

**TESTIMONY OF COLLIN O'MARA BEFORE  
THE U.S. SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS  
SUBCOMMITTEE ON CLEAN AIR AND NUCLEAR SAFETY  
ON REVIEW OF EPA REGULATIONS REPLACING THE CLEAN AIR INTERSTATE  
RULE (CAIR) AND THE CLEAN AIR MERCURY RULE (CAMR)**

Chairman Carper, Ranking Member Barrasso, and Members of the Subcommittee, my name is Collin O'Mara and I serve as Delaware's Secretary of the Environment and Energy. I also serve as the Chairman of the Ozone Transport Commission (OTC). On behalf of Delaware Governor Jack Markell, I would like to thank you for the opportunity to discuss the Environmental Protection Agency's efforts to replace the vacated Clean Air Mercury Rule (CAMR) and the remanded Clean Air Interstate Rule (CAIR).

Clean Air Mercury Rule

Before I testify on the broader transport challenges, I would like to briefly address the utilities toxic rule. Since 2009, Delaware has required that every coal-fired unit control its mercury emissions by 90 percent. Our experience has demonstrated that controlling toxic metals like mercury is both cost-effective and technologically feasible. Our requirements were developed in consultation with industry and all in-state sources are meeting the standard on a unit by unit basis. While several coal units in Delaware are scheduled for shutdown, existing units ranging from 90 MW to 400 MW in size all were able to achieve these reductions in a cost-effective and timely manner. We adopted this approach because we do not believe that it is proper to allow emissions trading or averaging of neurotoxins when cost-effective and site specific reductions are possible. In addition, acid gas emissions are eliminated with any level of scrubbing technology for sulfur dioxide (SO<sub>2</sub>), providing an added benefit. This rule will produce significant and cost-effective public health benefits and we believe it is long overdue.

Clean Air Interstate Rule (CAIR)

Like other States along the East Coast, Delaware's air quality challenges are caused by both local emissions and the transport of emissions from upwind sources to downwind areas. In Delaware, as much as ninety percent of our non-attainment problem comes from out-of-state

sources and we face significant public health consequences as a result (areas throughout the entire Ozone Transport Region (OTR) face similar challenges). Primarily due to this pollution transported into our state, all of Delaware is currently designated as nonattainment, or out of compliance, with regard to the 8-hour Ozone National Ambient Air Quality Standards (NAAQS), and our most populated county, New Castle County, is designated nonattainment for the particulate matter (PM<sub>2.5</sub>) NAAQS.

This is not to suggest that Delaware's air quality has not significantly improved over the past twenty years. Since the adoption of the 1990 Clean Air Act Amendments, Delaware has benefitted from significant reductions in local emissions and limited improvements from upwind sources. In fact, Delaware's air quality currently meets all of the NAAQS except for the 2008 75 parts per billion (ppb) ozone standard, which EPA has determined is not protective of public health and will finalize next month its proposed rule to set a new ozone NAAQS at a level between 60 and 70 ppb. Also, a new PM<sub>2.5</sub> standard is anticipated to be proposed later this year. The full mitigation of upwind transport is paramount as we move forward to address these new health based air quality standards. In order to explain why this is, I will discuss some of the more significant steps that the EPA has taken to partially mitigate transport, identify where we are now relative to the mitigation of transport, and suggest concepts that should be embraced as we move forward.

#### Steps that Partially Mitigated Transport

One of the first steps that the EPA took to mitigate transport was the NO<sub>x</sub> SIP Call. EPA reported that after the NO<sub>x</sub> SIP Call was implemented in 2004 NO<sub>x</sub> emissions from the power industry in the eastern U.S. decreased by about 50%. This reduction in transport, plus a large reduction in local emissions attributable to Delaware's unique and OTC based initiatives was enough to enable Delaware and most other OTC states to attain the 0.12 part per million (ppm) 1-hour ozone NAAQS in 2005. While this may sound good, and it was, Delaware was soon designated non-attainment for the 1997 0.08 ppm ozone and the 15 ug/m<sup>3</sup> particulate matter standards.

EPA's next major effort to partially mitigate transport was the adoption of CAIR. CAIR was a step forward in that it helped with both our ozone and PM problems because it addressed both NO<sub>x</sub> and SO<sub>2</sub> emissions. However, the EPA CAIR rule had two major problems – it would not require reductions on a schedule needed necessary to help with our ozone plans and it would again only partially mitigate transport. Both of these issues proved significant.

Regarding the timing of the reductions, under the CAA, air quality is judged against a standard based on three years of data. Compliance was required with the 0.08 ppm standards in 2009—based upon 2007, 2008, and 2009 monitoring data. EPA proposed CAIR with a first phase of reductions to take effect beginning 2010. Obviously this was not helpful to non-attainment states with 2009 attainment dates, like Delaware. EPA did finalize CAIR so that the first round of reduction occurred in 2009, which enabled states like Delaware to rely on the reductions in our attainment plans. But, because reductions did not occur in 2007 or 2008, our monitors did not reach attainment for the 2007-2009 period and an extension to our attainment date was needed.

As Delaware began putting its attainment plans together for the 1997 standards, it became clear, based upon analysis of air quality modeling and data from our ambient monitoring network, that transport would remain a significant problem even after implementation of both the NO<sub>x</sub> SIP Call and CAIR. In addition, while CAIR did help reduce regional NO<sub>x</sub> and SO<sub>2</sub> emissions, CAIR's trading scheme was projected to create a local problem in Delaware—EPA models predicted that under CAIR emissions in Delaware would actually increase. In response, Delaware was not able to adopt CAIR. Instead, Delaware was forced to develop its own multi-pollutant regulation that required BACT level controls for NO<sub>x</sub>, SO<sub>2</sub> and mercury from each of its power plants and peaking units and filed a Section 126 petition with the EPA.

Local measures, plus the partial mitigation of transport from CAIR, enabled Delaware's air quality to meet the 0.08 ppm ozone and the 15 ug/m<sup>3</sup> PM standards in 2011. However, Delaware continues to have significant air quality problems—EPA's 0.08 ppm ozone standard is not sufficiently protective of public health and a lower 75 ppb standard was adopted, which is

now itself being reconsidered at a 60 to 70 ppb level because it is also not sufficiently protective of public health.

### Where We Are Today

Today, the vast majority of Delaware's air quality problems are caused by transported emissions, as much as ninety percent. In the past, Delaware has been able to offset the partial mitigation of transport by requiring additional control of its sources. Measures including Delaware's multi-pollutant regulation, transportation conformity, multiple rounds of control technology reviews, plus a myriad of other regional measures, like regulating paints, gas cans and other consumer products, have resulted in significant mitigation of Delaware's local emission on its air quality. In addition, Delaware has facilitated the fuel switching of numerous coal units to natural gas, hundreds of millions of dollars of controls on the largest coal unit in the state, and the shutdown of three older coal units. As we put our plans together to meet the 75 ppb or lower standard, there are very few cost-effective pollution reduction options remaining for Delaware to further reduce emissions from stationary sources. In fact, our modeling shows that Delaware could eliminate all pollution from in-state stationary sources and still not achieve attainment.

At the same time, pollution from upwind sources continues to impair air quality in Delaware and much of the OTR, specifically contributing to unhealthy concentrations of ozone and fine particulate matter. Any new standard must address this fundamental unfairness within the current regulatory regime. While OTR states have adopted some of the most stringent standards in the nation and significantly reduced in-state emissions as required to achieve attainment, cost-effective emission reductions in upwind states continue to be possible even after the implementation of the NOx SIP Call and CAIR. The unwillingness to require greater emission reductions upwind has forced Delaware to adopt more costly control measures which to a large extent were necessary only because the EPA failed to fully mitigate transport. This inequity in regulatory requirements has contributed to relatively higher regional energy costs, while EGUs in upwind states remain able to offer lower-cost electricity generated by virtually unregulated units. This imbalance allows upwind states to enjoy a competitive advantage for

economic development, particularly in the recruitment and retention of manufacturing firms, while the downwind states are forced to deal with the consequences economically and environmentally. This is a double-whammy, so to speak, for the OTR states in that they face both a competitive disadvantage economically from increased energy costs as well as greater public health and environmental impacts due to the lack of regulatory equity. We must address this growing inequity as a matter of fundamental fairness.

As part of this conversation, it is critical to note that the public health costs from not requiring air quality improvements upwind are both significant and quantifiable. A National Academy of Science 2009 report stated that the health costs caused by air pollution from 406 coal fired plants in 2005 were more than \$62 billion annually. More specifically in Delaware, a report developed as part of the Integrated Resource Planning docket by the local electrical utility, demonstrated that the movement towards lower-emission fossil fuel generation and additional energy efficiency measures and deployment of renewable resources could provide up to \$4.3 billion of health benefits to the state annually. Greater regulatory consistency with a focus on transport will produce significant public health benefits regionally and nationally.

EPA's most recent rule to mitigate transport is the CAIR replacement, the Clean Air Transport Rule. This rule was proposed last year, and is projected to be finalized next month. Like CAIR, the transport rule is an improvement, mainly in the regulation of SO<sub>2</sub> in that it sets specific emission caps for each state that requires each covered state to substantially reduce their SO<sub>2</sub> emissions. Unfortunately, the proposed rule was, by design, not intended to fully mitigate transport, and is no better than CAIR relative to ozone. This is because it is only targeted to reduce ozone levels to the old 1997 0.08 ppm level. The transport proposal, by design, did not require reductions to fully mitigate transport, nor even to mitigate emission relative to the current, but still inadequate, 2008 75 ppb NAAQS. Since we know that EPA's CAIR replacement will not sufficiently mitigate transport, we must pursue other means to achieve NOx reductions which are critical remedy the unhealthy ozone levels experienced in Delaware. EPA has signaled that they agree with this finding and explained in the transport rule proposal that it plans to issue a second transport rule to require the additional needed regional reductions in NOx emissions. Delaware needs Transport Rule 2 to approach transport inequities more

comprehensively that previous efforts with the goal of fully mitigating the impact of upwind states on those downwind.

#### A better approach to reducing transport

The new health based ozone and PM<sub>2.5</sub> standards and the EPA regulations that replace CAMR and CAIR, especially Transport Rule 2, are all critical to Delaware. The impact of local emission on Delaware's air quality has already been aggressively mitigated, while the transport of ozone, PM, and their precursors from sources in upwind states have only been mitigated partially. Transport is by far the predominate cause of Delaware's ozone and PM<sub>2.5</sub> problems and must be fully mitigated through substantial, cost-effective, emission reductions in upwind states to achieve local air quality standards. To achieve air quality attainment in Delaware and other OTR states, we propose that there are a few concepts that should be embraced:

- Fundamental Economic Fairness: Delaware and other OTR states have been implementing significant emission controls for more than 35 years. Additional reductions are difficult to identify and implement, and are very costly. By comparison, many heavily polluting units in upwind states remain uncontrolled, despite their significant impact on Delaware's air quality. The upwind emission reductions are also much more cost effective, as demonstrated by NO<sub>x</sub> credits in Delaware recently trading for more than \$10,000 per ton whereas upwind controls are possible at one quarter of this cost.
- Broader non-attainment areas: One way to ensure transport is mitigated is for the EPA to establish broad non-attainment area boundaries. This would reinforce the science-based and wide-accepted fact that ozone non-attainment is a regional, rather than a local, problem." We strongly encourage that all counties that are contributing to this regional problem, and thus are necessary to solve it, be included in any new rules. This change would give more states a vested interest in solving this regional problem. We must also level the playing field by setting the consistent baseline of control requirements of Subpart 2 of Title I, Part D of the CAA within the region,

which include New Source Review (NSR), vehicle Inspection and Maintenance, and highly cost effective Reasonably Available Control Technology (RACT) requirements. This improvement would effectively compliment national and regional rules that address regional transport, like the EPA transport rule (Delaware made this request through its ozone attainment and boundary recommendation filed in 2009).

