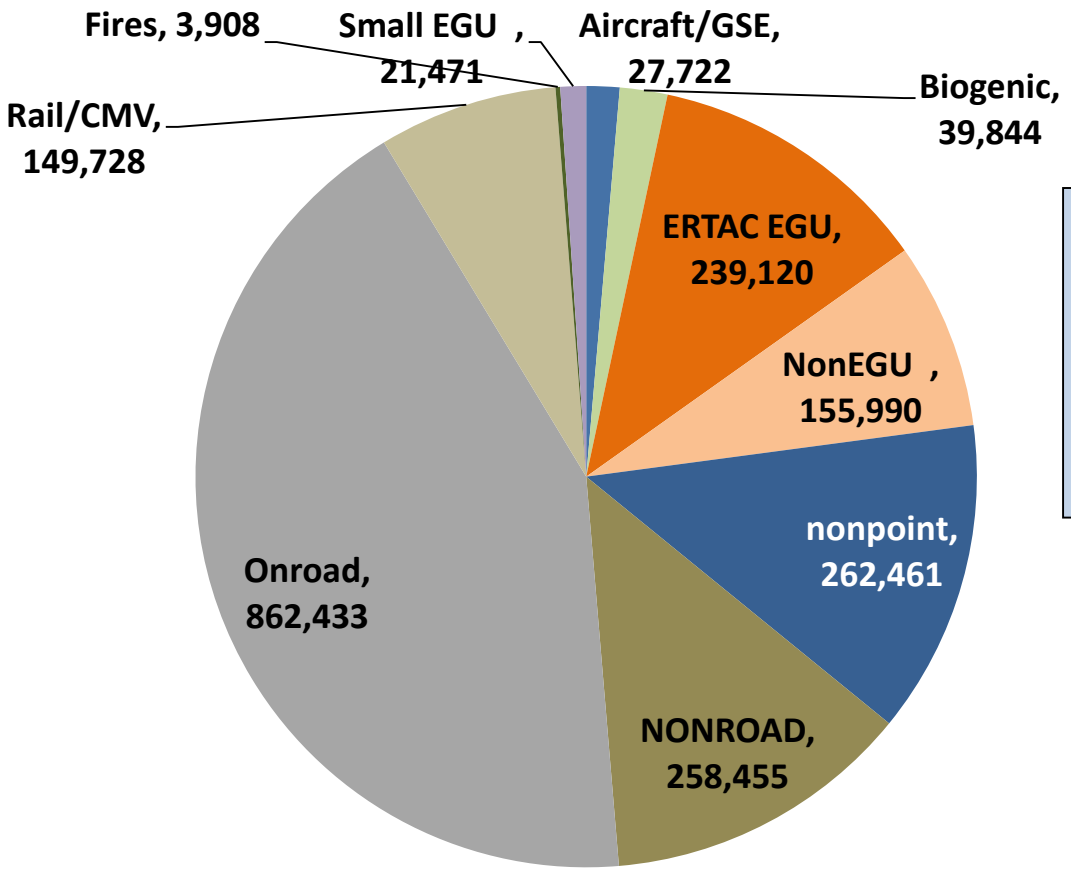
- 2011
- 2018
- 2028

Beta

- 2011
- 2017

- Beta Inventory Improvements are Complete
  - Project future year to **2017**
  - Upgrade to **ERTAC v2.5**
  - MOVES2014a Emission Factors
  - Small EGU Temporalization
  - Include new rules (e.g. residential wood NSPS)
  - State Adjustments/Updates
  - BEIS 3.6.1 (from BEIS 3.6)
  - Include state banked emissions
  - EMF Growth
- Review by States & Stakeholders Complete

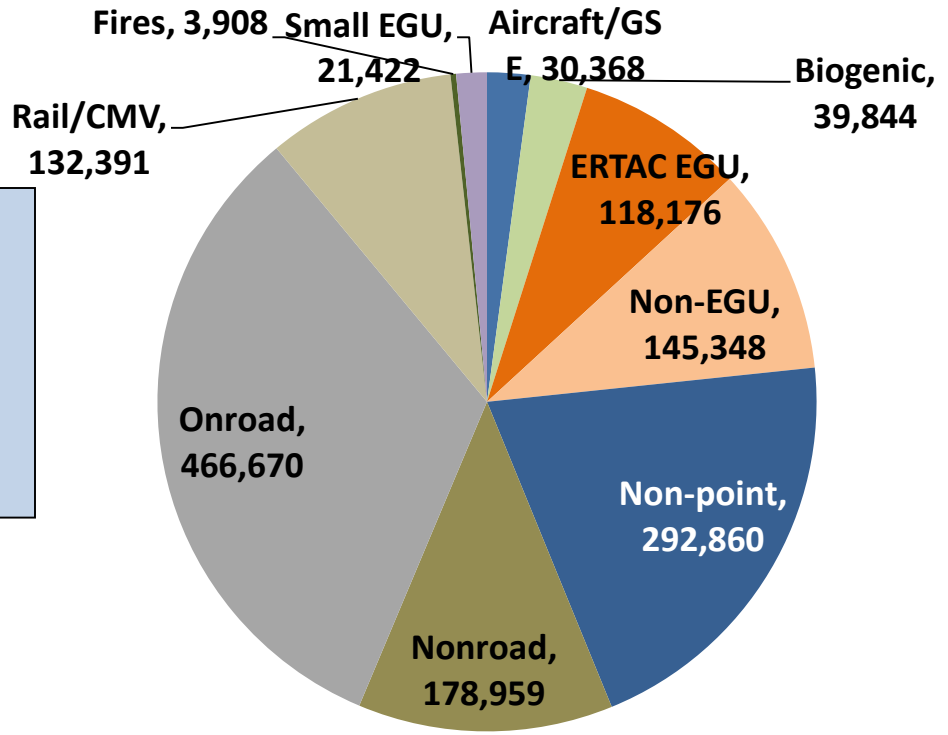
OTR+VA Annual NO_X Emissions Summary 2011 → 2017



