Petition to the United States Environmental Protection Agency Pursuant to Section 126 of the Clean Air Act for Abatement of Emissions from 36 Coal-Fired Electric Generating Units at 19 Plants in Five States that Significantly Contribute to Nonattainment of, and Interfere with Maintenance of, the 2008 Ozone National Ambient Air Quality Standard in the State of Maryland

I. Introduction, Summary of Conclusion and Requested Remedy[1]

The State of Maryland, through the Department of the Environment ("MDE" or "the Department") hereby petitions the United States Environmental Protection Agency ("EPA") pursuant to section 126(b) of the Clean Air Act, 42 U.S.C. § 7426(b), to abate the emissions from thirty-six coal fired electric generating units ("the 36 EGUs") in five upwind states that significantly contribute to nonattainment in Maryland. The 36 EGUs are identified in Table 1. These 36 EGUs significantly contribute to ozone levels that exceed the 2008 8-hour ozone National Ambient Air Quality Standard ("NAAQS") in Maryland, and therefore interfere with both attainment and maintenance of the NAAQS. In addition, by EPA's own projections, Maryland ozone monitors will continue to be nonattainment or maintenance sites in 2017 even after full implementation of the proposed Cross-State Air Pollution Rule Update (CSAPR Update).[2]

This petition clearly demonstrates in a manner consistent with EPA's own regulatory approach under Clean Air Act section 110(a)(2)(D)(i)(I), 42 U.S.C. § 7410(a)(2)(D)(i)(I), that emissions from the 36 EGUs are linked to downwind nonattainment and maintenance ozone receptor sites in Maryland and are located in states that EPA has already determined are significantly contributing to nonattainment in Maryland under the 2008 ozone NAAQS. Further, the emissions at the 36 EGUs can be reduced at reasonable cost. Because this petition simply asks for EPA to require these 36 EGUs to run existing control equipment in a manner consistent with manufacturers' specifications on the days when ozone reductions are needed, there may actually be no new costs to the EGUs. Currently, these EGUs are not running existing controls effectively on days that the controls are needed most for ozone reductions. These controls have been run effectively in earlier years. It is illogical for EGU owners to purchase millions of dollars of control technology and then not plan to run those control technologies on days when

[1] This petition focuses on emissions from coal-fired boilers at thirty-six coal fired electric generating units in upwind States indentified in Table 1. Maryland reserves its right to submit an additional petition or petitions under CAA Section 126 for other stationary sources or groups of stationary sources in these States and other States.
[2] 80 Fed. Reg. at 75725-75726, Tables V.C-1 and V.C-2.

they are needed. Again, based upon EPA's own regulatory approach under Clean Air Act section 110(a)(2)(D)(i)(I), 42 U.S.C. § 7410(a)(2)(D)(i)(I), the requested remedy in this petition is highly cost-effective.

Table 1 – The 36 EGUs in States that Significantly Contribute to Maryland, are Clearly Not Running Controls Effectively, and are the Target of this Maryland 126 Petition

Facility Name	State	Plant ID	Unit ID
Alcoa Allowance Management Inc	IN	6705	4
Clifty Creek	IN	983	1
Clifty Creek	IN	983	2
Clifty Creek	IN	983	3
Gibson	IN	6113	3
Gibson	IN	6113	5
Petersburg	IN	994	2
Petersburg	IN	994	3
East Bend	KY	6018	2
Elmer Smith	KY	1374	1
Paradise	KY	1378	3
Killen Station	OH	6031	2
Kyger Creek	OH	2876	1
Kyger Creek	OH	2876	2
Kyger Creek	OH	2876	3
Kyger Creek	OH	2876	4
Kyger Creek	OH	2876	5
W H Zimmer Generating Station	OH	6019	1
Bruce Mansfield	PA	6094	1
Cambria Cogen	PA	10641	1
Cambria Cogen	PA	10641	2
Cheswick	PA	8226	1
Homer City	PA	3122	1
Homer City	PA	3122	2
Homer City	PA	3122	3
Keystone	PA	3136	1
Keystone	PA	3136	2
Montour	PA	3149	1
Montour	PA	3149	2
Grant Town Power Plant	WV	10151	1A
Grant Town Power Plant	WV	10151	1B
Harrison Power Station	WV	3944	1
Harrison Power Station	WV	3944	2
Harrison Power Station	WV	3944	3
Pleasants Power Station	WV	6004	1
Pleasants Power Station	WV	6004	2

A unique feature of this petition is that it focuses on ensuring that controls are run every day of the ozone season. The CSAPR Update, earlier federal cap-and-trade programs, and many state regulations allow for longer term averaging, where controls do not necessarily need to be run effectively every day. As shown in Appendix A, this has lead to situations where sources in the five upwind, significantly contributing states, have not needed to run their controls efficiently on many bad ozone days. On some of those days, over 300 tons on nitrogen oxides (NO_x) emissions were released, that would not have been released, if the 36 EGUs in these states had simply run their control technologies efficiently. These days are often the same days where ozone levels are likely to be highest because of hot, ozone conducive weather.

