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Ozone Transport Commission
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Subject: Clean Air Act (CAA) Section 184(c) petition submitted by Maryland on May 30, 2019.

Introduction

Olympus Power, LLC (Olympus) is writing to identify certain flaws contained in Maryland's petition to the Ozone Transport Commission (OTC) under Section 184(c) of Clean Air Act (CAA) which asks the OTC to develop and transmit to the Administrator of the U.S. Environmental Protection Agency (EPA), recommendations for additional control measures to be applied to certain coal and coal-refuse fired electric generating units (EGUs) located in Pennsylvania. Maryland claims to have established that areas within the OTC, specifically Pennsylvania, require additional control measures at specific sources to enable all areas within the Ozone Transport Region (OTR) to achieve attainment of the 2008 and 2015 ozone National Ambient Air Quality Standards. Maryland also claims that the current Pennsylvania Reasonably Achievable Control Technology 2 regulation (PA RACT 2) and the Cross State Air Pollution Rule Update (CSAPR Update) are inadequate to control nitrogen oxides (NOx) emissions from these EGUs.

Olympus is a member of the Midwest Ozone Group (MOG) and has participated

in the preparation of various analyses and MOG comments that demonstrate that Maryland's petition is flawed and must be denied. Following is a summary of the reasons why the Maryland petition should be denied:

- While Maryland proposes that additional control measures be mandated for the sources it has named, the Maryland petition does not offer even a single sentence assessing whether such measures are necessary to bring Maryland and the New York Nonattainment Area (NYNA) into attainment by the dates mandated in the CAA.
- Maryland's modeling assumptions compromise the validity of key findings in their sensitivity results as related to Pennsylvania EGU contribution at OTC receptors.
 - University of Maryland, College Park's (UMD) 2023 EGU base case assumes no PA EGU has any control associated with the promulgated CSAPR Close-Out rule and uses mass percentage adjustments to simulate compliance with CSAPR in other states.
 - UMD's 2023 base case assumes a 50% NO_x reduction in mobile sources associated with their Science Framework.
 - UMD fails to demonstrate that differences in maximum 8hr average ozone (MDA8) calculated for any receptor occur on days when the model predicts exceedances of the 2008 or 2015 ozone NAAQS.
- 2023 is the appropriate year for assessing whether additional control measures are necessary to bring the areas involved into attainment.
- State-of-the-science 12km air quality modeling performed by both EPA and MOG demonstrates that in 2023 all monitors located in Maryland, the NYNA and the remainder of the OTR will show attainment with the 2008 (75 ppb) ozone NAAQS.

- State-of-the-science 4km air quality modeling performed by MOG demonstrates that in 2023 all monitors located in Maryland, the NYNA, and in the remainder of the OTR, will be in attainment with the 2015 (70 ppb) ozone NAAQS.
- Application of EPA's alternative maintenance monitor methodology demonstrates there will not be any maintenance monitors located in Maryland and the NYNA in 2023.
- Because there will be no nonattainment or maintenance monitors located in Maryland or the NYNA in 2023 with respect to either the 2008 or 2015 ozone NAAQS, the Maryland 184(c) petition must be rejected by the OTC.
- If Maryland or any other states in the OTR believes there are remaining ozone air quality concerns related to Maryland and the NYNA those concerns must first be addressed with controls on local sources rather other than those sources named in the petition.
- EPA's analysis confirms that any current remaining ozone problems in Maryland and the NYNA are more related to local sources than to sources in upwind states.
- The issues being raised by the Maryland 184(c) petition have already been considered and rejected by EPA in other proceedings.
- Maryland's request to have emission control limits set on a daily basis has been previously considered and rejected by EPA and should also be rejected here.
- Maryland's petition erroneously assumes that NO_x emission controls in Pennsylvania are not being "optimized."
- Consideration of Exceptional Events that occurred in 2016 would result in

all New York monitors measuring attainment of the 2008 Ozone NAAQS. Failure by New York to invoke EPA's exceptional events rule or otherwise to exclude certain Canadian wildfire events from 2016 ambient monitoring data reveals a fatal flaw in its analysis and requires denial of the Maryland 184(c) petition.

- International emissions must be addressed as an integral part of the consideration of this petition. Failure by Maryland and New York to invoke CAA §179B to account for international emissions provides an additional basis for denial of the Maryland 184(c) petition.
- Maryland's failure to provide any data addressing the cost effectiveness of the controls that it has proposed provides an additional basis for denial of the petition.