~2,000,000 tons/year

2011

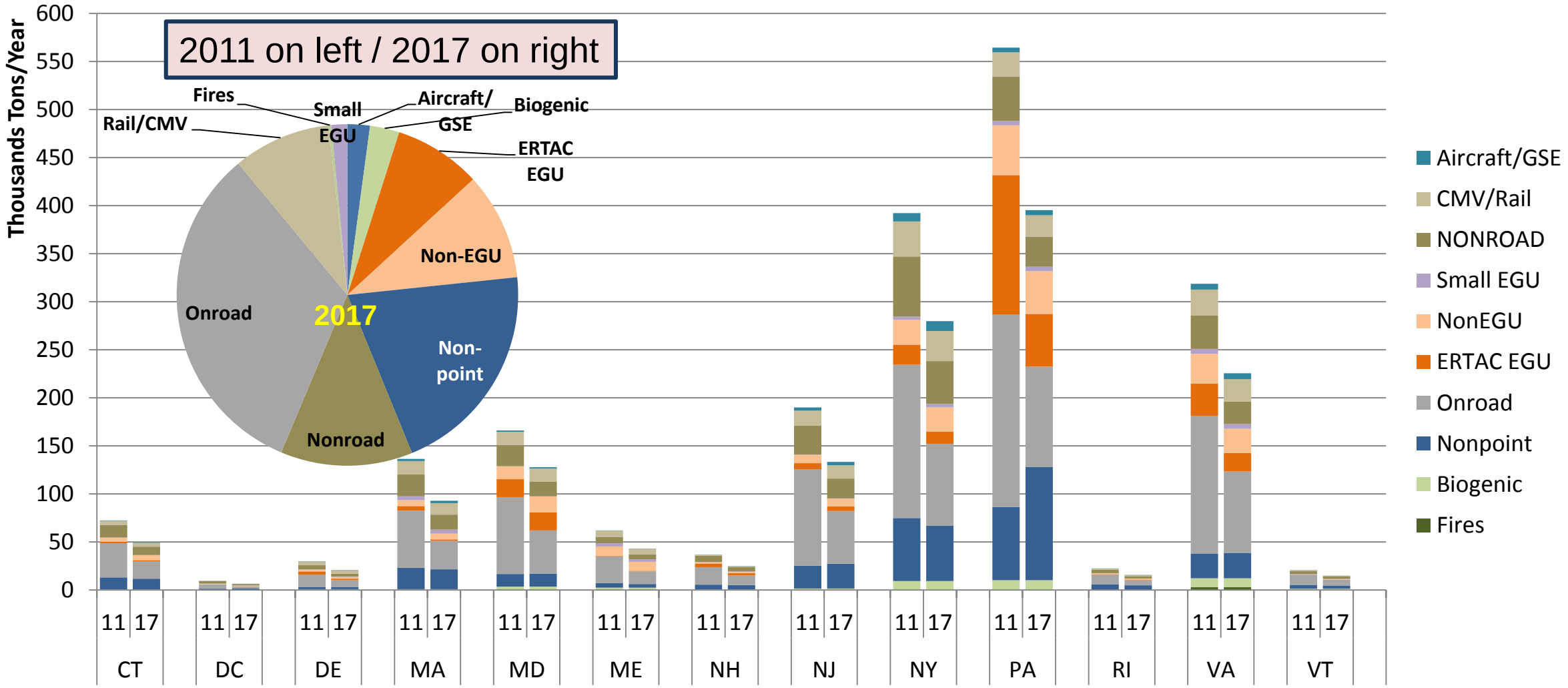
Overall NO_X reduction from 2011 → 2017 ~ 29%