- Performance Standards: Sole reliance on a regional cap-and-trade program to mitigate transport will not likely address some of the most impactful emission contributions that afflict the various non-attainment areas. Some minimum performance standards are necessary to ensure that improvements are made throughout the entire non-attainment region, rather than driving investment in only a few areas. EPA performance standards should include multi-pollutant measures where possible, which have been demonstrated to be both technologically feasible and cost-effective in Delaware. In addition, both daily and annual limits should be pursued to reduce unhealthy ozone concentrations. For example, peaking units that have very low annual emissions, but high daily emissions must be controlled.
- Opportunities beyond EGUs: EPA measures to mitigate transport to date have been limited to electric generating units (EGUs). In addition to the power industry, EPA should include other source categories, particularly NO<sub>x</sub> and VOC emission sources that can be controlled with RACT measures. These should include a wide range of industrial, commercial, and residential sources (both stationary point sources and stationary non-point/area sources). Collectively, those RACT controls have provided the OTR states significant and cost-effective NO<sub>x</sub> and VOC reductions and have contributed significantly to the OTR's success in improving ambient air quality.
- Alignment of timelines: EPA measures to fully mitigate transport must be implemented according to timelines that ensure the benefits of these transport rules will be sufficiently used in the states' SIP planning and attainment efforts.

- Focus on transportation sector opportunities: EPA has made great strides in recent years to improve vehicle fleet fuel economy as a means towards reducing air emissions. In addition, fifteen states, including Delaware, have adopted low-emission vehicle standards. Additional focus on fuel economy, deployment of alternative fuel vehicles, and adoption of cleaner petroleum fuels, all present significant opportunities to reduce air pollution.

In summary, Delaware and the other OTR states face significant air quality challenges, most of which are caused by factors outside of their jurisdiction. The current EPA approach is inadequate to mitigate the impact of these upwind emissions on downwind states and must be strengthened. Current regulatory deficiencies have required Delaware to impose emission requirements on its in-state sources that far exceed those required for sources in upwind states, despite their adverse impact on our air quality. We are at a point where little more can be done in Delaware, even though we are facing new air quality standards that we must to achieve under the CAA, and more importantly, are obligated to achieve to protect public health. Yet Delaware does not have the authority to regulate the emissions that are causing these problems because they are outside of the boundaries of the State of Delaware or related to the transportation sector. For Delaware to have any chance of shedding its label as the “tailpipe of the nation” and reducing local ozone levels to comply with a new ozone NAAQS as required by CAA, we will need a strong Federal commitment to achieving significant regional NO<sub>x</sub> reductions through a much more comprehensive and timely approach than any rules that have been proposed or adopted to date. This is a regional challenge and as such requires a true regional solution.

I thank you for the opportunity to discuss potential solutions to Delaware’s significant air quality challenges. I have also enclosed copies of our 126 petition, Delaware’s attainment and boundary recommendation, and Delaware’s comments on Transport Rule 1 for the record. I look forward to your questions.





STATE OF DELAWARE  
DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL

OFFICE OF THE  
SECRETARY

89 KINGS HIGHWAY  
DOVER, DELAWARE 19901

PHONE: (302) 739-9000  
FAX: (302) 739-6242

December 10, 2008

Mr. Stephen L. Johnson, Administrator  
United States Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Mail Code: 1101A  
Washington, DC 20460

Dear Administrator Johnson:

In June 2007 Delaware submitted to the Environmental Protection Agency (EPA) a state implementation plan (SIP) revision that demonstrates attainment of the 0.08 ppm 8-hour ozone National Ambient Air Quality Standard (NAAQS) in 2009 (Reference 1). In April 2008, Delaware submitted a SIP that demonstrates attainment of the 1997 fine particulate matter (PM<sub>2.5</sub>) NAAQS in 2010 (Reference 2). For achieving attainment of these NAAQSs, Delaware has adopted numerous emission control measures that affect all emission source sectors. Among these controls, we have adopted stringent "multi-pollutant" regulations that require the control of nitrogen oxides (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>) emissions from Delaware's coal and residual oil fired electric generating units (EGUs). By promulgating those SIPs and the associated regulations, Delaware has continued an extraordinary level of effort within its boundary to clean up air quality in order to attain and maintain the NAAQSs. However, Delaware's actual ability to attain and maintain the NAAQSs is severely impacted, and negatively interfered with, by sources outside of Delaware's boundaries.

Clean Air Act (CAA) 110(a)(2)(D)(i) prohibits any source or other type of emissions activity within a 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 such national primary or secondary ambient air quality standard."

In adopting the above mentioned SIPs and associated regulations Delaware has complied with the requirements of CAA Section 110(a)(2)(D)(i) by controlling effectively emission sources within its boundary so that those sources do not contribute significantly to downwind states' non-attainment or interfere with downwind states' maintenance of NAAQSs. However, Delaware's ability to improve its own air quality to attain and maintain the NAAQSs is

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significantly impacted by emissions from EGUs in upwind states that have not undertaken adequate measures to control their emissions of air pollutants as required by CAA Section 110(a)(2)(D)(i) <sup>1</sup>.

In light of this significant impact from upwind states on Delaware's air quality, and the failure of upwind states to address adequately these impacts as required by CAA Section 110(a)(2)(D)(i), we hereby seek relief. Section 126(b) of the CAA provides that,

“[a]ny State or political subdivision may petition the Administrator for a finding that any major source or group of stationary sources emits or would emit any pollutant in violation of the prohibition of Section 110(a)(2)(D)(ii) or this section.”

**By this letter, Delaware is hereby petitioning the Administrator of EPA under Section 126(b) of the CAA to find that EGUs in Maryland, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Virginia, and West Virginia are emitting air pollutants in violation of the provisions of Section 110(a)(2)(D)(i) of the CAA.**

Delaware believes, that as a first step, a substantial portion of this impact can be mitigated by regulating NO<sub>x</sub> and SO<sub>2</sub> emissions from EGUs in the upwind states that are now substantially contributing air pollution sufficient to impair Delaware's ability to attain and maintain the NAAQS, and are violating CAA 110(a)(2)(D)(i). For Delaware, reductions of NO<sub>x</sub> and SO<sub>2</sub> emissions from upwind EGUs are crucial to the attainment and maintenance of the current ozone and PM<sub>2.5</sub> NAAQSs, and to the attainment of the new ozone and new 24-hour PM<sub>2.5</sub> NAAQSs. Mitigation of impacts under CAA Sections 126 and 110(a)(2)(D) must be obtained as soon as practicable, but not later than 2013. This is necessary for Delaware to take advantage of these CAA mandated upwind source reductions in the development of future required ozone and PM<sub>2.5</sub> maintenance and attainment demonstration SIPs. In addition, at least a partial mitigation of the impact of NO<sub>x</sub> emissions from upwind EGUs is needed by 2009 to ensure attainment of the current ozone and PM<sub>2.5</sub> NAAQSs.

Delaware has submitted to EPA SIP revisions that demonstrate that Delaware will attain compliance with the current ozone and PM<sub>2.5</sub> NAAQSs in 2009 and 2010, respectively. In addition to reliance on an extraordinary effort to control sources within Delaware, these SIPs rely in part on some mitigation of upwind NO<sub>x</sub> emissions in 2009, and it is critical that EPA fulfill its nondiscretionary duty to require upwind states to at least partially comply with CAA 110(a)(2)(D)(i) in 2009. Delaware believes that EPA can accomplish this by requiring controls equivalent to the requirements specified in Phase I of the Clean Air Interstate Rule (CAIR) under the authority of Section 126(b) of CAA. The consequence of EPA's failure to require this partial mitigation to occur in 2009 will be that Delaware's air quality may not meet the health based ozone and annual PM<sub>2.5</sub> NAAQS's by the 2009 and 2010 attainment dates, respectively, and,

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<sup>1</sup> EPA promulgated the clean air interstate rule (CAIR), and indicated that compliance with CAIR satisfied states obligations under CAA 110(a)(2)(D)(i). The court vacated CAIR because it, alone, is not sufficient to satisfy CAA 110(a)(2)(D)(i). The vacatur of CAIR does not relieve the States who relied upon CAIR for compliance with CAA 110(a)(2)(D)(i) from their obligations to cease emissions that significantly impact the attainment or maintenance of any NAAQS in any other state.

therefore, the health of Delaware citizens may be compromised by unnecessary exposure to unhealthy air and air pollution in violation of CAA.

Additional background on Delaware's air quality, actions taken to date to address transport under CAA 110(a)(2)(D), and details on a proposed two-phase EPA action under this 126 petition are provided below.

## 1. Delaware's Air Quality

Delaware's air quality is designated by EPA as being in non-attainment for two health based NAAQSs: ground level ozone and PM<sub>2.5</sub>.

### 1.1 Ozone

In 2004, EPA designated the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE a moderate non-attainment area with respect to the current 8-hour ozone NAAQS of 0.08 ppm (69 *FR* 23858). All three counties in Delaware were included in this non-attainment area. The designation indicates that people in this area often breathe air with unhealthy levels of ozone. Comprehensive studies, including those conducted by EPA (References 3 and 4), have demonstrated that unhealthy levels of ozone will cause:

- decreased lung function in children and seniors when outdoors
- increased respiratory symptoms (particularly in highly sensitive individuals)
- increased hospital admissions and emergency room visits for respiratory problems
- inflammation of the lung, and possible long term, life threatening damage to the lungs.

These health impacts on Delaware citizens cannot be tolerated.

Ozone is not emitted directly into the atmosphere but is formed by the reactions of two major precursor chemicals known as volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>x</sub>). These precursor chemicals are released directly into the atmosphere from a wide variety of anthropogenic sources, including power plants, industrial facilities, motor vehicles, trains and planes, equipment with combustion engines, uses of solvents and paints with VOC contents, etc. Thus, in order to lower ambient ozone levels to meet the NAAQS, reductions of emissions of these precursor chemicals must be obtained. Further, peer-reviewed scientific studies supported by empirical evidence has shown that ozone and its precursors are transported over long distances, up to hundreds (or even thousands) of miles, along with winds (References 5 and 6). This long-range transport means that emission sources in one area can contribute to ozone problems in a downwind area hundreds or thousands of miles away. Therefore, for a downwind state to attain the ozone NAAQS, transport of ozone and its precursors from upwind areas must be attenuated so that it will not add significant loads of ozone and precursors to the ambient air of the downwind states. Because there is no way to attenuate natural winds, it becomes critical to control upwind sources to reduce their VOC and NO<sub>x</sub> emissions. Located at the eastern edge of a continent where westerly winds prevail, Delaware is particularly vulnerable to the effects of upwind sources of air pollution.