These issues demonstrate the failures of the Maryland petition and are the bases for denial of the petition. All of these identified issues are comprehensively described in the MOG comments to this action by Maryland. Olympus fully supports the comments of MOG to the Maryland petition but will provide additional details regarding some of the facilities identified in petition including those in which Olympus has ownership or partnership interests.

Background

Olympus is a power plant investment and management firm with assets located throughout the United States. Olympus has been the owner and/or asset manager of projects with interests in 47 power plants across the U.S. with over \$3.5 billion in

asset value and the responsibility for operating projects with a gross capacity in excess of 5,200 megawatts (MW) of electricity generation. Over time, these assets have included coal refuse reclamation to energy, natural gas-fired, coal-fired, biomass-fired, hydroelectric, solar, and wind-powered electric generating facilities. Olympus has ownership or partnership interests in the following facilities which are identified in Maryland's petition to the OTC, Keystone Generating Station; Conemaugh Generating Station; Panther Creek Energy Facility; and, Scrubgrass Generating L.P.

Additional Comments

Comment – Maryland has failed to recognize announced deactivations and fuel switching that will occur prior to the 2023 date to meet both the 2008 and 205 ozone NAAQS.

Maryland has failed to recognize that 1711 megawatts (MW) of installed coal and coal refuse-fired electric generating capacity in Pennsylvania have already been deactivated prior to the ozone season in 2019 and additional units with installed capacity of 2,520.4 MW will be deactivated or fully fuel switched prior to the ozone season in 2023. This includes the following facilities:

Unit ID	Deactivation Date	Fuel Switch Date	Capacity (MW)
Bruce Mansfield 1	2/5/2019		830
Bruce Mansfield 2	2/5/2019		830
Bruce Mansfield 3	11/7/19		830
Brunner Island 1		OS only 5/1/2023	334

Brunner Island 2		OS only 5/1/2023	390
Brunner Island 3		OS only 5/1/2023	759
Cambria Cogen 1	9/17/2019		44
Cambria Cogen 2	9/17/2019		44
Colver AAB01	9/1/2020		110
Kimberly Clark 035	9/24/2019		9.4
NEPCO 031	10/24/2018		51
Total			4,231.4

These and all other announced deactivations in the PJM territory can be found at:

<https://www.pjm.com/planning/services-requests/gen-deactivations.aspx>

Importantly, all of the emissions from the deactivated units will now be reduced to zero and the emissions from Brunner Island will be reduced to an emissions rate less than 0.10 lbs NO₂/MMBtu which is the PA RACT 2 limit for natural gas. For the deactivated units only, these represent annual ozone season NO_x reductions of 1,628.8 tons from 2017 emissions and 1,368.9 tons from 2018 emissions. For context the total Pennsylvania ozone season NO_x emissions were 14,282.3 tons in 2017 and 13,565.9 tons in 2018. The emissions reductions from deactivated units alone represent 11.4% reduction from 2017 ozone season NO_x emissions and 10.1% reduction from 2018 ozone season NO_x emissions. Additional reductions will be realized in ozone season 2023 from the ozone season only full conversion to natural gas by Brunner Island. A history of Pennsylvania emissions reduction in annual sulfur dioxide (SO₂) and carbon dioxide (CO₂), as well as annual, ozone season and non-ozone season NO_x emissions is

included as **Attachment 1**.

Rather than the emissions associated from each unit, Pennsylvania's emissions are modeled using the entire NOx inventory for the Commonwealth. Consequently, the deactivations eliminate all of the ozone season NOx emissions in the inventory from these units as well as their daily NOx emissions. In the case of Brunner Island, beginning in ozone season 2023, it will be using only natural gas for operations during the ozone season with a complete year-round fuel switch beginning January 1, 2029. Beginning in the 2023 ozone season Brunner Island daily NOx emissions will be reduced by as much as 20 tons per day by firing natural gas as opposed to coal. That reduction plus the up to 25 tons per day NOx reduction from the Bruce Mansfield 1,2 and 3 deactivations are almost equal to the 47 tons per day of "excess emissions" that Maryland has represented through their vision of an "optimized" NOx strategy. Included with this submission as **Attachment 2 through 13** are the 2017 and 2018 ozone season NOx emissions, including the daily average NOx tons, the total ozone season NOx tons and the single highest tons per day of NOx emissions for the previously identified units that have been or will be deactivated or fuel switched prior to the ozone season 2023.