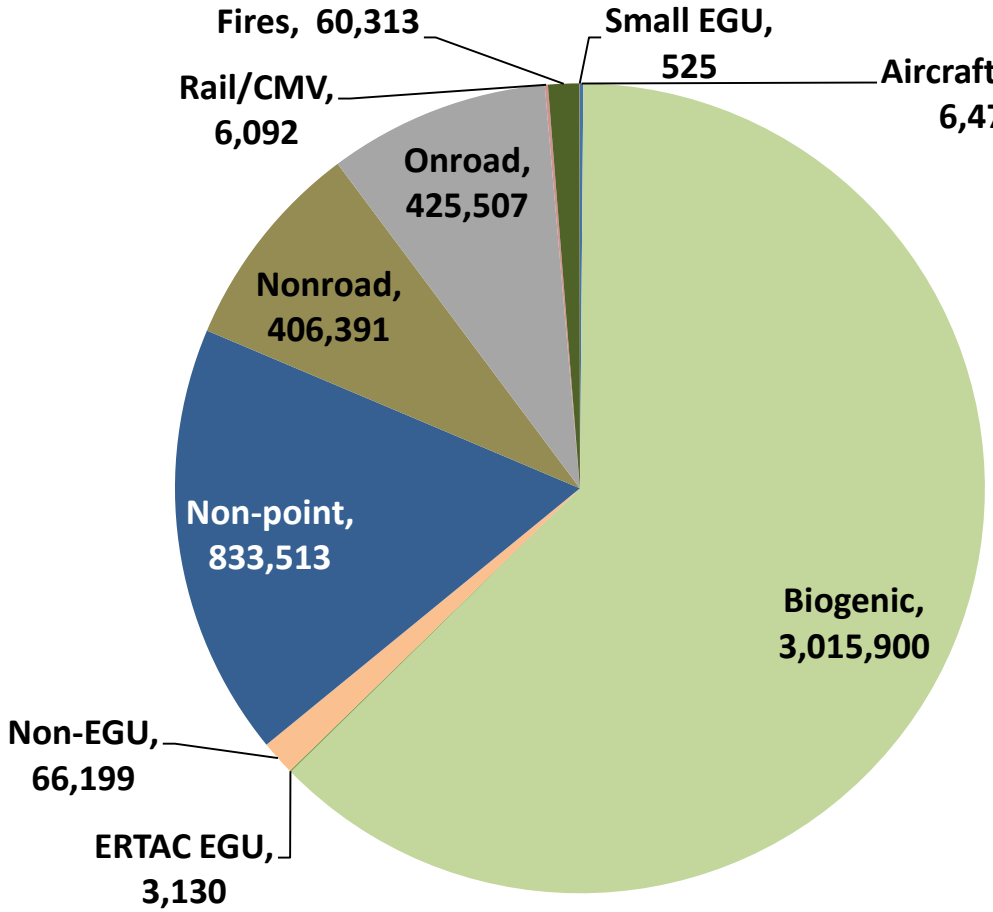
~1,400,000 tons/year

2017

Annual NO_X Emissions Summary 2011 → 2017



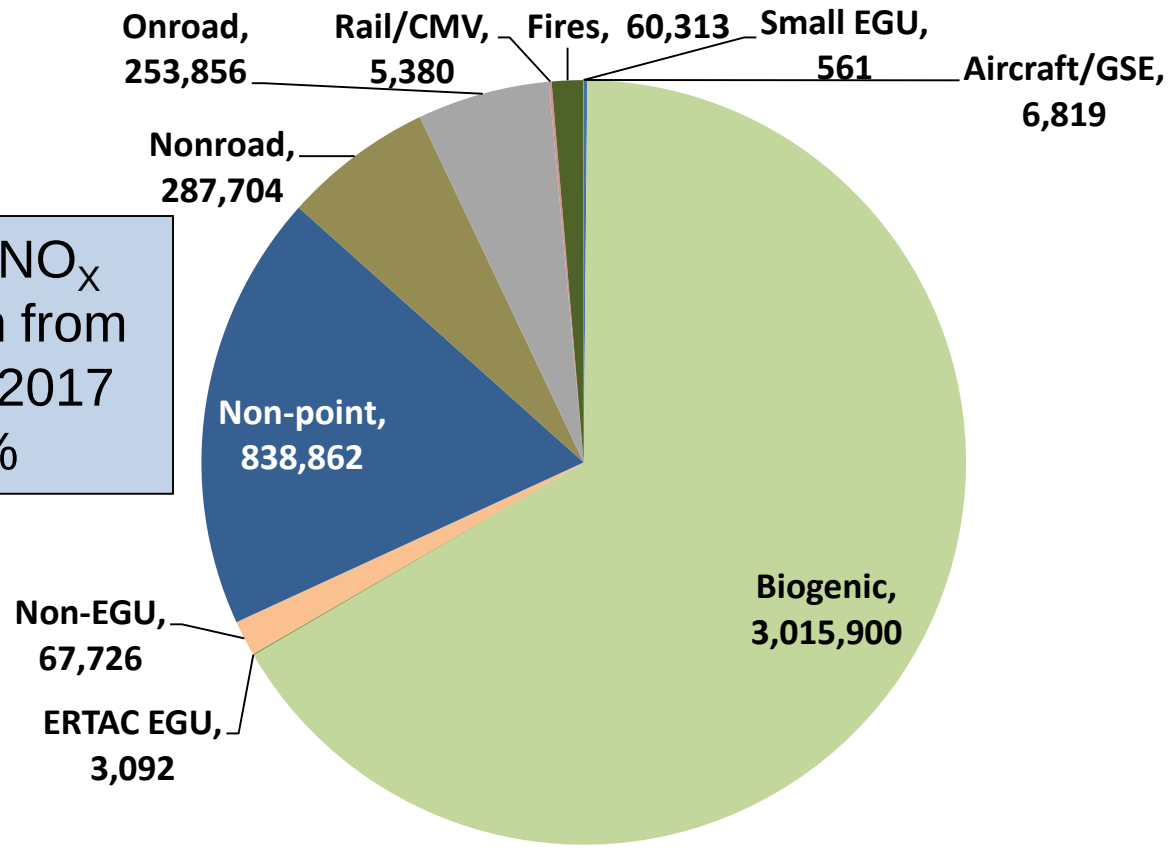
OTR+VA Annual VOC Emissions Summary 2011 → 2017