### 1.2 Fine Particulate Matter (PM<sub>2.5</sub>)

In April 2005, EPA designated the Philadelphia-Wilmington, PA-NJ-DE a non-attainment area with respect to the 1997 PM<sub>2.5</sub> NAAQS (62 *FR* 38652).<sup>2</sup> New Castle County, in Delaware, is included in this non-attainment area, along with five counties in southeastern Pennsylvania, and three counties in New Jersey. This designation indicates that people in this area are breathing air with unhealthy particulate matter levels. Particle pollution, especially fine particles, contains microscopic solids or liquid droplets that are so small that they can penetrate deeply into the lungs and cause serious health problems. Numerous scientific studies have linked particle pollution exposure to a variety of problems including:

- increased respiratory symptoms such as irritation of the airways, coughing or difficulty breathing
- decreased lung function
- aggravated asthma
- development of chronic bronchitis
- irregular heartbeat
- non-fatal heart attacks
- premature death in people with heart or lung disease.

There are two forms of particles: primary and secondary. Primary fine particles, or PM<sub>2.5</sub>, include soot from diesel engines, a wide variety of organic compounds condensed from incomplete combustion, and compounds such as arsenic, selenium, and zinc that condense from vapor formed during combustion or smelting. The PM<sub>2.5</sub> that is formed by chemical reactions of gases in the atmosphere is referred to as "secondary" PM<sub>2.5</sub>. These reactions form condensable vapors that either generate new particles or condense onto other particles in the air. Most of the sulfate, nitrate, and a portion of the organic compounds in the atmosphere, are formed by such chemical reactions. As such, these compounds are known as "PM<sub>2.5</sub> precursors." Like ozone, for a downwind state to attain the fine particulate matter NAAQS, transport of fine particulate and these precursors from upwind areas must be attenuated so that it will not add significant loads of fine particulate matter and precursors to the ambient air of the downwind state. Because there is no way to attenuate natural winds, it becomes critical to control upwind sources to reduce their NO<sub>x</sub> and SO<sub>2</sub> emissions.

## 2. Federal and Regional Actions to Address Transport Have Been Helpful and Inadequate

### 2.1 Ozone Transport Assessment Group (OTAG)

In 1994, several states, including Delaware, requested that EPA take action pursuant to Section 110(a)(2)(D) of the Clean Air Act to address the overwhelming transport of ozone and ozone precursors across state boundaries. To respond to these requests EPA, in cooperation with the National Governors Association and the Environmental Council of States, created the Ozone Transport Assessment Group (OTAG), which conducted a two-year comprehensive study on ozone and precursor transport.

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<sup>2</sup> In addition, EPA has announced its intention to designate New Castle County as non-attainment for the 2006 24-hr PM<sub>2.5</sub> NAAQS (71 *FR* 2710) in December 2008.

Delaware actively participated in the OTAG process. In July 1997, OTAG recommended to EPA that a number of specific controls be implemented in the eastern part of the country to reduce NO<sub>x</sub> emissions and long-range transport (Reference 5). Through extensive modeling, OTAG concluded that regional NO<sub>x</sub> emission reductions would be effective in producing ozone benefits to the downwind states.

## 2.2 OTC NO<sub>x</sub> Budget Program

In September 1994, the states of the Ozone Transport Commission (OTC) signed a Memorandum of Understanding, which initiated the first regional NO<sub>x</sub> cap-and-trade control program in the northeast to address interstate transport and impacts of NO<sub>x</sub>. The NO<sub>x</sub> control program targeted EGUs that generated equal to or greater than 15 MWe, and industrial boilers and indirect heat exchangers with heat inputs equal to or greater than 250 mmBTU/hour. The OTC states developed and implemented a seasonal NO<sub>x</sub> cap-and-trade program, which began in 1998, and was based on an emission rate of 0.15 lb/mmBTU. This program was replaced by the EPA NO<sub>x</sub> SIP Call in 1999 (see Section 2.3 below).

## 2.3 NO<sub>x</sub> SIP Call

In October 1998, EPA promulgated the NO<sub>x</sub> SIP Call (63 *FR* 57356). This federal rule established seasonal NO<sub>x</sub> emission caps in 23 jurisdictions in the eastern half of the country to address NO<sub>x</sub> and ozone transport across boundaries of those jurisdictions. The NO<sub>x</sub> SIP Call proved to be a good start of regional control strategy for attenuating NO<sub>x</sub> and ozone transport, helping many counties in the northeastern states successfully attain the previous 1-hour ozone NAAQS (0.12 ppm) in 2005, and contributing significantly to the early efforts of many eastern states toward attaining the current ozone NAAQS (0.08 ppm) in 2009. This program was slated for replacement by EPA's Clean Air Interstate Rule (CAIR) beginning in 2009<sup>3</sup>.

## 2.4 Clean Air Interstate Rule (CAIR).

In an attempt to further address regional transport of ozone, PM<sub>2.5</sub> and their precursors, EPA promulgated CAIR in May 2005 (70 *FR* 25162). This federal rule covered power-generating plants in 28 eastern states and the District of Columbia, and would reduce NO<sub>x</sub> and SO<sub>2</sub> emissions that contributed to unhealthy levels of ozone and PM<sub>2.5</sub> in downwind states. The rule implemented a phased-in cap-and-trade approach, with Phase I caps effective in 2009 and 2010 for NO<sub>x</sub> and SO<sub>2</sub>, respectively, and Phase II caps effective in 2015 for both NO<sub>x</sub> and SO<sub>2</sub>. The EPA projected that the phased-in approach would lead to an overall 61% NO<sub>x</sub> emission reduction and 73% SO<sub>2</sub> emission reduction by 2020.

While CAIR did provide for emission reductions beyond the NO<sub>x</sub> SIP Call, particularly in the non-ozone season months, undisputed evidence found in peer-reviewed scientific studies demonstrates that CAIR was not designed to mitigate fully the impacts of ozone and PM<sub>2.5</sub>, and precursor emissions, relative to both the quantity and timing. In particular, CAIR is too little and too late to fully mitigate the impacts of upwind states on Delaware. As such, CAIR would not

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<sup>3</sup> CAIR was vacated by the D.C. Circuit Court in July 2008, and at this time (December 2008) the status of the NO<sub>x</sub> SIP Call is not clear. Also, see footnote 1.

fully mitigate transport, and would not satisfy the provisions of CAA Section 110(a)(2)(D). Delaware and a few other states realized this early on and developed state-specific rules that are more stringent than CAIR. Many states did not, however, including upwind states that emit air pollutants in amounts that contribute significantly to nonattainment in, and interfere with maintenance by, Delaware with respect to ozone and PM<sub>2.5</sub> NAAQSs. As such, sources in these upwind states continue to emit air pollutants in violation of CAA 110(a)(2)(D)(i)<sup>4</sup>. EPA is duty bound to cease these violations and mitigate these emissions.

### 3. Compliance of EGUs with CAA Section 110(a)(2)(D)

Among the largest sources of ozone and PM<sub>2.5</sub> precursors are dozens of Electric Generating Units, (EGUs) in Delaware and in upwind states. As mentioned above, Delaware has developed and submitted to EPA attainment demonstration SIPs which have included controls over all source sectors, and which have demonstrated that necessary NO<sub>x</sub> and SO<sub>2</sub> emission reductions have been, and will be made, to attain these NAAQS's (Reference 1 and 2). These SIPs relied upon emission reductions from Delaware EGUs, and emission reductions from upwind EGUs that in part comply with CAA 110(a)(2)(D). Among the consequences of upwind EGUs not complying with CAA 110(a)(2)(D), aside from people in Delaware suffering the ill-health effects of upwind air pollution sources, is that Delaware residents and businesses, and those dependent on power from the EGU's, pay a higher financial cost to pay for these controls and are put at an economic disadvantage compared to upwind states who have failed to pay for controls.

#### 3.1 Delaware Electric Generating Units (EGUs).

All of Delaware's EGUs are well controlled as summarized below:

- Control for generators powered by internal combustion engines is provided under Delaware Regulation 1144, "Control of Stationary Generator Emissions" (Reference 7). This regulation significantly reduces NO<sub>x</sub> emissions from small EGUs that have low annual emissions, but high peak day emissions. The NO<sub>x</sub> rate is limited to between 4.0 and 0.6 lb/MWh, depending on installation date.
- Control for oil and coal fired units is provided under Regulation 1146 "Electric Generating Unit (EGU) Multi-Pollutant Regulation" (Reference 8). This regulation significantly reduces NO<sub>x</sub>, SO<sub>2</sub> and mercury emissions from Delaware's coal and residual oil fired EGUs. Emission rate of NO<sub>x</sub> is limited to 0.125 lb/mmBTU, SO<sub>2</sub> to 0.26 lb/mmBTU, and mercury to 90% reduction or 0.6 lb/tBTU. Delaware Regulation 1146 sets up more stringent emission rate limits over those CAIR affected EGUs, plus an earlier effective schedule than that of CAIR Phase I and Phase II requirements.

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<sup>4</sup> Also, see footnote 1.

- Control for peaking units is provided under Regulation 1148, “Control of Stationary Combustion Turbine Electric Generating Unit Emissions” (Reference 9). This regulation significantly reduces NO<sub>x</sub> emissions from Delaware EGUs that have high peak day NO<sub>x</sub> emissions, yet remained substantially uncontrolled after RACT (i.e., Delaware Regulation No. 1112) due to low annual emissions. Emission of NO<sub>x</sub> from gas units is limited to 42 ppm and from oil units is limited to 88 ppm.

Delaware’s EGU regulations are state regulations that are in effect before the ozone season of 2009. These regulations are among the control requirements adapted by Delaware as necessary to comply fully with CAA Section 110(a)(2)(D).

### 3.2 EGUs in Upwind States

As mentioned above, ozone and PM<sub>2.5</sub> air pollutant concentrations in Delaware and, thus, Delaware’s ability to attain and maintain the NAAQS are significantly influenced by air pollution from upwind emission sources. More specific discussion on the impacts of upwind emissions on Delaware is included in Delaware’s ozone and PM<sub>2.5</sub> SIPs (References 1 and 2, respectively) and below.

The EPA conducted comprehensive studies on upwind contributions to downwind ozone and PM<sub>2.5</sub> problems when promulgating CAIR in 2005. The EPA concluded, based on these studies, that emissions from the following states contribute significantly to Delaware’s ozone and/or PM non-attainment problems (see in Tables VI-8 and VI-9 of 70 *FR* 25162):

Maryland (ozone and PM<sub>2.5</sub>)  
 Michigan (ozone and PM<sub>2.5</sub>)  
 New York (PM<sub>2.5</sub> only)  
 North Carolina (ozone only)  
 Ohio (ozone and PM<sub>2.5</sub>)  
 Pennsylvania (ozone and PM<sub>2.5</sub>)  
 Virginia (ozone and PM<sub>2.5</sub>)  
 West Virginia (ozone and PM<sub>2.5</sub>)

In addition, the CAIR analysis indicated that emissions from two states, New Jersey and New York, contribute significantly to ozone non-attainment problems of other counties, outside of Delaware, in the PA-NJ-MD-DE non-attainment area (see Tables VI-8 and VI-9 of 70 *FR* 25162). Because Delaware’s attainment status for the current 8-hour ozone standard depends on attainment of the entire PA-NJ-MD-DE non-attainment area, these two states should be also regarded as emitting air pollutants at levels that significantly impact Delaware’s ability to attain and maintain NAAQSs because they are contributing upwind states to the non-attainment area of which Delaware is a part.