Over the entire ozone season, the potential for reductions from this petition can become very large. In 2015, approximately 39,000 tons of NO_x reductions could have been achieved in the ozone season if the 36 targeted EGUs had simply run their control technologies efficiently.

Therefore, based on EPA's past approaches in establishing significant contributions and highly cost-effective controls[3], the NO_x emissions from these 36 EGUs located in five states that significantly contribute to nonattainment and interfere with maintenance of the 2008 ozone NAAQS in Maryland, must be abated on each day of the ozone season starting in May of 2017.

As these 36 EGUs are physically located in Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia, the State of Maryland is without other recourse to limit or otherwise address the ozone pollution that results from the NO_x emissions at the 36 EGUs. In light of this, the State of Maryland petitions EPA for a finding pursuant to section 126 of the Clean Air Act that these 36 EGUs are operated in a manner that directly significantly contributes to nonattainment and interferes with maintenance of the 2008 ozone NAAQS in Maryland, despite the existence of cost-effective and readily available control strategies to eliminate the significant contribution.

Maryland further seeks federally enforceable orders from EPA directing the operators of the 36 EGUs to reduce NO_x emissions that are significantly contributing to nonattainment and interfering with maintenance of the 2008 NAAQS in Maryland. Consistent with the law, these reductions must occur as expeditiously as practicable and in this case, because the controls are already installed, can be required almost immediately through a federal order. Maryland is

[3] *See, e.g.*, 63 Fed. Reg. 57356-57538 ("NOx SIP Call"); 76 Fed. Reg. 48208-48483 ("Cross-State Air Pollution Rule" (CSAPR)); 80 Fed. Reg. 75706-75778 ("CSAPR Update").

asking EPA to move quickly and require the 36 targeted EGUs to run their controls in an optimal manner, every day of the ozone season, starting on May 1, 2017.

II. Maryland's Ask: The Proposed Remedy

The State of Maryland, acting through the Department, hereby petitions the Administrator of the EPA pursuant to § 126(b) of the federal Clean Air Act, to find that the EGUs, identified in Table 1, are emitting air pollutants in violation of the prohibitions of § 110(a)(2)(D) of the Act. Further, the Department requests that EPA order the EGUs to reduce NO_x emissions sufficiently such that the EGUs no longer contribute to nonattainment of and interfere with maintenance of the 2008 ozone NAAQS in Maryland.

The remedy that Maryland is asking EPA to implement by May 1, 2017 is very simple. The State is petitioning EPA to require the 36 targeted EGUs to run their existing NOx control technology effectively on each day of the ozone season. In 2015, after observing that EGUs in Maryland were not running their controls effectively during each day of the ozone season, Maryland adopted regulations to fix this problem. Therefore, the remedy being requested by Maryland at the 36 EGUs has already been adopted in Maryland.

In Maryland regulations, the requirement to run controls effectively every day of the ozone season can be found in the Code of Maryland Regulations, Title 26, Subtitle 11, Chapter 38 Control of NO_x Emissions from Coal-Fired Electric Generating Units at COMAR 26.11.38.03.A(2). This language is provided below and the full text of these regulations is included as Appendix B:

> "Beginning on May 1, 2015, for each operating day during the ozone season, the owner or operator of an affected electric generating unit shall minimize NO_x emissions by operating and optimizing the use of all installed pollution control technology and combustion controls consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the unit at all times the unit is in operation while burning any coal."

Similar language or other similar requirements are already in place in many states. The analyses included in Appendix A shows that for the 29 eastern states analyzed, only nine states did not

routinely require that controls be run effectively during the ozone season. Five of those states have been identified by EPA as significantly contributing to Maryland under the 2008 ozone NAAQS.

Maryland is also asking EPA to establish emission limits to ensure a minimum level of control, consistent with optimization of existing control equipment, for each of the 36 targeted EGUs. Table 2 identifies the specific limit for each of the 36 EGUs that Maryland is asking EPA to make federally enforceable by May 1, 2017. Appendix A also describes how these limits were calculated and why they represent a reasonable rate that has been achieved in the past, when controls where being run effectively, by each of the 36 targeted EGUs.