~4,800,000 tons/year

2011

Overall NO_X reduction from 2011 → 2017 ~ 6%

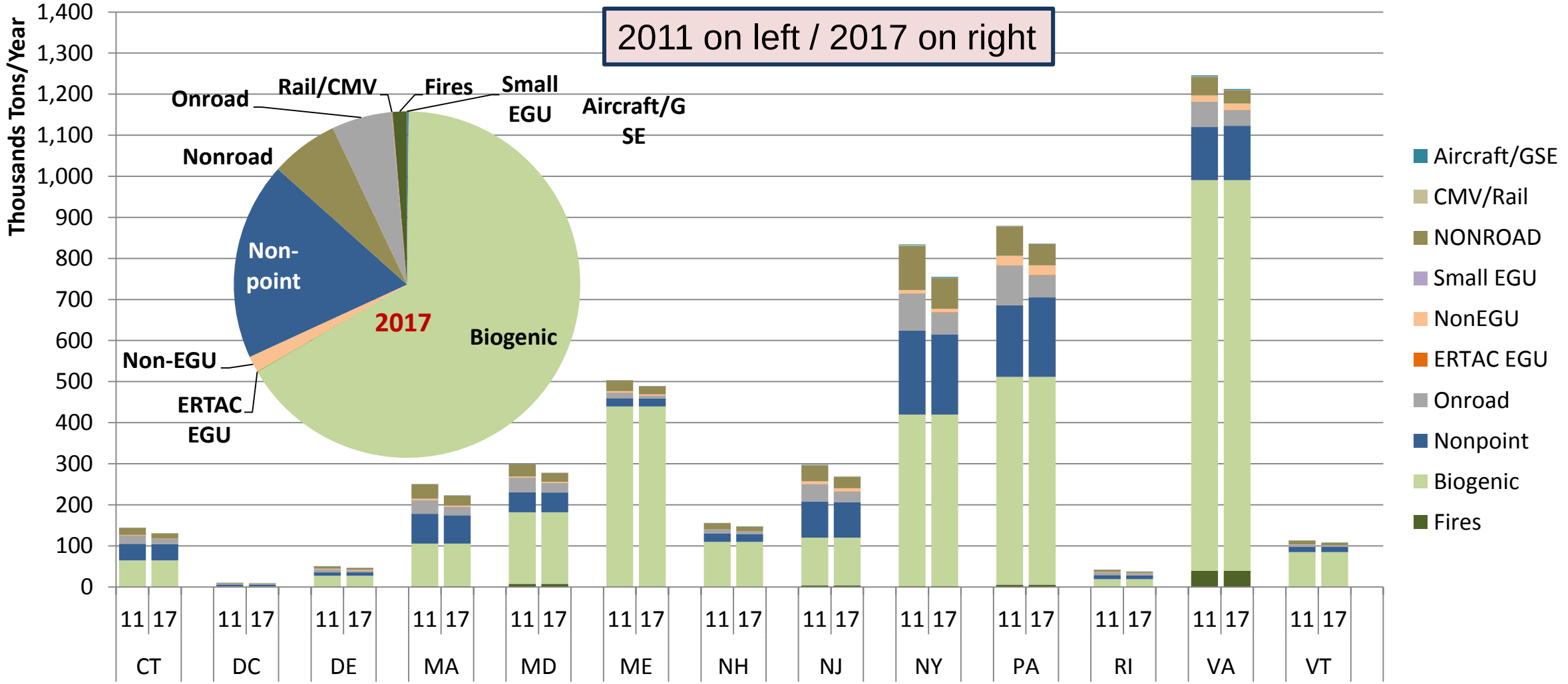


~4,500,000 tons/year

2017

MARAMA

Annual VOC Emissions Summary 2011 → 2017



Photochemical Modeling

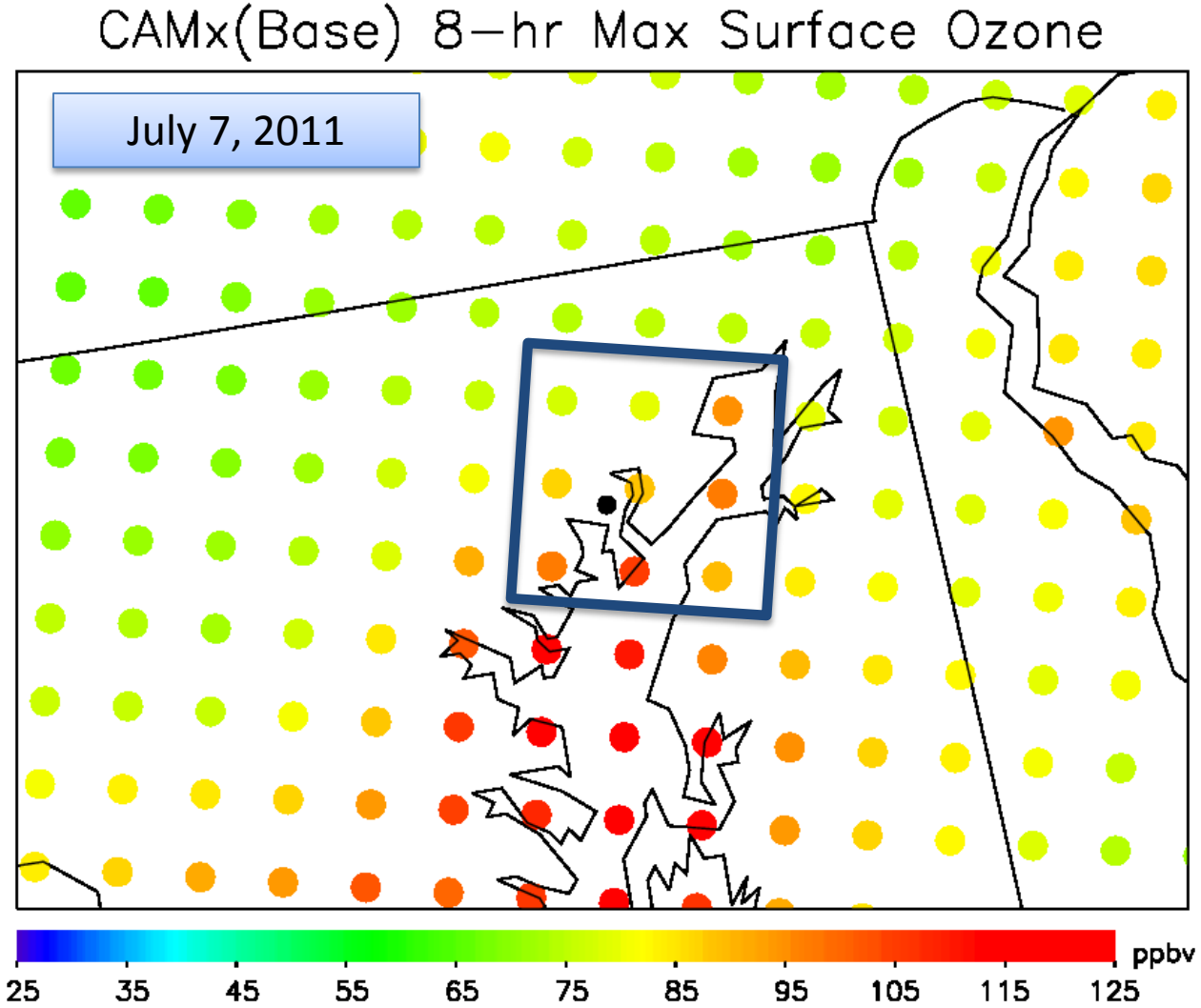
- 2011 Beta Emission Inventory Base Case – Complete
  - Model performance meets applicable guidance
- 2017 Beta Emission Inventory Base Case – Nearing Completion
  - Results should be available at upcoming meetings
- 2028 Alpha2 emission Inventory Base Case – Being prepared
  - Results may be available at MANE-VU Fall Meeting