Our confidence in these conclusions about upwind contributions is based on EPA analysis. Regional NO<sub>x</sub> and SO<sub>2</sub> emissions were studied thoroughly by EPA through in-depth modeling analyses in its CAIR rulemaking process (Reference 6). For example, using the source

apportionment total contribution metric, EPA estimated that the percent contribution of upwind states to the 2010 base case 8-hour ozone nonattainment in New Castle County, Delaware, was 37% (Table VI-2, Reference 6). Based on those analyses, EPA defined the above upwind states as significant linkages to ozone and/or PM<sub>2.5</sub> non-attainment problems in Delaware and the entire PA-NJ-MD-DE non-attainment area. Therefore, emissions of NO<sub>x</sub> and SO<sub>2</sub> from EGUs as a group of significant sources in those upwind states must be controlled, under CAA Section 110(a)(2)(D)(i), to mitigate their contributions to downwind non-attainment problems.

Further, the EGU emissions of NO<sub>x</sub> and SO<sub>2</sub> represent significant portions of upwind states' total emissions of air pollutants, as indicated in Table 1 below.

Table 1. Relative Contribution of EGU Emissions to Total State Emissions in 2001\*.

Significant Upwind State	NO <sub>x</sub>	SO <sub>2</sub>
Maryland	24.2%	74.2%
Michigan	21.4%	71.8%
New Jersey	10.8%	42.9%
New York	12.6%	49.8%
North Carolina	25.7%	79.7%
Ohio	34.6%	84.0%
Pennsylvania	26.7%	80.4%
Virginia	17.7%	67.4%
West Virginia	54.0%	85.4%

\*Note: Data compiled from EPA's CAIR emission file "Annual emissions of VOC, CO, SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> model species for the 2001 Base Year, 2010 Base Case, and 2015 Base Case", at [http://www.epa.gov/cair/pdfs/Emissions\\_summary\\_state\\_sector\\_speciation.xls](http://www.epa.gov/cair/pdfs/Emissions_summary_state_sector_speciation.xls).

Delaware's ozone SIP has demonstrated that its attainment of the current 8-hour ozone standard in 2009 depends partially on EGU NO<sub>x</sub> reductions from the upwind states (Reference 1). This partial dependence is also indicated by EPA's CAIR modeling analysis (e.g., Table VI-12, 70 *FR* 25162). For the current annual PM<sub>2.5</sub> standard, effects of EGU reductions under CAIR on Delaware's efforts for the 2010 attainment are also projected to be critical, as indicated in Table VI-10 of the final CAIR rule (70 *FR* 25162). Based on all this evidence Delaware believes that:

(1) NO<sub>x</sub> reductions from EGUs in the nine states, (MD, MI, NJ, NY, NC, OH, PA, VA, and WV) at CAIR Phase I levels, at a minimum, are needed in 2009 for the 2009/2010 attainment in DE and Philadelphia ozone and PM<sub>2.5</sub> non-attainment area(s), and

(2) further NO<sub>x</sub> and SO<sub>2</sub> reductions from those EGUs are needed beyond 2009 for maintaining the current NAAQSs and attaining the new ozone and PM NAAQSs that were promulgated by EPA.



Therefore, emissions of NO<sub>x</sub> and SO<sub>2</sub> from those EGUs must be subject to timely control requirements pursuant to CAA Section 110(a)(2)(D)(i), so that they will cease emitting air pollutants in amounts that contribute significantly to nonattainment and interfere with maintenance in Delaware with respect to ozone and PM<sub>2.5</sub> NAAQSs.

#### 4. Delaware Petition under CAA Section 126

As demonstrated above, air pollutant emissions from upwind states that are in excess of those allowed under CAA Section 110(a)(2)(D) are adversely impacting Delaware, and the entire PA-NJ-MD-DE non-attainment area. The EGUs in the states identified in 3.2 above are emitting air pollutants in violation of the prohibition of Section 110(a)(2)(D) of the CAA, and EPA must fulfill its nondiscretionary statutory obligation under CAA Section 126(b) to require this violation to cease. Ours is exactly the situation envisioned in the CAA for which Section 126 was intended. The extent of the upwind air pollution transport is significantly affecting Delaware's ability to comply with federal health based air quality standards, despite Delaware's best efforts. The air coming into Delaware and the PA-NJ-MD-DE non-attainment area does not meet the standard. Accordingly, timely EPA action is necessary to comply with the CAA. Failure to act would render meaningless this part of the CAA.

Full mitigation of upwind NO<sub>x</sub> and SO<sub>2</sub> emissions is crucial to the attainment and maintenance of the ozone and new PM<sub>2.5</sub> NAAQSs. This full mitigation pursuant to CAA Section 110(a)(2)(D) must be obtained as soon as practicable, but no later than 2013. As discussed previously, Delaware has "clean hands" in that it has implemented all controls within its boundary to meet the requirements of CAA Section 110(a)(2)(D). The most recent control requirements include:

1. Architectural and Industrial Maintenance (AIM) Coatings: reduced VOC content of numerous coatings beyond federal requirements.
2. Mobile Equipment: established coating equipment standards to reduce VOC emissions.
3. Gas Cans: required that gas cans meet certain performance and permeability standards to reduce VOC emissions.
4. Degreasing: reduced degreaser vapor pressure and put in place equipment standards and work practices to reduce VOC emissions.
5. Control of NO<sub>x</sub> Emissions from Large Boilers: reduced NO<sub>x</sub> emissions from boilers larger than 100 mmbtu/hr that weren't well controlled through other programs.
6. Anti-Idling: reduced VOC, NO<sub>x</sub>, SO<sub>x</sub>, and DPM emissions from heavy duty vehicles by reducing allowable idling time.
7. Open Burning: put in place strict open burning ban during the ozone season.
8. Minor NSR: reduced criteria pollutant and air toxic emissions by subjecting new minor stationary sources to top-down BACT requirements.
9. OTC NO<sub>x</sub> Budget Program: participated in a regional NO<sub>x</sub> Cap and Trade program to reduce NO<sub>x</sub> emissions from power plants (program later replaced by the NO<sub>x</sub> SIP Call).
10. Adopted several regulations to reinforce EPA-adopted heavy-duty diesel rules.

11. Peaking Units: reduced peak ozone day NO<sub>x</sub> emissions from combustion turbines used as electrical peaking units.
12. Refinery Boilers: reduced NO<sub>x</sub> emissions from large refinery boilers.
13. Non-Refinery Boilers: reduced NO<sub>x</sub> emissions from large non-refinery boilers.
14. Utilities Multi-P: reduced NO<sub>x</sub>, SO<sub>x</sub>, and Hg emissions from Delaware's coal and residual oil fired electric utilities.
15. Lightering: reduced VOC emissions from crude oil lightering operations in the Delaware Bay.

Therefore, the adverse impact from upwind states on the health and welfare of Delaware citizens must be mitigated as soon as practicable. Further, mitigation by 2013 is necessary to ensure that Delaware can take advantage of these CAA mandated upwind reductions under CAA Section 110(a)(2)(D) as it develops future required maintenance and attainment demonstration SIPs.

Delaware's current ozone and PM<sub>2.5</sub> SIPs (Reference 1 and 2) rely upon the partial mitigation under 110(a)(2)(D) of upwind NO<sub>x</sub> emissions in 2009 (i.e., CAIR level reductions). CAIR was recently vacated by the courts, however, as, inter alia, not sufficient to satisfy CAA (110)(a)(2)(D). Among our concerns now is that some of the upwind states have relied upon CAIR to satisfy their obligations under CAA 110(a)(2)(D). The CAIR vacatur removed the CAIR-mandated obligations from upwind EGUs. Delaware is extremely concerned about the CAIR vacatur and its adverse impacts on Delaware's 2009 attainment for the current 8-hour ozone NAAQS and 2010 attainment for the 1997 annual PM<sub>2.5</sub> NAAQS, as well as attaining the 24-hr NAAQS in the future.

With the above concerns, Delaware is hereby petitioning EPA under Section 126(b) of the CAA to find that EGUs in the identified upwind states are emitting air pollutants in violation of the prohibition of Section 110(a)(2)(D)(i) of the CAA.

Delaware believes, as a first step, much of this impact can be mitigated by regulating NO<sub>x</sub> and SO<sub>2</sub> emissions from EGUs in the upwind states. After EPA makes the findings that EGUs in upwind states are emitting air pollutants in violation of the prohibition of Section 110(a)(2)(D)(i) of the CAA, Delaware recommends EPA to take the following actions:

- Make the required finding under section 110 of the CAA and then pursue additional courses of action to reduce air pollution, including:
- Phase One. Require partial mitigation of NO<sub>x</sub> emissions from upwind EGUs by 2009. The need for timely EPA action on this petition is critical. Delaware has submitted to the EPA SIPs that demonstrate that Delaware will attain compliance with ozone and PM<sub>2.5</sub> NAAQSs in 2009 and 2010, respectively. However, these SIPs rely in part on some mitigation of upwind NO<sub>x</sub> emissions in 2009, and it is critical that the EPA take reasonable action to require upwind states to at least partially comply with CAA 110(a)(2)(D)(i) in 2009. This partial compliance can be done by requiring controls on those upwind EGUs equivalent to CAIR Phase I levels.

- Phase Two. Require full mitigation of NO<sub>x</sub> and SO<sub>2</sub> emissions from upwind EGUs. This is crucial to the maintenance of the current ozone and PM<sub>2.5</sub> NAAQSs, and to the attainment of the new ozone and new 24-hour PM<sub>2.5</sub> NAAQS's. This full mitigation under CAA Sections 126 and 110(a)(2)(D) must be obtained as soon as practicable, but not later than 2013. The full mitigation of NO<sub>x</sub> and SO<sub>2</sub> emissions from a subject upwind state is determined when emissions from its EGUs, together with emissions from other source sectors in the subject state, will no longer contribute significantly to Delaware's ozone and PM<sub>2.5</sub> non-attainment problems, or will not interfere with Delaware's maintenance of its attainment status, as shown by adequate modeling results.

Delaware believes that EPA can accomplish the Phase One recommendation of this petition by requiring controls equivalent to the first phase of its CAIR, or reinstating CAIR under the authority of Section 126(b) of the CAA. This would require those upwind EGUs to control their NO<sub>x</sub> emissions to the levels equivalent to CAIR Phase I requirements under the authority of Section 126 of the CAA. The consequence of EPA's failure to require those reductions to occur in 2009 will be that Delaware's air quality may not meet the associated ozone and 1997 PM<sub>2.5</sub> NAAQS's by the 2009 and 2010 attainment dates, respectively, and Delaware citizens will be exposed to unhealthy air.

Given the failure of prior attempts to fully mitigate transport under the cap-and-trade approach (i.e., NO<sub>x</sub> SIP Call and CAIR), Delaware believes that sole reliance on a cap-and-trade program to mitigate transport is not an acceptable remedy. Prior experience has demonstrated that cap-and-trade schemes have proven to be ineffective as a sole remedy to the long-standing problem that Northeastern states, including Delaware, have suffered with because of the transport of air pollution from other states into their jurisdictions. Further, Delaware has demonstrated, through the promulgation its own multi-pollutant rule controlling EGUs (Regulation 1146), that even highly cost effective emission controls will not be installed on smaller EGUs under a cap-and-trade approach alone (Reference 8). Delaware believes that the EPA must set performance standards on each EGU in the states that impact Delaware in order to accomplish the Phase Two recommendation of this petition. The specific EGUs that would be subject to this performance standard are coal and residual-oil fired EGUs greater than 25 MWe.