Appendix E provides specific language for each of the 36 EGUs that Maryland would like to see EPA include in federal orders to ensure that the proposed remedy is in place and enforceable by May 1, 2017.

Table 2 – Specific Maximum Allowable Rates that Must Be Required by EPA to Insure a Minimum level of NO_x Control at the 36 Targeted EGUs

State	Facility Name	Plant ID	Unit ID	Maximum 30-Day Rolling Average NO_x Emission Rate (lb/mmBtu)
IN	Alcoa Allowance Management Inc	6705	4	0.104
IN	Clifty Creek	983	1	0.090
IN	Clifty Creek	983	2	0.090
IN	Clifty Creek	983	3	0.084
IN	Gibson	6113	3	0.088
IN	Gibson	6113	5	0.084
IN	Petersburg	994	2	0.062
IN	Petersburg	994	3	0.061
KY	East Bend	6018	2	0.067
KY	Elmer Smith	1374	1	0.159
KY	Paradise	1378	3	0.120
OH	Killen Station	6031	2	0.097
OH	Kyger Creek	2876	1	0.085
OH	Kyger Creek	2876	2	0.084
OH	Kyger Creek	2876	3	0.084
OH	Kyger Creek	2876	4	0.084
OH	Kyger Creek	2876	5	0.084
OH	W H Zimmer Generating Station	6019	1	0.094
PA	Bruce Mansfield	6094	1	0.089
PA	Cambria Cogen	10641	1	0.115
PA	Cambria Cogen	10641	2	0.115
PA	Cheswick	8226	1	0.097
PA	Homer City	3122	1	0.072
PA	Homer City	3122	2	0.093
PA	Homer City	3122	3	0.105
PA	Keystone	3136	1	0.048
PA	Keystone	3136	2	0.046
PA	Montour	3149	1	0.100
PA	Montour	3149	2	0.088
WV	Grant Town Power Plant	10151	1A	0.077
WV	Grant Town Power Plant	10151	1B	0.077
WV	Harrison Power Station	3944	1	0.066
WV	Harrison Power Station	3944	2	0.085
WV	Harrison Power Station	3944	3	0.083
WV	Pleasants Power Station	6004	1	0.046
WV	Pleasants Power Station	6004	2	0.045

Table 3 shows how the proposed rates compare to rates in 2015 and 2016 and how they compare to rates achieved in the past by the targeted EGUs when controls were being run

effectively. Table 3 highlights some of the data analysis that MDE has conducted using 2005 to 2015 EGU emissions data managed by EPA's Clean Air Markets Division (CAMD). Appendix A provides much more detail on the MDE control technology optimization analyses.

This data analysis has shown that many EGUs in the East have stopped using NO_x control technologies in an efficient manner consistent with past practices. It appears that in some cases, the controls are not being used at all. This petition focuses on 36 of the worst EGUs (out of approximately 350 EGUs) analyzed. All of the 36 EGUs covered in this petition have measured average summertime NO_x rates in 2015 and 2016 that are more than double measured average summertime NO_x rates from earlier years, when control technologies were being run efficiently. Some EGUs, like the Keystone (PA) units 1 and 2, the Montour (PA) units 1 and 2, the Homer City 1 (PA) unit and the Harrison (WV) units 1, 2 and 3 measured average summertime NO_x rates in 2015 and 2016 that were more than four times greater than measured average summertime NO_x rates from earlier years when control technologies were being run efficiently.

The data analysis also shows that many states actually do a very good job of requiring EGUs in their state to run controls effectively. The MDE analyses focused on 29 Eastern states. 20 of the 29 states appear to be doing a very good job of requiring EGUs in their states to run controls effectively. Many EGUs in nine states are not running controls effectively or at all. EGUs in five of those states are covered by this petition. The EGUs that are not running controls effectively in the other four states are not included in this petition, as EPA has not determined that those four states significantly contribute to Maryland under the 2008 ozone NAAQS.

In working with the 36 EGUs and the five states covered in this petition, MDE has heard arguments that it has been difficult to run NO_x controls effectively in recent years because of market shifts that require coal-fired EGUs to operate differently. As shown in Appendix A, many other states with significant numbers of coal-fired EGUs that face similar market changes do not see their EGUs operating control technologies inefficiently. These states include Texas, Tennessee, Michigan, Illinois, Nebraska, Virginia and Maryland. These states generally have requirements in place that require NO_x controls to be run effectively every day of the ozone season. The proposed Maryland remedy would ask EPA to mandate similar requirements at the 36 EGUs that are located in states that do not have a specific requirement that NO_x controls be run effectively every day of the ozone season.