- A 2020 and/or 2023 interpolated screening run is under consideration for 2015 ozone NAAQS sensitivity modeling

Land-Water Interface Monitors

- Modeled Results at Monitors near water:
  - Model performance indicates risk of substantial over-prediction
  - Monitors can become rigid to control – don't respond
- Following EPA Guidance, grid cells over water are included in calculations for coastal monitors
- Ozone tends to model higher over water so this can distort the results

Design Values at Water/Land Interface



Observed 8-hr Max:
87 ppb

2011 8-hr Max Modeled O_3

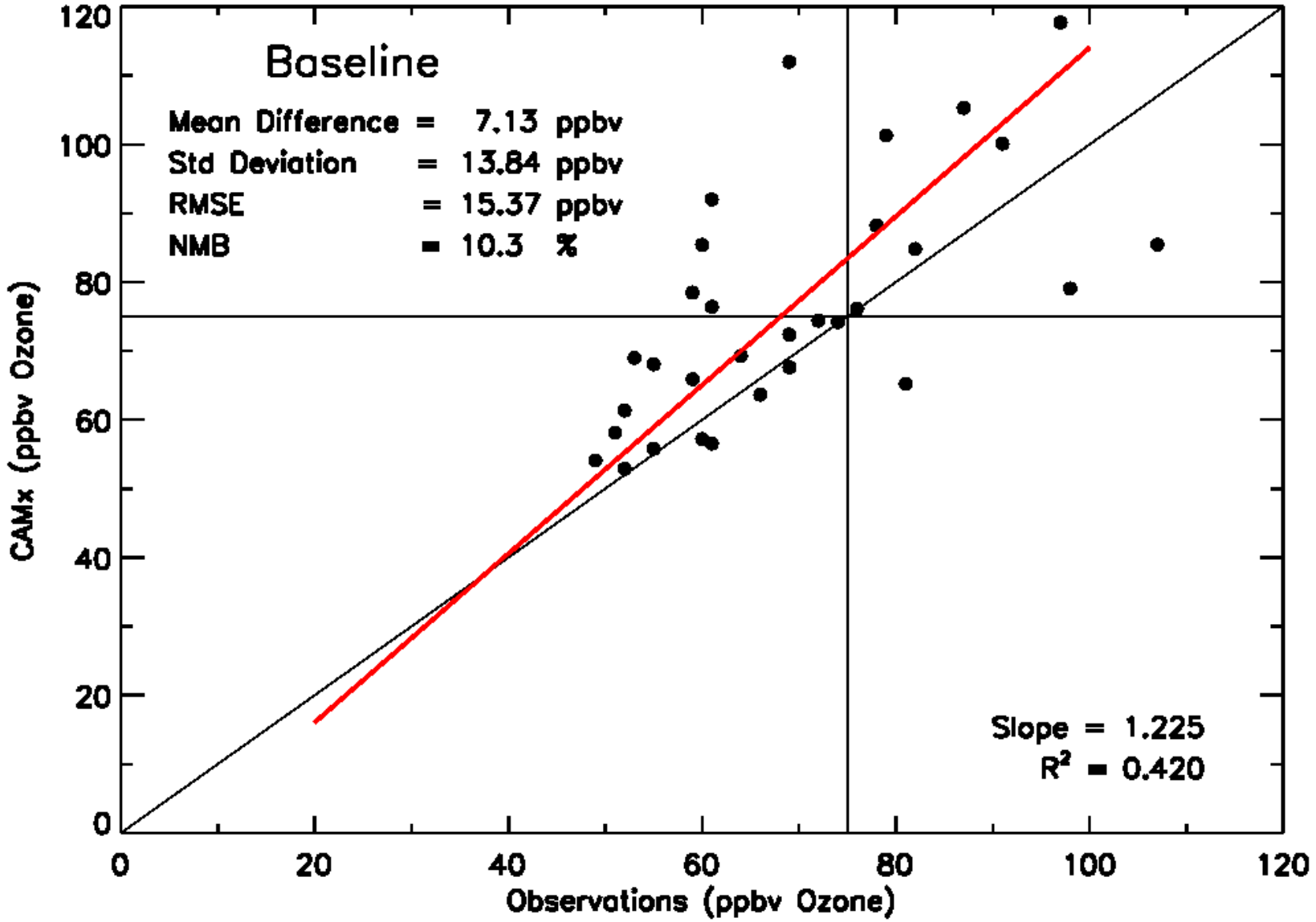
77.6	79.3	94.9
86.8	88.1	96.8
97.4	**105.3**	89.5