Each unit coal or oil fired EGU that serves a generator of 25 MWe or greater must comply with a minimum level of control. Delaware believes the level should be equivalent to the level it has required its own in state coal and oil fired EGUs to meet under Delaware Regulation No. 1146 (Reference 8).

Delaware's Regulation 1146 includes rate-based NO<sub>x</sub> and SO<sub>2</sub> emissions limits for Delaware's large coal-fired and residual oil-fired electric generating units (EGUs). All subject EGUs are required to have a NO<sub>x</sub> emission rate no greater than 0.15 lb/MMBTU beginning in 2009, and a NO<sub>x</sub> emission rate no greater than 0.125 lb/MMBTU beginning in 2012. Coal-fired EGUs are required to have a SO<sub>2</sub> emission rate no greater than 0.37 lb/MMBTU beginning in 2009, and a SO<sub>2</sub> emission rate no greater than 0.26 lb/MMBTU beginning in 2012. Residual oil-fired EGUs are required by the regulation to accept only fuel oil with a sulfur content maximum of 0.5% by weight beginning in 2009.

Delaware adopted Regulation 1146's NO<sub>x</sub> and SO<sub>2</sub> emissions rate limits as a result of review and analysis of available EGU NO<sub>x</sub> and SO<sub>2</sub> emission control information. Sources of this information included EPA publications, Clean Air Markets Division (CAMD) data, Energy Information Administration (EIA) data, industry reports, and control equipment vendor publications. The information was reviewed for the purpose of identifying NO<sub>x</sub> and SO<sub>2</sub> emission rates that were technologically feasible for virtually any large (> 25 MWe) coal-fired EGU, were cost-effective for virtually any large coal-fired EGU, and were commercially available for retrofit to virtually any large coal-fired EGU. Delaware further determined that imposing emission rate limits in the regulation potentially provided a more cost-effective methodology than specifying a given control technology requirement by allowing subject sources the flexibility to choose a reduction technology or suite of technologies that best fit the needs of the particular source. The emission rate limits determined for Delaware's Regulation 1146 also closely correspond to regional average emission rates that can be estimated from the EPA's CAIR cap-and-trade program allowance allocations.

The NO<sub>x</sub> emissions rate limits identified in Delaware's Regulation 1146 are similar in magnitude to the highly cost-effective region-wide average emission rates associated with the development of the EPA's CAIR cap-and-trade program budgets. The EPA's Technical Support Document for CAIR, Notice of Final Rulemaking, "Regional and State SO<sub>2</sub> and NO<sub>x</sub> Emissions Budget", dated March 2005, discussed the development of the regional NO<sub>x</sub> budgets associated with the CAIR program. EPA indicates in the document that region-wide NO<sub>x</sub> emissions mass caps were determined by multiplying the base region-wide heat input by 0.15 lb/MMBTU and 0.125 lb/MMBTU for 2009 and 2015, respectively. Referring to this methodology, the document states "The EPA determined, through IPM analysis, that the resulting region-wide emissions caps (if all states choose to obtain reductions from EGUs) are highly cost-effective levels."

The aforementioned EPA CAIR technical support document also addressed the development of CAIR cap-and-trade program budget for SO<sub>2</sub> emissions. In the document, EPA discussed the designing of Acid Rain SO<sub>2</sub> allowance retirement ratios to achieve a 50% SO<sub>2</sub> reduction beginning in 2010 and achieving a 65% reduction beginning in 2015. These retirement ratios effectively established region-wide SO<sub>2</sub> mass emissions caps for 2010 and 2015. If these effective 2010 and 2015 SO<sub>2</sub> mass emissions caps are divided by the baseline heat input used by the EPA's technical support document in the determination of the NO<sub>x</sub> annual budget mass caps, the resulting region-wide average SO<sub>2</sub> emission rates are 0.37 lb/MMBTU in 2010 and 0.26 lb/MMBTU in 2015. Regarding the 50% SO<sub>2</sub> reduction in 2010 and 65% SO<sub>2</sub> reduction in 2015, EPA stated that "EPA determined, through IPM analysis, that the resulting region-wide emissions caps (if all states choose to obtain reductions from EGUs) are highly cost-effective levels." The SO<sub>2</sub> emissions rate limits identified in Delaware's Regulation 1146 are similar in magnitude to those highly cost-effective SO<sub>2</sub> region-wide emissions limitations associated with the EPA's CAIR technical support document. The EPA provided further discussion and justification of the above "highly cost-effective" NO<sub>x</sub> and SO<sub>2</sub> emissions budgets in the final CAIR rule (70 FR 25162).


Delaware believes that once all coal and oil fired units of 25 MWe or greater are controlled, that it would then be appropriate to overlay a cap-and-trade program to bring in gas

and other units, with a cap significantly tighter than CAIR. Delaware believes that under this approach (i.e., performance standards plus cap-and-trade program) the emissions from the EGU sector would comport with CAA 110(a)(2)(D).

CAA Section 126(b) requires that within 60 days after receipt of any petition and after public hearing, the Administrator shall make such a finding or deny the petition. Once a finding is made, CAA Section 126(c) does not allow any major existing source to operate more than 3 months after such finding has been made with respect to it, except that the Administrator may permit the continued operation of a source beyond the expiration of such three-month period if such source complies with such emission limitations and compliance schedules (containing increments of progress) as may be provided by the Administrator to bring about compliance with the requirements contained in CAA Section 110(a)(2)(D)(ii) as expeditiously as practicable, but in no case later than three years after the date of such finding. As explained above, Delaware believes that compliance with the CAIR Phase I levels would satisfy the immediate timing for 2009, and that final mitigation must be achieved within 3 years thereafter.

We look forward to working with you and your staff during this critical period in which you make your finding relative to this petition, and take the required actions. If you have any questions or desire to meet and discuss this petition, please do not hesitate to contact me or Ali Mirzakhali, Administrator, Air Quality Management Section.

Sincerely,

  
John A. Hughes  
Secretary

CC: Governor Ruth Ann Minner,  
State of Delaware

Administrator Donald S. Welsh  
US EPA Region III Office

Shari T. Wilson, Secretary  
George Abum, Air Director  
Maryland Department of the Environment

Steven E. Chester, Director  
G. Vinson Hellwig, Air Division Chief  
Michigan Department of Environmental Quality

Mark N. Mauriello, Commissioner  
William O'Sullivan, Air Director  
New Jersey Department of Environmental Protection

Pete Grannis, Commissioner  
Jared Snyder, Assistant Commissioner for Air Resources  
New York Department of Environmental Conservation

William G. Ross Jr., Secretary  
Keith Overcash, Air Director  
North Carolina Department of Environment and Natural Resources

Chris Korleski, Director  
Robert Hodanbosi, Air Division Chief  
Ohio Environmental Protection Agency

John Hanger, Acting Secretary  
Joyce E. Epps, Air Director  
Pennsylvania Department of Environmental Protection

David K. Paylor, Director  
Mike Dowd, Air Director  
Virginia Department of Environmental Quality

Randy C. Huffman, Secretary  
John A. Benedict, Air Director  
West Virginia Department of Environmental Protection

David Small, Deputy Secretary,  
Department of Natural Resources and Environmental Control

James D. Werner, Director  
Delaware Division of Air and Waste Management

Ali Mirzakhali, Administrator  
Delaware Air Quality Management Section

Judy Cherry, Director  
Delaware Economic Development Office

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8. Regulation 1146, "Electric Generating Unit (EGU) Multi-Pollutant Regulation", Delaware Department of Natural Resources and Environmental Control, December 2006 (SIP Regulation pending EPA approval).
9. Regulation 1148, "Control of Stationary Combustion Turbine Electric Generating Unit Emissions", Delaware Department of Natural Resources and Environmental Control, July 2007 (SIP Regulation pending EPA approval).



STATE OF DELAWARE  
OFFICE OF THE GOVERNOR  
TATNALL BUILDING, SECOND FLOOR  
WILLIAM PENN STREET, DOVER, DE 19901

JACK A. MARKELL  
GOVERNOR

PHONE: 302-744-4101  
FAX: 302-739-2775

March 18, 2009

Mr. William T. Wisniewski (3RA00)  
Acting Regional Administrator  
Region III  
U.S. Environmental Protection Agency  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

Dear Administrator Wisniewski:

On March 12, 2008, the EPA revised the primary and secondary National Ambient Air Quality Standards (NAAQS) for ground-level ozone from the current 0.08 parts per million (ppm) to a new 0.075 ppm. Section 107(d) of the Clean Air Act (CAA) requires the Governor of each State to submit to the EPA a list of all areas (or portions thereof) in the State, designating each as nonattainment, attainment, or unclassifiable. This letter fulfills Delaware's obligations under Section 107(d) of the CAA. It also recommends the placement of Delaware's counties in non-attainment status under the new 0.075 ppm standard in a non-attainment area.

**Area Description and Attainment/Nonattainment Status**

Delaware is composed of three counties, namely New Castle, Kent and Sussex, laying from north to south. The northern portion of New Castle County lies above the Chesapeake and Delaware Canal, a waterway that connects the Chesapeake Bay with the Delaware Bay. This part of New Castle County is more metropolitan and industrialized than the remainder of Delaware. The remainder of Delaware lies south of the Chesapeake and Delaware Canal, and comprises the southern portion of New Castle County, and all of Kent and Sussex Counties. All three counties share similar air quality problems with respect to ozone, because the problem is predominantly caused by ozone and ozone precursor emissions from upwind states.

Delaware's ozone monitoring network includes ambient ozone monitors in each of its counties (three monitors in New Castle, one monitor in Kent, and one monitor in Sussex). Based on 2006 through 2008 ozone monitoring data (i.e., the most recent three years), the 8-hour ozone



design values for New Castle, Kent and Sussex counties are 0.083 ppm, 0.081 ppm, and 0.081 ppm, respectively. Since these design values are all greater than the 0.075 ppm standard, all three counties in Delaware should be designated as non-attainment for both the primary and secondary 8-hour ozone NAAQS.

#### **Placement of Delaware's Counties in a Large Nonattainment Area**

Ground-level ozone and ozone precursor emissions are pervasive and readily transported. Numerous epidemiological studies conducted during the past decade have revealed that prolonged (i.e., 8-hour) exposure to ozone is associated with increased mortality and a range of serious morbidity health effects, including aggravation of a variety of respiratory symptoms and lung impairment, asthma attacks, respiratory hospital admissions and emergency department visits, and cardiovascular problems. This level of ozone concentration is also associated with adverse public welfare effects, which include impacts on vegetation, and forest ecosystems, and agricultural crop yields. The pervasive nature of ozone, and the serious adverse health and welfare effects associated with ozone non-attainment make non-attainment boundary determinations critical.

