



October 23, 2015

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The Ozone Transport Commission (OTC) appreciates the opportunity to comment on the United States Environmental Protection Agency's (USEPA) Notice of Data Availability (NODA) concerning transport modeling for the 2008 Ozone NAAQS from July 23, 2015 (EPA-HQ-OAR-2015-0500). The OTC was created under the Clean Air Act (CAA) to work with the USEPA and states in the Ozone Transport Region (OTR) to coordinate ground-level ozone pollution control planning in the Northeast and Mid-Atlantic region of the United States (42 U.S.C. § 7511c(a)). Member states of the OTC include Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia.

First and foremost ozone nonattainment persists throughout the Ozone Transport Region (OTR) with transport from upwind states being an important component of the unhealthy ozone levels. Reductions of ozone precursor emissions from upwind states are needed immediately to clean up the air in the OTR and finalization of the data needed to implement the federal transport backstop in an expedient fashion is of great importance.

The OTC offers comments on several technical matters included in the NODA including:

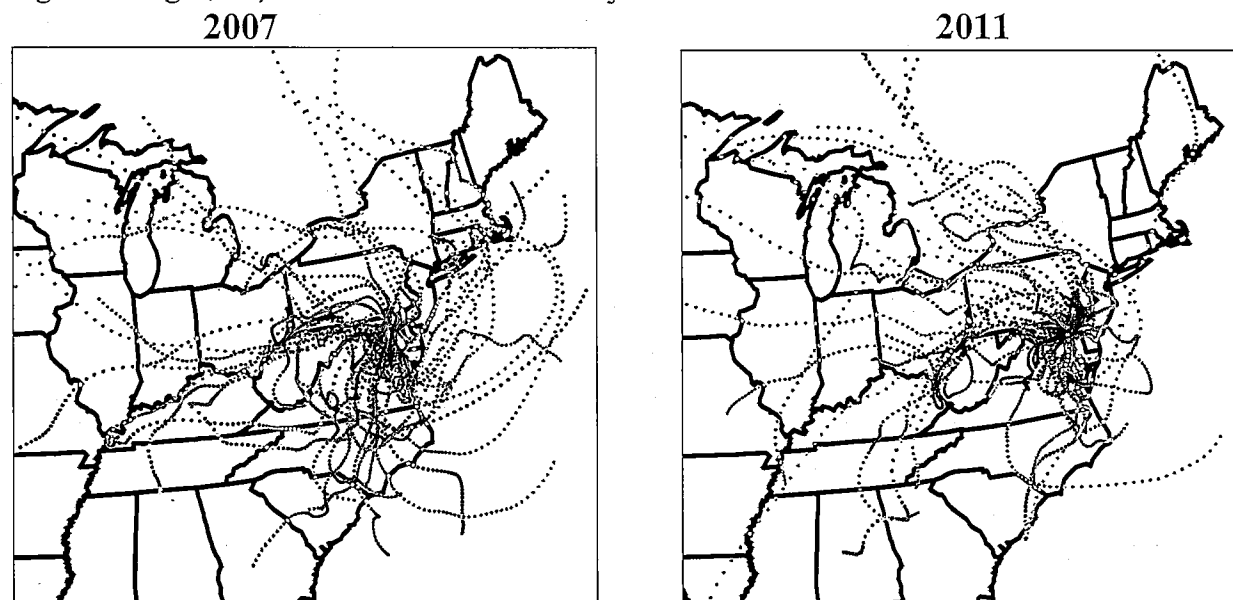
1. Exclusive reliance on 2011 meteorology
2. Need for consideration of shorter duration ozone contributions
3. Emission Inventory Future Year Projections
  - a. Use of Integrated Planning Model (IPM) for projection of power plant emissions
  - b. Canadian emission projections
  - c. Future year projection assumptions for other emission sectors

### 1. Reliance on 2011 Meteorology

EPA relies exclusively on 2011 meteorology for the modeling in the NODA. While OTC research has shown 2011 was conducive to ozone formation and in many ways is an appropriate choice, the impact the meteorology would have on the modeled transport could not have been known at that time. An analysis of the NODA has indicated some of the drawbacks to using 2011 meteorology, specifically some notable air flow differences with other high ozone years in our region. One specific concern is that the 2011 meteorology contains a weak southerly air flow as compared to other years modeled (2002, 2005, and 2007) and as a result produces some limitations and notable differences in state contribution modeling results. Historically, the southwesterly airflow pattern

carries ozone and its precursors northerly along the Atlantic coast and, when combined with westerly upper level transport, can lead to ozone exceedances in the OTR. When such airflows occur, states such as North Carolina become contributors to ozone nonattainment in our region. However, as Figure 1 shows, the southerly transport pattern was considerably weaker in 2011 compared to 2007. This change was likely a contributing factor in explaining why states to the south were previously modeled as significant contributors to the OTC and then not in the most recent modeling. OTC requests that EPA better consider southerly transport flows into the Northeast in future analyses.