ATMOSPHERIC & OCEANIC SCIENCE

Maryland Department of the Environment

Scatterplot of Ozone at Edgewood

Using the Maximum in the 3x3 Model Box



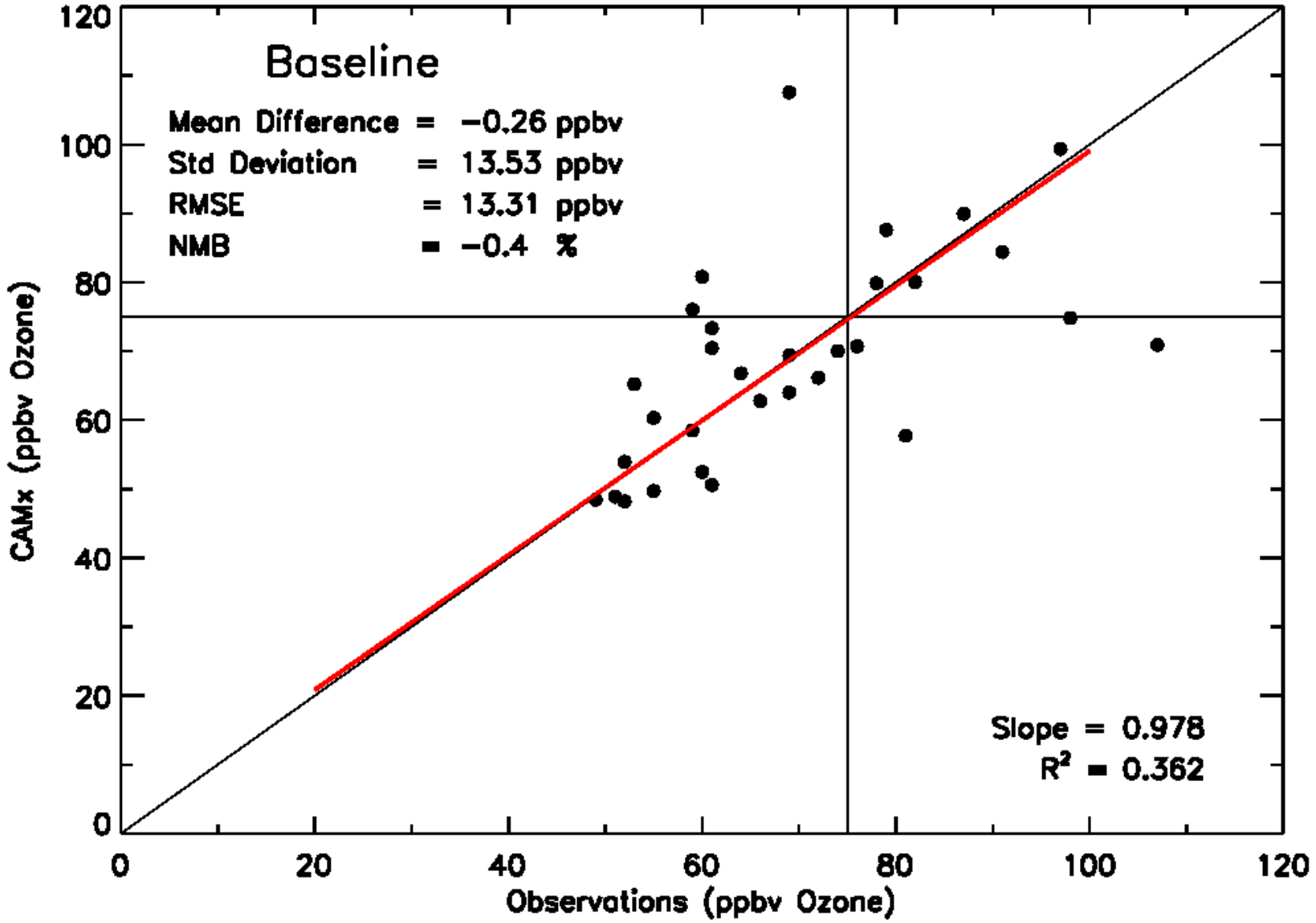
77.6	79.3	94.9
86.8	88.1	96.8
97.4	**105.3**	89.5

ATMOSPHERIC & OCEANIC SCIENCE

Maryland Department of the Environment

Scatterplot of Ozone at Edgewood

Using the Closest Model Grid Point ONLY



77.6	79.3	94.9
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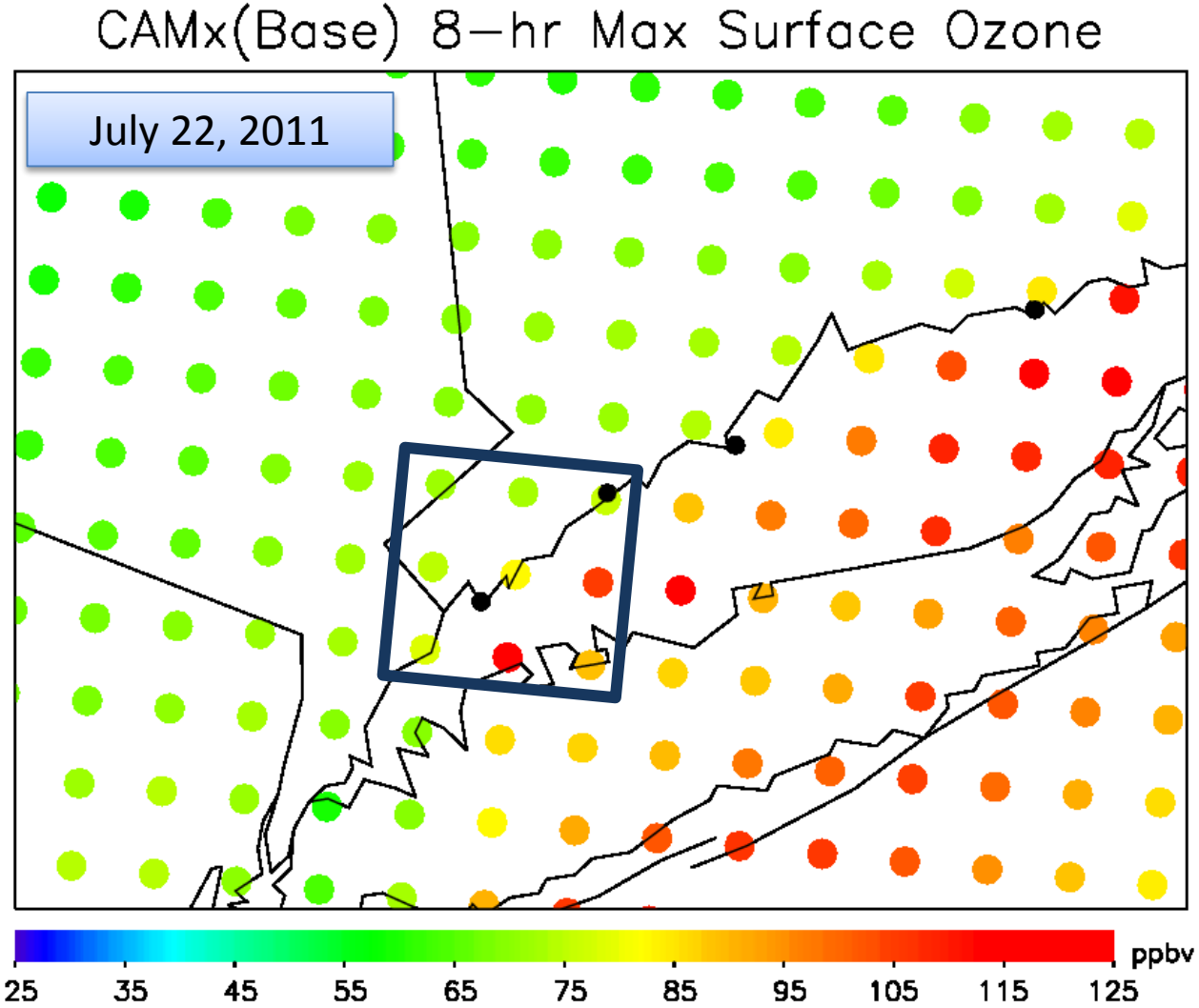
ATMOSPHERIC & OCEANIC SCIENCE