Under the 1997 8-hour ozone NAAQS, the EPA included Delaware's three counties in the Philadelphia-Wilmington-Trenton Nonattainment Area. In establishing this area the EPA relied on their policy presumption of using Consolidated Metropolitan Statistical Area (CMSA) boundaries and the prior 1-hour nonattainment area (NAA) boundaries as 8-hour nonattainment area boundaries, except they also considered the impact of upwind emissions and included Ocean County, NJ, despite Ocean County, NJ being part of the New York CMSA. Delaware believes that full consideration of upwind contribution when establishing non-attainment boundaries is necessary because ozone and ozone precursor emissions are pervasive and readily transported. It is important that the emissions that are causing Delaware's ozone problem be subject to the CAA non-attainment requirements.

In its guidance entitled "Area Designation for the 2008 Revised Ozone NAAQS (December 4, 2008)," EPA recommends using the Core Based Statistical Area (CBSA) or Combined Statistical Area (CSA), similar to the previous CMSA concept, to delineate nonattainment boundaries. In the guidance, EPA recognizes that upwind contribution is significant, and indicates that "In addition to nearby areas with sources contributing to nonattainment, ozone concentrations in a local area may be affected by long-range transport of ozone and its precursors (notably nitrogen oxides). In certain parts of the country, such as the eastern United States, ozone is a widespread problem." However, in this guidance document EPA also indicated that where this is the case, the CAA does not require that all contributing areas be designated nonattainment, but only the nearby areas; and that regional strategies, such as those employed in the Ozone Transport Region and EPA's NO<sub>x</sub> SIP Call are needed to address the long-range transport component of ozone nonattainment, while the local component must be addressed through local planning in and around the designated nonattainment area. The EPA's practice being guided by this interpretation has led to a separation between regional controls and local controls, which has been proved to be substantially ineffective in ozone NAAQS strategy

planning and attainment. In particular, this interpretation has led ineffective, insufficient and delayed regional controls, and insufficient and even no local controls being installed in many areas due to exclusion of many contributing areas/counties in the nonattainment designation.

Section 107(d)(1) of the CAA defines a nonattainment area as "any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant." In the context of a regional problem like ozone nonattainment, the term "nearby" must be interpreted consistent with the scale of the problem and the nature of the pollutant. For the purposes of solving air quality problems associated with pollutants like sulfur dioxide and carbon monoxide, CMSA or CBSA/CSA scale boundaries have proven adequate. This is because concentrations of these pollutants above the standard are generally driven by emission sources that are very close, geographically and do not involve complex atmospheric chemistry. However, this is not the case with ozone. Over the past 35+ years, and in particular since 1990, Delaware's local sources of ozone precursor emissions have all been well controlled, yet Delaware's air quality remains non-attainment relative to ozone. High ozone concentrations in Delaware are not driven by emission sources that are geographically close, but rather emissions sources that are many miles away. Given this, Delaware believes that it is necessary to consider regional transport of ozone and ozone precursor emissions in establishing non-attainment area boundaries. More specific reasons for this belief include:

- The CBSA/CSA approach is based on census data rather than air-shed monitoring and/or analysis data. Census data, in comparison to air-shed data, represents a poor surrogate for determining ozone non-attainment boundaries. This is particularly true for areas like Delaware that are heavily affected by long-range transport of ozone and ozone precursors.
- Detailed regional air-shed studies have been completed in the past decade or so, such as the Regional Oxidant Modeling (ROM) project covering most of the Ozone Transport Region (OTR) states, the Ozone Transport Assessment Group (OTAG) project, the NOx SIP Call analysis covering most of the Eastern U.S., and the EPA Clean Air Interstate Rule (CAIR) analysis. These studies have demonstrated that the ozone problem is transport-driven and regional in scope, rather than localized or confined to the relatively small CBSA/CSA domains.
- The studies mentioned above have further demonstrated that individual CBSA/CSA based non-attainment areas do not have the ability to achieve attainment regardless of the levels of emission controls they implement within their own jurisdictional boundaries. Delaware believes that this conclusion should become the cornerstone of good air quality planning and policy, starting with the crucial boundary determinations.
- In many downwind nonattainment areas, including Delaware, the air coming into a county is often with ozone concentration greater than 0.075 ppm (i.e., greater than NAAQS). Therefore, it becomes impossible for such an area to solve its non-attainment problem under its own authority. The CBSA/CSA approach has led to situations where many downwind areas are struggling with non-cost-effective controls to reduce ambient ozone components that come from upwind areas that are not subject to the reasonable emission control requirements. As a result, protection of public health in those

downwind areas has been severely hindered and delayed because reasonable emission controls are not in place in the upwind areas.

- The CBSA/CSA approach has led to stringent controls being implemented within individual non-attainment areas. This approach has had success in the OTR toward achieving attainment of both 1-hour (0.12 ppm) and the current 8-hour (0.08 ppm) ozone NAAQS, however, the most success toward attainment of ozone NAAQS in the OTR to date is attributable to national measures taken by the EPA, and regional measures developed and adopted by the Ozone Transport Commission (OTC) member states. The area is also facing with having to implement measures that will provide diminishing returns. We are revisiting standards for a second or third time for sectors that go uncontrolled in the contributing upwind states.

In its December 4, 2008 guidance, EPA recommends nine factors for states to use to justify their boundary recommendations. The EPA states its rationale for recommending these factors as being that they are similar to the ones used to establish CBSAs and CSAs. Delaware believes, however, using these factors to justify ozone non-attainment boundaries because they are similar to the ones used to establish CBSAs and CSAs is not appropriate. Instead, boundary recommendations must be evaluated with consideration given to the pervasive nature of the pollutant ozone, and the ozone/precursor transport issue discussed above.

Based on the above discussion Delaware recommends that EPA include Delaware's three counties in a single multi-state regional large nonattainment area (NAA) that includes all counties in the states of Maryland, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Virginia, and West Virginia. This area encompasses the emissions that are causing Delaware's ozone non-attainment problems, and rationale for it is more fully described in the CAA Section 126 petition that Delaware submitted to the EPA on December 15, 2008. A map that details Delaware's recommended nonattainment area boundaries is attached to this letter. Delaware believes that this approach would:

- Reinforce the science-based and wide-accepted fact that ozone non-attainment is a "regional problem" and not only a "local problem";
- Include all or most of the counties necessary to solve this regional problem, give them a vested interest in solving this regional problem, and foster cooperative development and implementation of control strategies that are most effective to solving the wide-spread ozone nonattainment problem;
- Remove political barriers and level the playing field by setting the consistent baseline of control requirements of Subpart 2 of Title I, Part D of the CAA within the region, which include New Source Review (NSR), vehicle Inspection and Maintenance, and highly cost effective Reasonably Available Control Technology (RACT) requirements;
- Effectively compliment national and regional rules that address regional transport;
- Greatly simplify and provide equity to the process of implementing the new 8-hour NAAQS.

Mr. William T. Wisniewski

March 18, 2009

Page 5

implementation of control strategies that are most effective to solving the wide-spread ozone nonattainment problem;

- Remove political barriers and level the playing field by setting the consistent baseline of control requirements of Subpart 2 of Title I, Part D of the CAA within the region, which include New Source Review (NSR), vehicle Inspection and Maintenance, and highly cost effective Reasonably Available Control Technology (RACT) requirements;
- Effectively compliment national and regional rules that address regional transport;
- Greatly simplify and provide equity to the process of implementing the new 8-hour NAAQS.

Delaware believes that the above large-NAA recommendation represents the most effective and economical way to address the pervasive ozone nonattainment problem in the northeast region. If, however, the EPA chooses not to embrace the above recommendation (i.e., not to fully consider upwind contribution in setting nonattainment boundaries, and not to establish a large regional ozone non-attainment area), despite our confidence that is a better course of action, then Delaware proposes that the EPA establish Delaware as a stand-alone ozone nonattainment area (i.e., the geographical boundaries of Delaware constitute Delaware's ozone nonattainment boundaries). Delaware suggests this stand-alone alternative not because it is the best approach to clean the air, but rather because it is more rationale than a CBSA/CSA supported designation under the muse that emissions within the CBSA/CSA area are causing the nonattainment problem. Note that Delaware's ozone nonattainment problems are mainly caused by long-range ozone/precursor transport from upwind sources, and under this approach the EPA would need to commit to develop and implement effective regional controls to completely mitigate ozone/precursor transport in the timeframe of Delaware (and other downwind states) attainment schedule according to the CAA.

Thank you for your consideration of the above recommendations. If you feel you cannot support the large non-attainment boundary approach discussed above Delaware would like to have an opportunity to continue this discussion before you propose any modification. If you have any questions concerning this submittal or would like to discuss it further, please contact Mr. Ali Mirzakhilili, the administrator of our air quality management section, at (302)739-9402.

Sincerely,



Jack A. Markell  
Governor

pc: Dave Small  
Jim Werner  
Ali Mirzakhilili  
Judith Katz

Attachment 1

**Delaware Recommendation of Large  
Nonattainment Area Boundaries for the 2008 Revised Ozone NAAQS**

**Delaware Recommended 8-hour Ozone Non-attainment Boundaries**





STATE OF DELAWARE  
DEPARTMENT OF NATURAL RESOURCES  
& ENVIRONMENTAL CONTROL  
DIVISION OF AIR QUALITY  
655 S. Bay Road, Suite 5N  
DOVER, DELAWARE 19901

Telephone: (302) 739 - 9402  
Fax No.: (302) 739 - 3106

October 1, 2010

EPA Docket Center, EPA West (Air Docket)  
U.S. Environmental Protection Agency,  
Mail Code: 2822T  
1200 Pennsylvania Avenue, NW.,  
Washington, DC 20460.

Attention: Docket ID No. EPA-HQ-OAR-2009-0491

In the August 2, 2010, Federal Register (Vol. 75, No. 147) the Environmental Protection Agency (EPA) proposed revisions to 40 CFR Parts 51, 52, 72, 78, and 97, Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone. The State of Delaware welcomes the opportunity to provide comments regarding this proposed rule.

Delaware has complied with the requirements of Clean Air Act (CAA) Section 110(a)(2)(D)(i) by effectively controlling emissions sources within Delaware so that those sources do not contribute significantly to downwind states' non-attainment or interference with downwind states' maintenance of National Ambient Air Quality Standards (NAAQSs). However, Delaware's ability to attain and maintain the NAAQSs is significantly hampered by emissions from sources in upwind states that have not taken measures to control their air pollutant emissions. This is discussed in detail in Delaware's December 15, 2008 CAA 126 petition to the EPA.

Delaware provides the following eleven (11) comments on the proposed transport rule.