Table 3 – Proposed Rates Compared to 2015 Rates, 2016 Rates, and Best Rates from a Previous Year

State	Facility Name	Unit ID	Maryland Proposed Maximum 30-Day Rolling Average NO_x Emission Rate (lb/mmBtu)	Best Ozone Season Average Rate from the Past (lb/mmBtu and Year)	2015 Ozone Season Average Rate (lb/mmBtu)	2016 Ozone Season Average Rate (lb/mmBtu)	Maximum Percent Increase from Best Rate from the Past
IN	Alcoa Allowance Management Inc	4	0.104	0.095 (2007)	0.283	0.304	220%
IN	Clifty Creek	1	0.090	0.074 (2005)	0.228	0.361	391%
IN	Clifty Creek	2	0.090	0.075 (2005)	0.229	0.369	391%
IN	Clifty Creek	3	0.084	0.074 (2005)	0.229	0.353	376%
IN	Gibson	3	0.088	0.066 (2005)	0.201	0.175	204%
IN	Gibson	5	0.084	0.060 (2007)	0.341	0.111	471%
IN	Petersburg	2	0.062	0.051 (2005)	0.205	0.175	301%
IN	Petersburg	3	0.061	0.047 (2005)	0.269	0.201	478%
KY	East Bend	2	0.067	0.052 (2006)	0.216	0.131	316%
KY	Elmer Smith	1	0.159	0.123 (2006)	0.356	0.254	190%
KY	Paradise	3	0.120	0.100 (2005)	0.154	0.249	148%
OH	Killen Station	2	0.097	0.089 (2005)	0.241	0.238	172%
OH	Kyger Creek	1	0.085	0.079 (2005)	0.213	0.205	170%
OH	Kyger Creek	2	0.084	0.079 (2005)	0.202	0.231	192%
OH	Kyger Creek	3	0.084	0.079 (2005)	0.256	0.243	225%
OH	Kyger Creek	4	0.084	0.079 (2005)	0.282	0.207	258%
OH	Kyger Creek	5	0.084	0.079 (2005)	0.295	0.226	276%
OH	W H Zimmer Generating Station	1	0.094	0.056 (2006)	0.228	0.211	306%
PA	Bruce Mansfield	1	0.089	0.082 (2008)	0.242	0.154	195%
PA	Cambria Cogen	1	0.115	0.095 (2005)	0.170	0.228	141%
PA	Cambria Cogen	2	0.115	0.095 (2006)	0.166	0.216	128%
PA	Cheswick	1	0.097	0.090 (2006)	0.254	0.349	287%
PA	Homer City	1	0.072	0.067 (2006)	0.351	0.268	425%
PA	Homer City	2	0.093	0.083 (2006)	0.351	0.334	325%
PA	Homer City	3	0.105	0.087 (2005)	0.282	0.226	223%
PA	Keystone	1	0.048	0.043 (2006)	0.232	0.220	438%
PA	Keystone	2	0.046	0.043 (2008)	0.243	0.218	460%
PA	Montour	1	0.100	0.058 (2006)	0.309	0.355	512%
PA	Montour	2	0.088	0.058 (2006)	0.336	0.369	538%
WV	Grant Town Power Plant	1A	0.077	0.072 (2005)	0.343	0.315	375%
WV	Grant Town Power Plant	1B	0.077	0.072 (2005)	0.340	0.314	370%
WV	Harrison Power Station	1	0.066	0.063 (2005)	0.318	0.101	401%
WV	Harrison Power Station	2	0.085	0.066 (2005)	0.364	0.235	450%
WV	Harrison Power Station	3	0.083	0.066 (2005)	0.342	0.163	420%
WV	Pleasants Power Station	1	0.046	0.039 (2005)	0.219	0.209	455%
WV	Pleasants Power Station	2	0.045	0.039 (2005)	0.371	0.199	850%

III. Urgency of Timely EPA Response to This Petition

Section 126 establishes clear deadlines for action by the Administrator in response to a petition under that section. 42 U.S.C. § 7426; *GenOn Rema, LLC v. EPA*, 722 F.3d 513, 521-22 (3rd Cir. 2013). The Administrator must make the requested finding or deny the petition within 60 days after receipt of the petition, and after a public hearing. 42 U.S.C. § 7426(b).