Maryland Department of the Environment

Design Values at Water/Land Interface

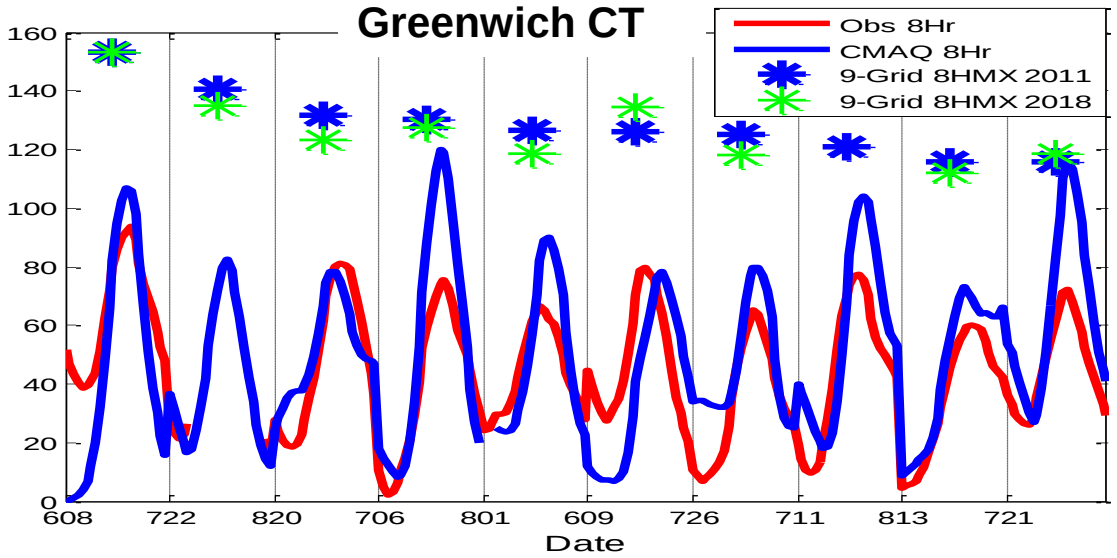


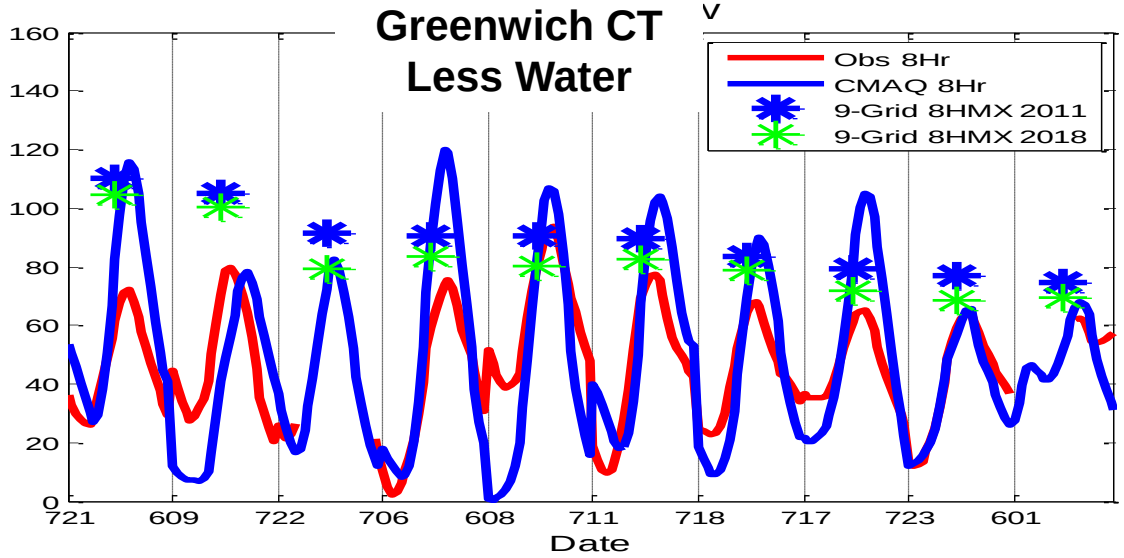
Same issues in Connecticut

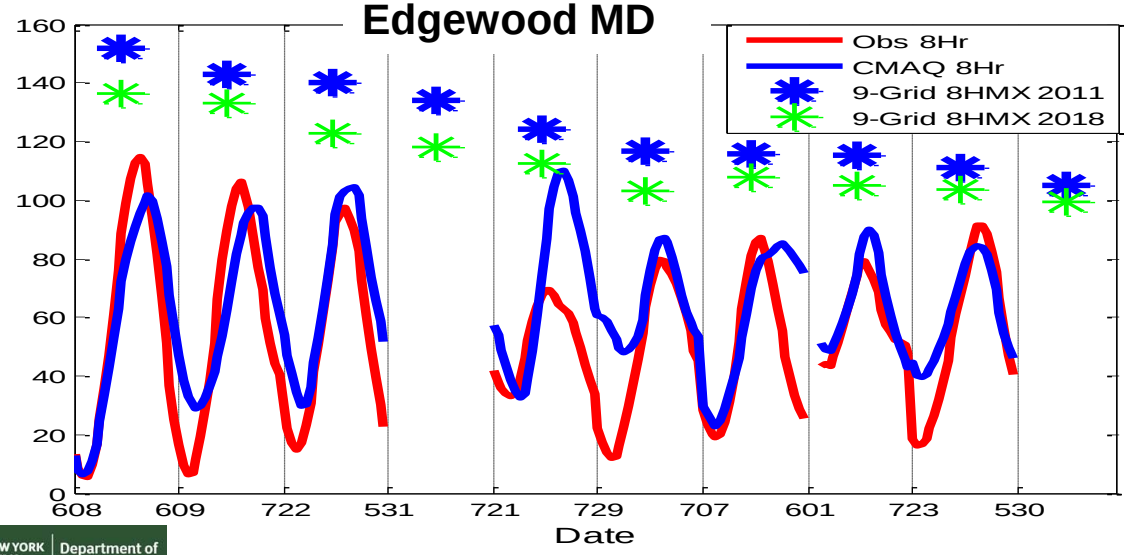
A Different Approach: Removing Values Over Water

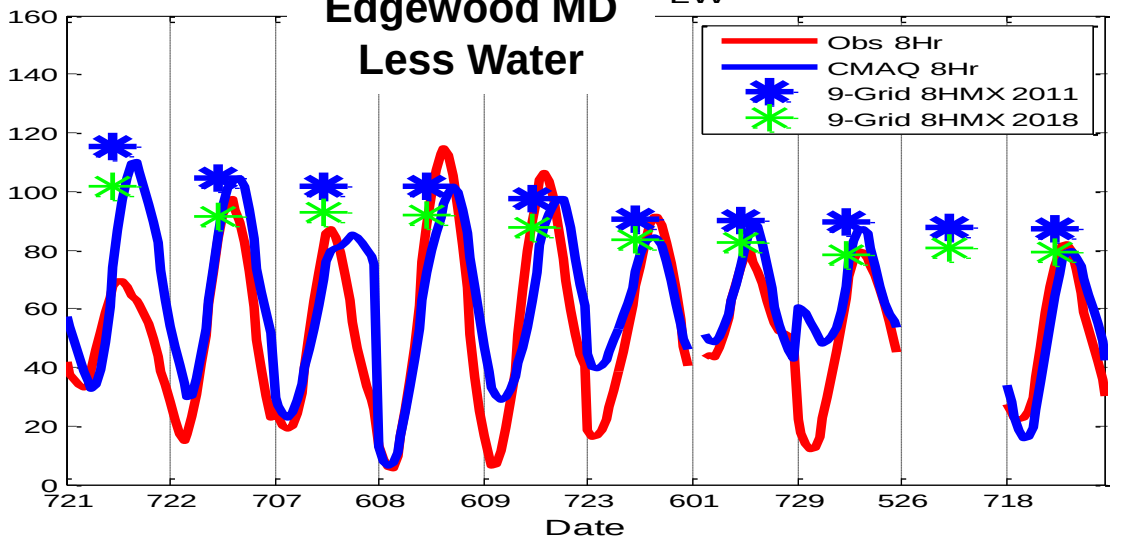
- CMAQ comes with a predefined grid cell mask for bodies of water
- Applying this mask, grid cells over water can be set to zero and thus do not influence design value calculation
- The same algorithm using the 3x3 grid cells can then be used to calculate values, while eliminating the overestimation due to water