1. Delaware believes that it has been inappropriately named as a State that needs to be covered by the proposed transport rule. According to the proposed rule the EPA modeled their 2012 Base Case emission projections to determine whether States met a threshold for "linkage" and thus "significant contribution to, and/or interference with maintenance" to downwind areas. The results of EPA's 2012 Base Case modeling show that Delaware's downwind contribution exceeds one or more of these thresholds for the ozone, annual and daily fine particulate matter NAAQSs. Consequently, the EPA

concluded that Delaware needed to be included in the transport rule. Delaware does not agree with this conclusion for the following reasons:

- Delaware's sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) emissions are significantly overstated in the proposed transport rule analysis. Delaware compared its 2005 Periodic Emissions Inventory (PEI) with EPA's 2005 emissions used in the proposed transport rule. Delaware then projected its 2005 PEI emissions to 2012, and compared them to the proposed transport rules 2012 Base Case emissions. The results, which are summarized in Table 1 and Table 2 below, indicate that EPA's NO<sub>x</sub> and SO<sub>2</sub> emissions are inflated for 2005 and both NO<sub>x</sub> and SO<sub>2</sub> are significantly inflated in 2012.<sup>1</sup>

**Table 1 2005 Emissions**

2005 SO <sub>2</sub>	EGU	NonEGU	Nonpoint	Nonroad	Onroad	Total
Transport Rule	32,378	34,859	5,859	11,648	422	85,166
DE PEI Emissions	31,745	34,686	1,034	2,755	422	70,642
DE Emission Difference (tpy)	-633	-173	-4,825	-8,893	0	-14,524
% Difference	2%	0%	82%	76%	0%	17%
2005 NO <sub>x</sub>	EGU	NonEGU	Nonpoint	Nonroad	Onroad	Total
Transport Rule	11,917	5,567	3,259	15,567	22,569	58,879
DE PEI Emissions	11,397	5,999	2,317	11,728	22,569	54,010
DE Emission Difference	-520	432	-942	-3,839	0	-4,869
% Difference	4%	-8%	29%	25%	0%	8%

**Table 2 2012 Projected Emissions**

2012 SO <sub>2</sub>	EGU	NonEGU	Nonpoint	Nonroad	Onroad	Total
Transport Rule	7,841	10,974	5,858	14,193	98	38,964
DE Projections	7,356	5,941	1,034	2,201	98	16,630
DE Emission Difference	-485	-5,033	-4,824	-11,992	0	-22,334
% Difference	6%	46%	82%	84%	0%	57%
2012 NO <sub>x</sub>	EGU	NonEGU	Nonpoint	Nonroad	Onroad	Total
Transport Rule	4,639	5,567	3,248	15,511	10,700	39,665
DE Projections	2,418	4,504	2,315	10,370	10,700	30,307
DE Emission Difference	-2,221	-1,063	-933	-5,141	0	-9,358
% Difference	48%	19%	29%	33%	0%	24%

<sup>1</sup> Delaware's 2012 projections' assumptions and methods are discussed in Attachment 1 to this letter, "Delaware Division of Air Quality (DAQ) Technical Support Document for Emission-related Comments on the Proposed Transport Rule."

Because EPA's 2005 and 2012 emissions inventories are inflated Delaware believes that EPA's modeling of 2012 base case emission over-states Delaware's contributions to downwind areas (i.e., over-estimated emissions inventories result in over-estimated contributions to downwind areas).

Much of the inventory differences are due to control measures Delaware has implemented that are not reflected in the EPA analysis.<sup>2</sup> Delaware believes that once the EPA inventories are corrected, modeling will show that it is not necessary to subject Delaware to the transport rule.

- Despite that EPA inventories for DE are inflated (see above and Attachment 1 to this letter), EPA's inventories themselves indicate that it is not necessary to include Delaware in the transport rule, i.e.:

*Without variability limits, EPA proposes at 40 CFR 97.410 a 2012 Delaware NOx budget of 6,206 TPY, and at 40 CFR 97.710 a 2012 Delaware SO2 budget of 7,784 TPY. EPA has indicated that a state's emissions budget "...is the quantity of emissions that would remain in that state from covered sources after elimination of that portion of each state's significant contribution and interference with maintenance that EPA has identified in today's proposal, before accounting for the inherent variability in power system operations... The state emissions budget is a mechanism for converting the quantity of emissions that a state must reduce (i.e., the state's significant contribution and interference with maintenance) into enforceable control requirements. In other words, it provides a quantity of emissions to use in developing a remedy..."*

However, EPA's 2012 base case emissions for Delaware EGU's are 4,639 TPY for NOx and 7,841 TPY for SO2. Since the EPA is establishing Delaware's EGU budgets at a level that is not less than its 2012 base case emissions<sup>3</sup>, Delaware has already met its obligation to remedy downwind contributions for NOx and SO2.

Given the above, Delaware should not be included in the final Transport Rule, since our current control strategies have already mitigated our significant contributions to downwind areas.

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<sup>2</sup> See Attachment 1 to this letter for a detailed discussion of these control measures.

<sup>3</sup> The difference between the EPA 2012 base case SO2 inventory and the proposed budget for Delaware is 57 TPY. Once the EPA corrects the problems with the inventory 1) overall modeled contributions will be much less given that EPA's 2012 SO2 projections are inflated on the order of 57%, and 2) Delaware's 2012 EGU projection will be less than the proposed budget.



2. The establishment of annual and/or seasonal EGU cap-and-trade programs and mass emissions budgets alone is insufficient. In the proposed rule, EPA has proposed to establish a cap-and-trade program for annual SO<sub>2</sub>, annual NO<sub>x</sub>, and seasonal NO<sub>x</sub> for the purpose of mitigating the transport of fine particulate matter and ozone. A centerpiece of this proposal is the establishment of cap- and- trade programs: a SO<sub>2</sub> cap-and-trade program with annual state-by-state SO<sub>2</sub> mass emissions caps and provisions for unlimited intrastate trading and limited regional trading; a NO<sub>x</sub> cap-and-trade program with annual state-by-state NO<sub>x</sub> mass emissions caps and unlimited intrastate and regional trading; and a NO<sub>x</sub> cap-and-trade program with ozone season NO<sub>x</sub> mass emissions caps and unlimited intrastate and regional trading. In the preamble to the proposed rule the EPA also indicated that it was soliciting comments on two alternatives. The first alternative is the implementation of a program similar to proposed cap-and-trade program that excludes the regional trading aspects of the proposed program but still permits intrastate trading. The second alternative is a program based on establishing unit-specific emission rate limits based on historic emission rates and installation of controls, while maintaining state-specific mass emission caps similar to the proposed option. This second alternative also requests comment on including averaging for units owned by a common company in that state.

It is Delaware's opinion that establishment of annual and/or seasonal EGU cap-and-trade programs and mass emissions budgets alone is insufficient to mitigate transport and assure the elimination of contribution of upwind states to downwind state non-compliance with short term NAAQS. Delaware believes that instead of allowing a cap-and-trade program's market forces to determine which EGUs are controlled, well controlled, or not controlled, all EGUs should be subject to compliance with both short term emission rate limits/performance standards (that are supportive of applicable short term NAAQS) and longer term annual and seasonal mass emissions caps. Short term emission rate limits/performance standards should be established on the basis of technical and economic feasibility, on a unit-by-unit basis, such that the limits/standards are supportive of the short term NAAQS. These short term emission rate limits/performance standards would also be expected to help alleviate episodic air quality excursions. Given this opinion, Delaware is generally supportive of the EPA further developing and implementing its second alternative, as discussed in the preamble to the proposed rule, (i.e., a program based on establishing unit-specific emission rate limits and installation of controls) as the focus of this rulemaking effort.

Delaware generally agrees with the concept presented for EPA's second alternative to the proposed program that includes establishing unit-by-unit performance standards/emission rates along with an overlaying cap-and-trade program, but recommends EPA consider some revisions to the process presented by the EPA for that second alternative.

- The first recommendation is that EPA reconsiders the use of the most recent quarterly data from the period 2007 through 2009 as the baseline. It is popularly viewed that

calendar year 2007 is the last calendar year that has little effect from the current economic downturn. As such, it is assumed that the operation of EGUs in 2007 is more representative of expected normal operation for the units that operated during that period. For many of the units not incorporating post-combustion controls, unit hourly loading and average capacity factor can have a noticeable effect on emission rates (in terms of lb/MMBTU or lb/MW). Therefore, it is Delaware's opinion that utilizing 2007 operating data would provide a more accurate indication of both the units' uncontrolled emission rate and the emission rate resulting from the theoretical installation of emission controls. For units that did not operate in 2007, such as new units, emissions data from the earliest of 2008 or 2009, as applicable to the individual unit, could be utilized.

- The second recommendation is that EPA reconsiders the use of averaging the emission rate of all of a single company's EGUs in a given state as a compliance alternative. While Delaware agrees that this concept has merit in providing a company flexibility in control installation planning and compliance strategy, Delaware also believes that this flexibility could result in a number of smaller and/or low capacity factors to continue operation with little or no controls. The existence of such units contributes to transport issues and compliance with short term NAAQS. If EPA retains the concept of permitting same- company averaging for compliance, Delaware recommends that EPA consider doing so for only a small number of compliance periods to provide some initial flexibility for control installation planning until transitioning to a true unit-specific compliance requirement.

In the TSD *State Budgets, Unit Allocations, and Unit Emissions Rates*, Section 4, Direct Control Rate Limits, EPA indicates that, "The unit-level rates which sources must comply with under this approach are determined analogously to unit-level allocations – each unit's proposed allocation is divided by the reported or projected heat input associated with that tonnage." It is not clear that the modeling inputs are adequate to perform a proper evaluation. Further, it appears that the emission rate limits would still be determined primarily on an economic basis, thereby still allowing some units to operate with little or no emission controls. It is Delaware's opinion that this methodology does not adequately evaluate, on a unit- by-unit basis, the technical or economic feasibility of installation of cost-effective emission controls for these units. The methodology therefore may not adequately determine realistic emission rate limits for all of these units. It is Delaware's opinion that unit-by-unit technical evaluations are necessary to properly set such emission rate limits for every EGU in the program. Such evaluations must take into account the unit types, fuel(s) combusted, unit size, unit historic capacity factor, projected additional lifetime, existing emissions controls, commercially available controls for retrofit, etc.

- Delaware is also concerned with EPA's concept of providing 1-year and 3-year average variability mass emission provisions that could serve to allow upwind states



to increase their emissions above the limit that EPA has calculated to be required to fully eliminate that state's significant contribution or interfere with maintenance in a downwind state. It is Delaware's understanding that EPA has considered the use of this variability concept in order to help address concerns regarding the variability in electric demand and to prevent impact on electric grid reliability. While Delaware understands the need to maintain grid reliability, it is Delaware's concern that under this scenario any given upwind state, or group of upwind states, could potentially emit on a routine basis at levels that exceed the values calculated by the EPA as needed to eliminate significant contribution and interference with maintenance in a downwind state. It is Delaware's opinion that the proposed variability concept be eliminated or revised such that any revision would preclude the potential for and upwind state or group of upwind states to significantly contribute to a downwind state's inability to comply with applicable NAAQS, or interfere with maintenance of that NAAQS.

3. Co-generation Unit Exemption. In the preamble to the proposed rule EPA requested comments regarding the length of the historic period that would be appropriate for a "look back" to determine if a unit met the efficiency and generation requirements to be eligible for the co-generation unit exemption provided for in the proposed rule. EPA is proposing the use of November 15, 1990 or the date on which the unit first produces electricity, whichever is later, as the date for which the unit must have started meeting the efficiency and generation requirements to be defined as a co-generation unit. In the preamble to the proposed rule EPA indicates that it may be difficult for some units to produce historic data of that age, and requests comments on utilization of a later date. Delaware agrees that the "look back" period for co-generation unit exemption determination should be shorter than the EPA has included in the proposed rule. Specifically, Delaware believes the "look back" period for determination of eligibility for the co-generation unit exemption should be the later of the calendar year prior to the effective date of the rule or the first full calendar year after the unit first produces electricity. Using this one year "look back" for determination of co-generation exemption eligibility would make this requirement more consistent with proposed rule's requirement for co-generation units to re-qualify for the exemption on an annual basis.
4. State Contribution Thresholds. In Section III. A. of the preamble to the proposed rule, EPA discusses that the proposed methodology of the rule uses air quality analysis to determine whether a state's contribution to downwind air quality problems is above specific thresholds. EPA states, "If a state's contribution exceeds those thresholds, EPA takes a second step that uses a multi-factor analysis that takes into account both air quality and cost considerations to identify the portion of a state's contribution that is significant or that interferes with maintenance." This statement is troubling to Delaware. It is Delaware's opinion that an upwind state's emissions contribution is significant or interferes with maintenance in a downwind state based on the emissions and their effect on air quality, and is independent of cost considerations. It is Delaware's opinion that



cost considerations are relevant when selecting the source category or population of sources that are to be targeted for control, not in determining if the emissions contribute to significant contribution or interference with maintenance in a downwind state.