Once EPA makes a finding under section 126(b), section 126(c) requires that the violating source(s) shall not operate three months after the finding regardless of whether the source has been operating under a duly issued state operating permit. 42 U.S.C. § 7426(c). The Administrator may allow the source(s) to operate beyond such time only if the source(s) comply with emission limitations and compliance schedules as the Administrator may direct to bring about compliance. *Id*. Such compliance must be brought about "as expeditiously as practicable," and in no case later than three years after the date of the Administrator's finding. *Id*. Consistent with the law, these reductions must occur as expeditiously as practicable and in this case, because the controls are already installed, can be required almost immediately through a federal order.

In this petition, Maryland further asks EPA to require that the remedy be in place and effective by May 1, 2017. This is critical to Maryland's efforts to attain and maintain the 2008 ozone NAAQS and may be the difference between an attainment and nonattainment designation for areas in Maryland under the 2015 ozone NAAQS. Maryland's three historical ozone nonattainment areas have design values of 71 parts per billion (ppb), 73 ppb and 76 ppb. Modeling included in Appendix D indicates that if the proposed Maryland remedy is implemented by May 1, 2017, the Philadelphia area could attain the 2008 ozone NAAQS. The modeling also shows that the Baltimore area and the Washington, DC multi-state area could be designated attainment for the 2015 ozone NAAQS if the remedy is in place for the 2017 ozone season.

To expedite the EPA action, Maryland has provided specific language in Appendix E to be included in federal orders for each of the 36 EGUs covered by this petition. MDE believes this expedited timeframe is possible and mandated by the Clean Air Act as no new controls need to be added and EGU operators have already demonstrated that compliance with the Maryland remedy is achievable. EPA simply needs to require that the 36 targeted EGUs run their existing

controls in a manner consistent with manufacturers' specifications and good engineering, maintenance and air pollution control practices.

IV. MDE Efforts to Work Collaboratively with the Five Significantly Contributing Upwind States, EGU Owners and Operators and EPA

For the past five years, Maryland has been trying to work collaboratively with the five upwind states in which the 36 EGUs are located. This collaboration also involved approximately 20 additional states. In 2013 and 2014, there were Commissioner level discussions that focused on the issue of coal-fired EGUs that are no longer running their NO_x controls effectively.

There was general agreement amongst the Commissioners that the data showed that NO_x emission rates had increased over recent years and that efforts should be made to analyze and when necessary work with EGU operators to fix the problem. Many of the collaborating states conducted their own independent research and many states, including the five states where the 36 EGUs are located, reached out to EGU operators and asked them to voluntarily work to improve the performance of existing NO_x control technologies for the 2015 ozone season. Some states, like Pennsylvania, wrote letters to EGU operators. Other states, like Ohio, worked more directly with EGU operators in their state.

Maryland also worked directly with some of the operators of coal-fired EGUs in the East. In 2013, 2014 and 2015, Maryland attended many meetings to discuss this issue directly with EGU operators.

These efforts to work collaboratively with upwind states and coal-fired EGU operators resulted in some progress, but that progress was very limited. Although some EGU operators did work voluntarily to improve the performance of existing NO_x control technologies, overall, the problem actually got worse in 2015 and 2016. Appendix A shows how the performance of existing NO_x control technologies at many coal-fired EGUs in the East has become an even greater problem in 2015 and 2016.

Maryland has also worked collaboratively with EPA on this issue. Most importantly, Maryland had many discussions with EPA on the CSAPR Update and asked that EPA include the remedy proposed in this petition as part of Mayland's comments on the CSAPR Update. Specifically, Maryland asked EPA to include the control technology optimization and the 30-day rolling average NO_x limit requirements (described above in Section II of the petition) for all

EGUs covered in the CSAPR Update. Maryland included recommendations on specific rates for about 350 EGUs as part of those comments.

Equally important, Maryland has asked EPA Region III to conduct an investigation over whether or not the failure of Pennsylvania EGUs to run NO_x control technologies effectively, sometimes not at all, is a violation of the Clean Air Act's Reasonably Available Control Technology (RACT) requirement that Pennsylvania must comply with statewide. Logically, it appears to be impossible to interpret the Clean Air Act's RACT requirement to allow for sources to purchase controls, but then not run those controls on the days where the air pollutant they were required for in the first place (ozone) is at its worst.