Consequently, while the Maryland petition contains the many flaws already identified in these comments, and explained in detail in the MOG comments that require the denial of Maryland's petition, it is obvious that Pennsylvania's EGU NOx emissions will be significantly reduced due to previous and imminent deactivations of coal and coal refuse-fired units and fuel switching from coal to natural gas. The failure to consider these Pennsylvania EGU deactivations and fuel switching, and their effect on total and daily NOx mass emissions, demonstrates that even though the Section 184(c) petition effort by Maryland must be denied by the OTC due to and technical and legal

flaws, considerable further daily and ozone season NOx emissions reductions from Pennsylvania will be occurring regardless of the denial of the petition, further underscoring its inherent deficiency.

Comment – Maryland’s representation that Pennsylvania EGUs are not injecting ammonia or adequately controlling their emissions during high electric demand days (HEDD) periods which are conducive to ozone formation is a completely inaccurate representation. The design of PA RACT 2 includes an inherent HEDD component that requires ammonia injection during high load/high SCR inlet temperatures operations associated with HEDD periods while the CSAPR Update budget and assurance level limit the number of allowances that can be used during any ozone season which necessitates available controls to be in service during HEDD periods.

Maryland has focused on emission rates as the basis for its claim of inadequate controls. However, Maryland has failed to assess the actual mass emissions that are occurring by unit and they have also failed to account for the reduced mass emissions of NOx when one or more of the units are offline during an episode. Clearly the reliance upon the emissions rates to make some estimation of “excess” emissions is a false analysis that provides an erroneous assessment. An excellent example of that situation is represented by Conemaugh Unit 1 and 2 emissions which occurred on August 15 and 16, 2017. On August 15, 2017 Unit 1 had a NOx emission rate of 0.209 lbs. NO2/MMBtu with mass emissions of only 0.049 tons of NOx. Maryland’s analysis shows “excess” emissions of 0.0324 tons of NOx that day for Unit 1. Clearly, Unit 1 was in an operational situation during which ammonia could not be injected, but Maryland still believes that mass emissions at 0.049 tons per day from an 850 MW coal-

fired unit are “excess.” On that same day they identified excess NOx emissions from Unit 2 of 0.9540 tons while that unit was operating at a NOx emission rate of 0.073 lbs. NO2/MMBtu with NOx mass emissions of 6.377 tons. On August 16, 2017 when Unit 1 was offline, Unit 2 was identified as having excess NOx emissions of 0.9373 tons with an emissions rate of 0.073 lbs. NOx/MMBtu and mass NOx emissions of 6.386 tons. Clearly, Maryland’s analyses of emissions using unit specific emissions rates in the petition to the OTC aren’t about contributions to nonattainment, they are simply an attempt to inflate their representations of “excess” emissions from Pennsylvania sources.

To demonstrate that controls are operated on the days of concern, **Attachments 14 through 21** are included with this submission and highlighted on the “Ozone exceedance days” and the “Day before an ozone exceedance day” in a fashion consistent with the Maryland petition. From these data it can be seen, in the case of Keystone Generating Station and Conemaugh Generating Station that any high NOx emission rate periods correspond to reduced operations periods. Panther Creek Energy Facility and Scrubgrass Generating Plant, coal refuse reclamation to energy units, use circulating fluidized bed (CFB) technology which has inherently lower NOx emissions which are even lower during low load operations absent the injection of ammonia.

Conclusion

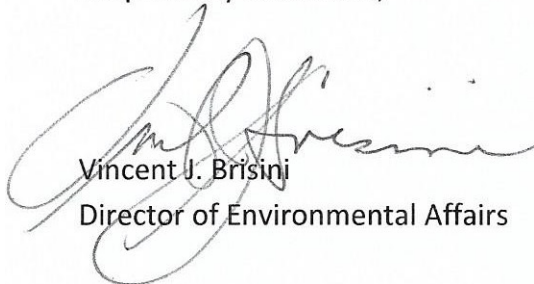
For all of the reasons identified and explained in detail in the MOG comments and identified and substantiated in these Olympus comments, it is clear that the Maryland petition must be denied on both technical and regulatory bases.

However, even though the petition must be denied, the maximum potential level of emissions that will be reduced through deactivations and fuel switching are equal to or greater than the amount of "excess emissions" claimed to be occurring by Maryland in the petition even though the MOG modeling clearly demonstrates that no additional NOx reductions from Pennsylvania EGUs are necessary to model attainment of the 2008 and 2015 ozone NAAQS.

Thank you for the opportunity to provide these comments to the OTC regarding the Maryland petition.

If the OTC has any questions about these comments, please contact me at vbrisini@olympuspower.com or at 814-322-6247.

Respectfully submitted,



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Director of Environmental Affairs

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