Figure 1: Edgewood, MD Ozone Season Back-Trajectories



Edgewood ozone levels: Red >75ppb Yellow 71-75 ppb Gray 66-70ppb  
 100m Starting Altitude – 72 hour back trajectories when ozone > 65ppb

## 2. Shorter Contribution Time Period

Scientific literature shows that short term exposures to ozone can be problematic to human health and as a result EPA has determined that the most appropriate way to show that an area is in nonattainment of the health-based standard represented by a 4<sup>th</sup> highest 8-hour average ozone value. However, in the modeling conducted by EPA to show contribution to ozone nonattainment through the good neighbor process, EPA derives 8-hour attainment assessment from a cumulative ozone season average contribution calculation. OTC state research has shown that a variety of different upwind states contribute significantly (ozone over 1% of the NAAQS) during peak, high ozone periods of 8-hours as the transport patterns shift during the day, each high ozone period demonstrating that states are a potent upwind contribution during high ozone periods. However, these peak hour impacts on ozone nonattainment downwind are not seen because a seasonal average calculation is applied that mathematically diminishes the role of these upwind states whose emissions dominate these peak 8-hour periods, and thus fails to consider them for a remedy. In the Northeast, significant ozone contributions can come from many upwind locations and a simple seasonal average may overly simplify the situation and signal only a portion of a full ozone transport solution.

In future modeling, EPA needs to better consider how individual 8-hour events build and whether an annual average reflects enough upwind contribution to ensure a remedy will be effective over many years of meteorology. Additionally, looking at these shorter time frames could alleviate some of the problems created by relying on only one base year for projections since contributions that may only occur during a

few days from a less active airflow regime will become recognizable when looking at short time frame contribution.

### **3. Emission Inventory Projections**

OTC provides the following over-arching comments on regarding emission inventory projection process. Member states may provide additional inventory specific comments or requested corrections.

#### **a. Integrated Planning Model (IPM Projections)**

EPA has applied a 2018 IPM model run in a rollback calculation for the year 2017, which is in the very near term future. This IPM modeling is predicting a good number of fuel switches, new units, capacity expansion, controls, and retirements that would occur in both 2016 and 2018 however there is little to no supporting permit applications or proposals indicating that this will actually occur in such a short period. While applying a rollback of emissions is an accepted estimation technique, few of the changes predicted to occur in 2016 by IPM can reasonably be expected to occur if these changes are not already underway. EPA needs to override unrealistic IPM predicted fleet changes that for 2016 that are not already underway for EPA's final photochemical modeling. An additional issue is that IPM assumes installed emission controls will operate and optimally throughout the ozone season, an assumption that is proving to be invalid and needs to be better addressed in EPA modeling.

#### **b. Projections of Canadian Emissions**

Future projections are relying on Canadian emissions that assume no change from the base year. A good number of coal plants in particular have retired in Canada and emissions reductions from the mobile sector are expected to decrease similarly to our northeast state emission inventories. Since EPA modeling indicates Canadian emissions are a significant contributor to ozone nonattainment in the Northeast in 2017, OTC suggests applying appropriate future year adjustment estimates for Canada.

#### **c. Use of Projections to Determine Contributions**

Making an attainment/nonattainment determination and the need for additional remedy based on future year emission projections is problematic. The state and EPA process that leads to attainment and nonattainment designations relies on actual conditions and monitored results, and state to state contributions should apply the same real information. By making a contribution analysis based on projected conditions, EPA has already assumed remedies that may or may not occur. Firstly, the projected 2017 emission estimates rely on numerous unenforceable emissions reductions, projected from IPM and in other emission sectors. This assumes all unenforceable emission reductions will occur on time and only the remedy from the resulting assessment will be needed. This is unrealistic and optimistic. Recent EPA Clean Air Market Division (CAMD) data demonstrates how EGU emissions can be projected to be far better controlled than actually occurs because those emission reductions are not required. Secondly, meeting ozone attainment depends on a monitoring demonstration and a modeling study is applied to demonstrate that plans are on the right track to meet attainment requirements. Stretching the application of future year modeling to determine what areas may or may not achieve attainment status, and then to develop a remedy plan for only those areas is highly and inherently problematic. These projections assume knowledge of how the economy and energy-based market forces will absolutely affect emissions, as well as predicting how weather patterns will look in the future. Missed assumptions or calculations, including the unknowable of what will happen with unenforceable emissions, can translate to remedy failures. Future year projections should not build the basis for the state contribution used for interstate transport remedy. This should be done with then known emissions of a base year. Applying already identified future year enforceable emission reductions is an acceptable part

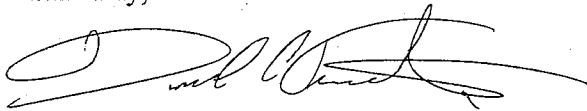
of the remedy. If a state's contribution will be met with controls projected by IPM, then that remedy needs to be adopted and placed in the state SIP.

### Summary

Given the significant delays that have already occurred in finalizing state and federal plans to address ozone transport under the 2008 ozone NAAQS and the reliance on contributions analysis, we urge EPA to move expeditiously to complete the work that is the subject of these comments, and the proposed federal backstop anticipated for the 2008 ozone NAAQS by the end of 2015. Moving expeditiously, EPA needs to rely on appropriate existing year data in any future assessment and modeling efforts to show states' contribution to nonattainment in downwind area. The contributions need to consider shortened time frames of emissions and meteorology that impact transport and look more comprehensively at several potential meteorological regimes. In the case that EPA does continue to keep the data used to determine nonattainment status and contribution status separate, power plant projections need to be confirmed to be reasonable and feasible and more conservative growth projections are needed particularly given the short timeframe leading to 2017.

The OTC appreciates the opportunity to submit these comments and welcomes further discussion on this matter. Please contact the undersigned at (202) 508-3840 with questions.

Sincerely,



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cc: OTC Commissioners