V. Overwhelming Transport - The Maryland Ozone Transport Research Program

For over thirty years, Maryland has struggled with meeting the federal ozone standard. During that period, MDE has partnered with the University of Maryland at College Park and other researchers to study how air pollution transport, meteorology, photochemistry and geography combine to make the ozone problem in the Mid-Atlantic so challenging. Appendix C provides a more detailed summary of the Maryland ozone transport research program.

Processes on both the local and regional scale influence ozone formation and transport. Maryland's research has played a significant role in the progress the State has made in reducing exposure to ozone (and other pollutants) and provides a clear path forward for continuing to reduce ozone levels in the eastern half of the Country. In the East, field experiments and numerical models have shown that NO_x emissions combined with biogenic hydrocarbons are sufficient to generate ozone events.

Ozone in the Mid-Atlantic is complicated, but not that complicated. There are two separate pieces of the problem. A regional transport piece, that comes from upwind sources, primarily power plants and mobile sources, across a large portion of the East and a local piece. In very general terms, on bad ozone days in Baltimore, Maryland, about 70% of the problem is regional transport, about 30% is local. As part of the States research efforts, we measure "incoming" ozone levels with ozone-sondes, airplanes and mountain-top monitors that routinely approach or exceed the 2008, 75 ppb, ozone NAAQS.

The regional transport component of Maryland's problem, builds up and collects in an "elevated reservoir" of ozone and ozone precursors that sits about 1000 meters above the Mid-Atlantic and much of the East from May to September. Ozone levels in the elevated reservoir can routinely be 70 ppb or greater on episode days.

The influence of the elevated reservoir can best be seen by analyzing the morning "surge" of ozone seen in the ground level monitoring data between 8:00 and 11:00 a.m. At night, ground level monitors measure low ozone concentrations while monitors aloft measure much higher levels. At night, the elevated reservoir is separated from the surface by the nocturnal inversion. As the next day begins, temperatures increase, the inversion begins to collapse and the elevated ozone reservoir begins mixing down to the surface. In general, the ozone levels measured aloft at night mix down and create a regional transport contribution that is seen in ground level monitors across the region. This "regional transport signal" can often approach or exceed 75 ppb. Local emissions begin to contribute to ozone production in the morning as well. By afternoon, regional transport and local emissions combine to drive daily peak ozone levels in the late afternoon.

The Maryland ozone transport research program has shown that reducing NO_x emissions from upwind power plants is a proven strategy for reducing ground-level ozone in Maryland and in other downwind nonattainment areas. The 2004 "NO_x SIP Call" dramatically reduced NO_x emissions from EGUs across the East. As described in more detail in Appendix C, these measured NO_x reductions at EGUs lead to significant reductions in measured ozone in the aloft elevated reservoir, which resulted in large decreases in measured ground-level ozone in Maryland and across much of the East.

VI. Ozone Benefits From the Maryland 126 Petition

EPA has already determined that the five states where the 36 targeted EGUs operate are significantly contributing to nonattainment of and interference with maintenance of the 2008 ozone NAAQS in the State of Maryland. On page 22 of the modeling technical support document of the CSAPR Update, EPA identifies Pennsylvania, West Virginia, Ohio, Kentucky, Indiana, Illinois, Michigan, Texas, Virginia and the District of Columbia as significant contributors to Maryland's ozone problem. As part of the analyses described in Appendix A,

Maryland found that the EGUs in Illinois, Michigan, Texas, Virginia and the District of Columbia were already operating their existing controls in an optimal manner and therefore are not included in this petition.

As demonstrated in Appendix A, on many days the proposed Maryland remedy could result in up to 304 tons of NO_x reductions in a single day. This reduction, which is a huge reduction compared to other remaining NO_x reduction strategies (as an example the 2017 NO_x reductions in the East from the clean fuel provisions of the Tier 3 Vehicle and Fuel Standards are estimated to be just slightly greater than 300 tons per day), can be achieved by simply requiring the 36 targeted EGUs to run their control technology in an optimal manner consistent with manufacturers specifications and best practices from earlier years. Ozone is measured over an eight hour average to ensure public health protection from short term exposures. This means that achieving emission reductions on every single day of the ozone season is critical. Having higher emissions on some days and lower emissions on others may allow EGUs to meet federal requirements, but it will not be sufficient to insure that ozone levels comply with the standard every single day and that public health is protected.

Modeling conducted by Maryland and Sonoma Technology Incorporated shows that the proposed Maryland remedy will allow existing monitors in Maryland that are not complying with the 2008 NAAQS to attain, or come very close to attaining that standard. A more detailed summary of the modeling used to support this petition is included in Appendix D.