5. EGU Inventories. During review of EPA's technical support documents for budgets and allocations for the proposed rule, Delaware has identified a number of problems with the inventory of EGU's included by EPA in the development of the budget and allocation levels for Delaware.<sup>4</sup> The problems noted during Delaware's review include the following:

- EPA's proposed rule unit inventory has included in Delaware's unit inventory a number of units that are co-generation units.
- By combining sources of data and information concerning units, as discussed in EPA's TSD *State Budgets, Unit Allocations, and Unit Emissions Rates*, EPA "double counted" emissions among three Delaware units, by accounting for emissions for two header supplied steam turbine- generators from one data source, and then from another data source accounting for emissions from a boiler that supplies that steam header for the two header supplied steam turbine-generators.

EPA's emissions data and allowance allocations have included header steam turbine generating units that are supplied by multiple non-fired heat recovery steam generating units. As the boilers are not fired, it is uncertain how they would produce emissions given that the emissions associated with related combustion turbines are attributed directly to those combustion turbines.

- EPA excluded two Delaware units from the proposed program, apparently due to the EPA's data assigning the units output ratings less than 25 MW. It appears that the EPA based this rating on data that indicates that these units have "summer" ratings of 22 MW on a net output basis. However, these particular units have "nameplate" ratings in excess of 25 MW, and also have "winter" ratings of 25 MW on a net basis. There are three apparent issues demonstrated within this problem.
  - The first apparent issue is the use of "summer" output ratings, which includes the effect of higher summer temperatures reducing the output of the unit, which is contrary to the definition of nameplate rating included in the EPA's proposed rule which states, "Nameplate capacity means, starting from the initial installation of a generator, the maximum electrical generating output (in MWe) that the generator is capable of producing on a steady state basis and during

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<sup>4</sup> Because of the generic nature of some of these apparent problems, Delaware is of the opinion that similar issues may exist for some other states subject to this proposed rule. These problems that appear to have the potential to generic in nature should be investigated by EPA and corrected as necessary in establishing final emissions budgets, allocations, etc.



continuous operation (when not restricted by seasonal or other deratings) as of such installation as specified by the manufacturer of the generator..."

- The second apparent issue with the use of "summer" output ratings, is that the "summer" output ratings includes the effect of higher summer temperatures that tend to reduce the output of some units (combustion turbines and steam units). This appears to be contrary to EPA's definition in the proposed rule, as noted above, that indicates that the nameplate rating should not include any capacity restrictions due to "seasonal or other deratings".
  - The third apparent issue is the use of these values that are "net" unit electrical outputs, or the electrical output available to the grid after subtracting any electrical energy that is utilized by the unit in the generation of the total electrical energy. The definition of nameplate capacity in EPA's proposed rule, as noted above, clearly indicates that EPA intends that nameplate capacity be the gross electrical output, or total electrical output from the generator.
6. Allowance Distribution Methodology. In the EPA's proposed rule and supporting technical support documents, EPA proposes an allowance distribution methodology for distributing allowances to individual units. The proposed unit-specific allowance allocations will be made on the basis of each unit receiving its proportional share of its state budget based on that unit's share of state emissions assumed in developing the budget. Using this methodology, the units that historically had the highest emissions (in percentage of the state's total) would be allocated that same percentage of the states allocation. It appears that such a methodology provides a negative benefit to those units that either had a lower emission rate by design or installed controls to achieve a lower emission rate in the past. It is Delaware's opinion that it would be more appropriate to allocate allowances on the basis of a specific unit's historic heat input, as a percentage of the entire heat input that resulted in the state's total allowance allocation. It is Delaware's opinion that this would establish a fuel-neutral allocation methodology that does not provide a negative benefit to those units that had previous reduced their emission rates.
7. Non-EGU Emission Reductions. EPA has requested comments on whether non-EGU emissions reductions should be required and on the specific control measures that would serve as the basis for those reductions. It is Delaware's opinion that EPA should consider requiring emissions reductions for some non-EGU categories. Included in this view are fossil-fuel fired electric generating units with a nameplate rating between 15 MW and 25 MW, fossil-fuel fired co-generation units serving a generator with a nameplate rating of 15 MW or greater, and fossil-fuel fired industrial and commercial (ICI) boilers with a heat input capacity rating of 250 MMBTU/hr or greater. It appears that these categories of units can contribute to air quality excursions and impact a downwind state's ability to attain NAAQS. It is Delaware's experience that the small EGUs (<25MW nameplate)



tend to operate most during periods of high electric demand which often coincide with ambient air quality excursions in downwind states. While co-generation units tend to operate with a more constant capacity, there is some data that indicates those units' loading may increase during periods of high electric demand to capitalize on opportunities for increased income from electric sales during high cost periods or to offset the purchase of additional electric at high relative cost. The large ICI boilers also tend to operate with a relatively constant capacity factor, which would also include operation during the periods of high electric demand that may coincide with air quality excursions in downwind states.

It is Delaware's opinion that cost-effective emissions reduction technologies are proven and commercially available for these types of units. For boilers serving EGUs with nameplate ratings of 15 MW or larger (including co-generation units) or ICI applications, commercially available cost effective controls for retrofit include fuel switching in some cases for SO<sub>2</sub> and NO<sub>x</sub> reduction, low-NO<sub>x</sub> burners and SNCR and SCR for NO<sub>x</sub> control, and wet and dry scrubbers and sorbent injection for SO<sub>2</sub> controls. For combustion turbines driving generators with nameplate ratings greater than 15 MW, including both EGU and co-generation application, commercially available cost effective controls for retrofit include fuel switching in some cases for SO<sub>2</sub> and NO<sub>x</sub> control, and dry low-NO<sub>x</sub> burners, water injection, and SCR for NO<sub>x</sub> reduction. The March 2006 STAPPA/ALAPCO document "Controlling Fine Particulate Matter under the Clean Air Act: A Menu of Options" provides considerable discussion regarding the applicability of emissions controls for these units.

Delaware has also experienced some considerable success with its state rulemakings that resulted in control installations similar to those discussed above. One such rulemaking resulted in the addition of water injection for NO<sub>x</sub> control on all fossil-fired combustion turbines driving electric generators with a nameplate rating greater than 15 MW (but less than 25 MW) that had not been previously controlled. The affected units tend to operate as peaking units and operate primarily during periods of high electric demand. Post installation testing indicated significant NO<sub>x</sub> emission rate reductions were achieved by all of the affected units.

8. Opt-in Provisions. Somewhat related to the issue of including the smaller size units in a proposed program is the concept of opt-in provisions in the proposed rule. EPA has requested comments regarding the appropriateness of the proposed rule's opt-in provisions. While Delaware does not necessarily oppose the opt-in provisions, Delaware is skeptical that the opt-in provisions would provide sufficient incentive for a source to make the commitment to perform an emission reduction project that would not have occurred anyway without the opt-in provisions. In this event, additional allowances would have been created without any environmental benefit as a direct result of the rule. In any event, it is Delaware's opinion that if the proposed rule addresses the smaller units

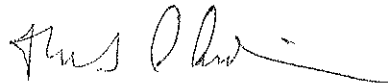
(EGUs 15MW < 25 MW, co-generation units > 15MW, and ICI boilers > 250 MMBTU/hr) then the population of likely opt-in units will be greatly reduced.

9. The EPA proposal is unnecessarily complex. Delaware is supportive of EPA's efforts to propose a rule that effectively eliminates an upwind state's significant contribution or interference of maintenance with a NAAQS in downwind states. The EPA has provided much complex information and analysis in their proposal and technical support documents. Delaware has gleaned from the EPA documents that there are two main determinations being made: 1) a determination of whether a state significantly interferes with the attainment or maintenance of a NAAQS in a downwind state, and 2) a determination of the remedy for the states that do significantly interfere. Delaware has spent considerable time studying the EPA proposal, and participating on telephone calls and meetings with others discussing the proposal, and has concluded that both EPA's characterization of the problem and the proposed solution have been made unnecessarily complex and difficult to understand and evaluate. This is a very important proposal to downwind states like Delaware. The health and welfare of Delaware citizens has and continues to be negatively impacted by emissions from upwind states, and those emissions must be mitigated. This unnecessary complexity has required Delaware to expend significant resources to review and understand the proposal, but even after spending many man-hours reviewing it is not clear that the rule will result in emission reductions once it is fully implemented.
10. An EGU Cap-and-Trade Program alone is not sufficient to mitigate a states impact on downwind states. Delaware understands the bottom line of the EPA proposal is that the control of EGUs is all that is needed in order for a state to mitigate its significant impact on downwind states. This conclusion is inconsistent with much of the information Delaware has learned in its efforts to address the ozone problem over the past 40 years, and the more recent fine particulate matter problems. The installation of all reasonably available control technology (RACT) on all volatile organic, nitrogen oxide, and sulfur dioxide emitting sources is needed. In addition, advanced best available control technology (BACT) level controls on EGUs and other large sources stationary sources is needed. And, based on Delaware's experience the timing associated with the design, permitting and construction of advanced emission controls on EGUs is relatively short; on the order of 24-months. If upwind states were to implement these measures (i.e., RACT on all sources, and BACT on all large stationary sources), as Delaware already has, attainment of the current and upcoming ozone and PM2.5 NAAQSs would be in reach. Delaware believes these measures must be added as required elements of this proposal.
11. The proposal does not offer necessary relief to downwind states. Delaware understands that the EPA is in this proposal segregating transport related to the 0.08ppm ozone NAAQS from the lower 75ppb ozone NAAQS promulgated last year, and from the new lower ozone NAAQS anticipated to be finalized by the EPA later this month. This does

not seem reasonable to states like Delaware who, despite having already subjected its sources to advanced and costly emissions control requirements, continues to be impacted by unhealthy air from upwind states. And, Delaware will continue to be impacted by this unhealthy air long into the future. Given the low level of the new ozone NAAQSs relative to current air quality, and the overwhelming impact of transported emissions, further delay in installing and operating appropriate emission controls in upwind states is not warranted.

Thank you for providing this opportunity to comment. We look forward to the EPA promulgation of a rule that provides full mitigation of upwind emissions that continue to negatively impact public health and welfare in Delaware, and Delaware's ability to attain and maintain compliance with national ambient air quality standards.

Sincerely,

A handwritten signature in black ink, appearing to read "Ali Mirzakhali", with a long horizontal flourish extending to the right.

FOR Ali Mirzakhali, P.E.  
Director

Attachment