A Different Approach: Removing Values Over Water

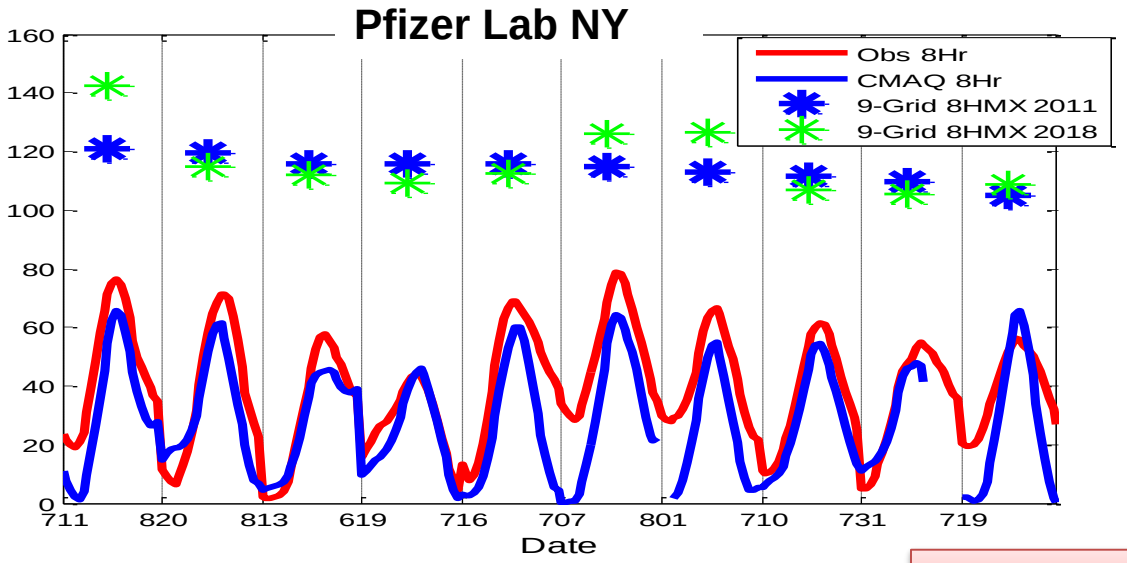


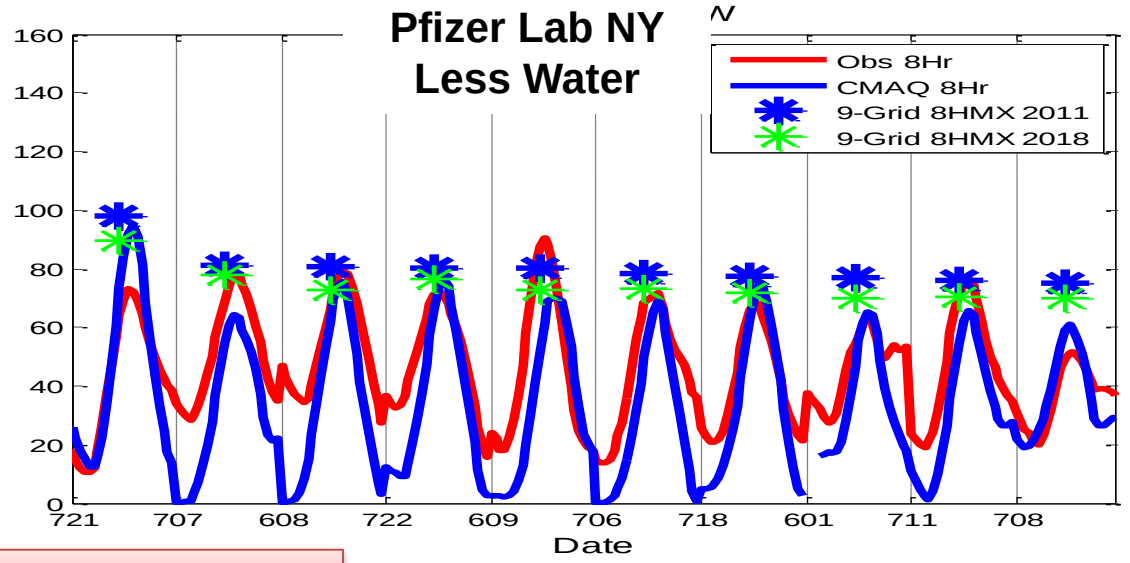




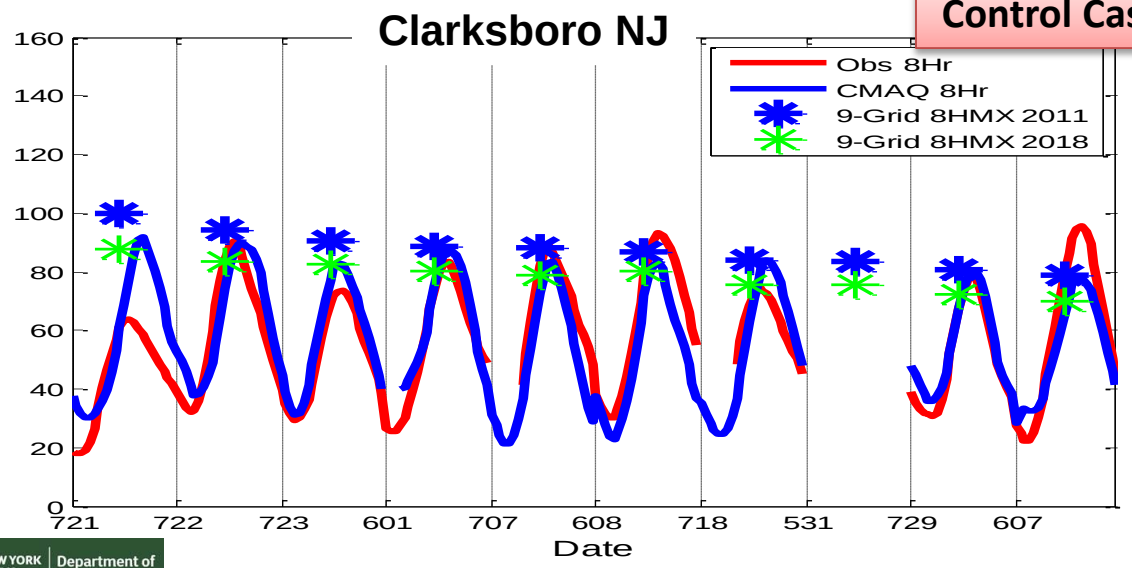


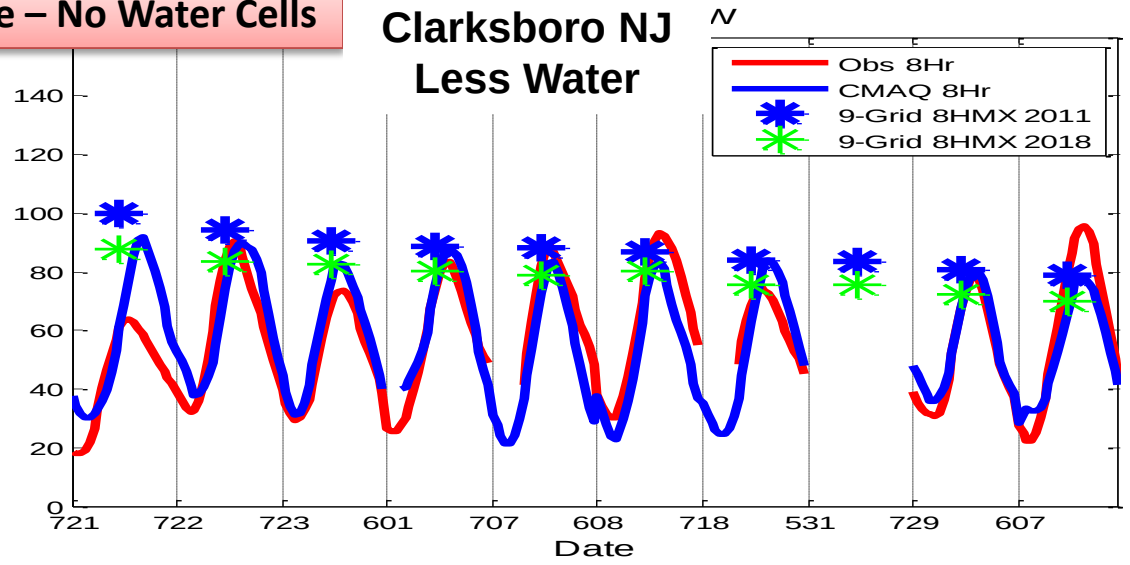
A Different Approach: Removing Values Over Water





Control Case – No Water Cells





Removing Values Over Water: Results at 10 Monitors

Monitor ID	State	2011 DVC	DVF 2018 (more water)	DVF 2018 (less water)
GREENWICH	CT	80.3	80	73
STRATFORD	CT	84.3	78	75
WESTPORT	CT	83.7	84	76
EDGEWOOD	MD	90	81	80
CLARKSBORO	NJ (control)	84.3	75	75
PFIZER LAB	NY	74	75	68
NYC-QUEENS	NY	78	78	73
NYC-SUSAN WAGNER HS	NY	81.3	77	73
BABYLON	NY	83.3	82	78
WHITE PLAINS	NY	75.3	78	68

Near Water Monitor Conclusions

- Location REALLY matters when near the coast!
  - Single 12 km grid cells may be more representative of shoreline locations than the 3x3 method suggested by EPA
- If we are to use the 3x3 method (recommended in EPA Guidance), it should be supplemented with Design Values calculated with a modified technique that consider topography
  - DVs can vary by >4 ppb between adjacent grid cells
- Removing water cells provides a sound alternative as well

Conclusions/Next Steps

- The 2016 ozone season has brought similar ozone exceedances as 2015 in the OTR
- The 2011 and 2017 MARAMA Beta emission inventories are complete and being modeled
- The 2017 MARAMA Beta NOx inventories are slightly lower that the 2018 MARAMA Alpha2 inventories
- Sensitivity modeling indicates that special care of relative reduction factor calculations needs to be taken for monitor locations near coastlines
- More modeling results coming this fall!

Questions

- Committee Chair:
  - Jeff Underhill (NH)
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- Modeling Lead:
  - Mike Ku (NY)
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- Emissions Inventory Lead:
  - Julie McDill (MARAMA)
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- OTC Committee Lead:
  - Joseph Jakuta
    jjakuta@otcair.org (202) 508-3839