The proposed Maryland remedy will also be very important to how areas in Maryland and other Mid-Atlantic states are designated under the new 2015 ozone, 70 ppb, NAAQS. The proposed remedy, if implemented in 2017, would most likely allow the Washington, DC, multi-state area, that Maryland is part of, and the Baltimore area to both be designated attainment for the 2015 ozone NAAQS.

The modeling analyses also show that if the proposed Maryland remedy was required by EPA in a timeframe consistent with Good Neighbor State Implementation Plans (SIPs) under the 2008 NAAQS (2011) and implemented in a timeframe to support attainment for marginal and moderate areas under the 2008 ozone NAAQS, that it is almost certain that the Philadelphia multi-state nonattainment area, which Maryland is a part of, would be attaining the 2008 NAAQS and the Washington, DC and Baltimore areas would have data to support being designated attainment under the 2015 ozone NAAQS. The Philadelphia area would also have

much cleaner data and may have also been able to support an attainment designation for the 2015 ozone NAAQS.

Tables 4 and 5 show, based upon the modeling described in Appendix D, how the remedy proposed by Maryland would have affected the Baltimore nonattainment area and the Washington, DC and Philadelphia multi-state nonattainment areas for the 2008 and 2015 ozone NAAQS if the remedy was required in the timeframe required under the Act.

Table 4 – Projected Ozone Levels if the Proposed Maryland Remedy Was Already in Place - For the 2008 NAAQS

Key Monitors	2014-2016 Design Value	2014-2016 Design Value With Remedy	Comment/Conclusion
Baltimore Nonattainment Area			
Edgewood	73 ppb	71 ppb	Attainment of the 2008 ozone NAAQS with controls run effectively at 36 targeted EGUs
Aldino	73 ppb	71 ppb	Attainment of the 2008 ozone NAAQS with controls run effectively at 36 targeted EGUs
Washington, DC Multi-State Nonattainment Area			
Arlington, VA	72 ppb	69 ppb	Attainment of the 2008 ozone NAAQS with controls run effectively at 36 targeted EGUs
PG Equestrian Center	71 ppb	68 ppb	Attainment of the 2008 ozone NAAQS with controls run effectively at 36 targeted EGUs
Philadelphia Multi-State Nonattainment Area			
Fair Hill, MD	76ppb	74 ppb	Attainment of the 2008 ozone NAAQS with controls run effectively at 36 targeted EGUs
Bristol, PA	77 ppb	74 ppb	Attainment of the 2008 ozone NAAQS with controls run effectively at 36 targeted EGUs
Camden, NJ	75 ppb	73 ppb	Attainment of the 2008 ozone NAAQS with controls run effectively at 36 targeted EGUs

Table 5 – Projected Ozone Levels if the Proposed Maryland Remedy Was Already in Place - For the 2015 Ozone NAAQS

Key Monitors	2014-2016 Design Value	2014-2016 Design Value With Remedy	Comment/Conclusion
Baltimore Nonattainment Area			
Edgewood, MD	73 ppb	71 ppb	Very Close to Attainment of the 2015 ozone NAAQS with controls run effectively at 36 targeted EGUs
Aldino, MD	73 ppb	71 ppb	Very Close to Attainment of the 2015 ozone NAAQS with controls run effectively at 36 targeted EGUs
Washington, DC Multi-State Nonattainment Area			
Arlington, VA	72 ppb	69 ppb	Attainment of the 2015 ozone NAAQS with controls run effectively at 36 targeted EGUs
PG Equestrian Center, MD	71 ppb	68 ppb	Attainment of the 2015 ozone NAAQS with controls run effectively at 36 targeted EGUs

Table 6 shows, based upon the modeling described in Appendix D, what the modeled maximum daily contribution for a subset of the 19 plants where the 36 targeted EGUs are located was estimated to be in 2011.

Table 6 – Maximum Daily Ozone Contribution in Maryland in 2011 For a Subset of the 19 Plants Where the 36 EGUs are Located

Facility Name	State	Plant ID	Maximum Daily Contribution in ppb
Clifty Creek (Units 1, 2 & 3)	IN	983	0.28 ppb
Elmer Smith	KY	1374	0.10 ppb
Kyger Creek (Units 1, 2, 3, 4 & 5)	OH	2876	0.26 ppb
Bruce Mansfield	PA	6094	0.31 ppb
Cheswick	PA	8226	0.22 ppb
Homer City (Units 1, 2 & 3)	PA	3122	0.38 ppb
Keystone (Units 1 & 2)	PA	3136	1.24 ppb
Montour (Units 1 & 2)	PA	3149	1.98 ppb
Harrison Power Station (Units 1, 2 & 3)	WV	3944	0.62 ppb
Pleasants Power Station (Units 1 & 2)	WV	6004	0.25 ppb

Table 7 shows the average ozone benefit and the daily maximum ozone benefit for the most critical Maryland monitors in the Baltimore, Philadelphia and Washington, DC nonattainment areas.

Table 7 – Average Summertime and Daily Maximum Ozone Benefits at Key Maryland Monitors After the Proposed Maryland Remedy is Implemented

Key Monitors	2014-2016 Design Value	Average Summertime Ozone Reduction With Remedy	Maximum Daily Ozone Reduction With Remedy
Baltimore Nonattainment Area			
Edgewood	73 ppb	0.6 ppb	1.7 ppb
Washington, DC Multi-State Nonattainment Area			
PG Equestrian Center	71 ppb	0.7 ppb	2.5 ppb
Philadelphia Multi-State Nonattainment Area			
Fair Hill, MD	76ppb	1.0 ppb	1.9 ppb

VII. Environmental and Economic Equity

This petition is also intended to help address environmental and economic inequities, caused by the upwind states' significant contribution to ozone nonattainment in Maryland. The proposed Maryland remedy should have been required as part of Good Neighbor SIPs that were due in 2011. This would have provided cleaner air and greater public health protection to Maryland citizens.

Because of the continued failure to implement the Clean Air Act's provisions designed to reduce transport in a timely manner (section 110(a)(2)(D)(i)), Maryland has also been placed at an economic disadvantage. The State has been forced to adopt some less effective and more expensive "inside Maryland" control measures to try and comply with the federal ozone NAAQS. Over the past five years, these regulatory initiatives have become more difficult to implement and routinely have an impact on small businesses. One of Maryland's most recent actions to adopt regulations was to require a third round of volatile organic compound emission reductions from architectural and industrial maintenance (AIM) coatings. This regulation is estimated to cost approximately $2,240 for each ton of emissions removed. In contrast, the proposed Maryland remedy, under this petition, costs about $670 to $800 for each ton of

emissions removed and results in a much larger ozone reductions. Appendix F provides additional information on cost and cost-effectiveness.

Maryland's ozone research now clearly shows that local control measures alone are unlikely to reduce ozone levels in a meaningful way. The progress in reducing ozone over the past 10 years that has been achieved in Maryland and many other Eastern states was driven by strong regional NO_x reductions across the Eastern United States combined with additional local controls in many areas.

There is also a significant inequity created when sources in upwind states do not effectively control their emissions, and these emissions are significant enough to push the downwind areas from attainment to nonattainment for a new NAAQS. That is exactly what is happening because the 36 targeted EGUs are not running their control equipment effectively. Both the Baltimore area and the Washington, DC multi-state area are very close to attaining the new 2015, 70 ppb, ozone NAAQS and would likely be designated attainment if the controls from the five upwind states were run in an optimal way on each day of the ozone season.

The 36 EGUs have also experienced windfall profits from not running controls effectively. Because of cost savings associated with reduced reagent use and other operational savings from not running controls or running controls less effectively, in 2014, the owners of the 36 EGUs saved approximately $24 Million. Appendix F also provides additional analysis of cost savings at the 36 EGUs.

VIII. Conclusion

The State of Maryland has demonstrated that the 36 EGUs are causing and significantly contributing to exceedances of the 2008 ozone NAAQS in Maryland, as evaluated according to best practices and all available EPA guidance. As such, EPA should grant Maryland's petition and quickly issue a finding that the 36 EGUs are significantly contributing to nonattainment and interfering with maintenance of the 2008 ozone NAAQS in the State. Per that finding, EPA should immediately, through a federal order, require the owners of the 36 EGUs to implement the remedy described above, and in Appendix E, to ensure that controls are run effectively by May 1, 2017.

More importantly, the action requested in this petition is too simple and too important to delay. The controls at the 36 EGUs are already in place. Past performance shows that the proposed remedy can easily be achieved by simply optimizing the performance of existing control technology. Millions of citizens in the East are breathing air that is unhealthier because the operators of the 36 EGUs are not running existing control technologies effectively.

EPA must move quickly and take action to require the owners of the 36 EGUs to run existing NO_x control equipment in an optimal manner during the ozone season.