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Date of Hearing: 10/5/2015

Case No. 14-1297-EL-SSO

PUCO Case Caption: In the Matter of the Application of Ohio Edison, The Cleveland Electric Illuminating Company, and The Toledo Edison Company for Authority to Provide for a Standard Service Offer Pursuant to R.C. 4928.143 in the Form of an Electric Security Plan.

List of exhibits being filed: Volume XVIII

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Reporter's Signature: Karen Sue Gibson
Date Submitted: 10/19/15

BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

- - -

In the Matter of the :
Application of Ohio Edison:
Company, The Cleveland :
Electric Illuminating :
Company, and The Toledo :
Edison Company for : Case No. 14-1297-EL-SSO
Authority to Provide for :
a Standard Service Offer :
Pursuant to R.C. 4928.143 :
in the Form of an Electric:
Security Plan. :

- - -

PROCEEDINGS

before Mr. Gregory Price, Ms. Mandy Chiles, and
Ms. Megan Addison, Attorney Examiners, at the Public
Utilities Commission of Ohio, 180 East Broad Street,
Room 11-A, Columbus, Ohio, called at 10:00 a.m. on
Monday, October 5, 2015.

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VOLUME XXIII

- - -

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Cross-State Air Pollution Rule (CSAPR) Cross-State Air Pollution Rule (CSAPR)

On July 6, 2011, the US Environmental Protection Agency (EPA) finalized a rule that protects the health of millions of Americans by helping states reduce air pollution and attain clean air standards. This rule, known as the Cross-State Air Pollution Rule (CSAPR), requires states to significantly improve air quality by reducing power plant emissions that contribute to ozone and/or fine particle pollution in other states. In a separate, but related, regulatory action, EPA finalized a supplemental rulemaking on December 15, 2011 to require five states - Iowa, Michigan, Missouri, Oklahoma, and Wisconsin - to make summertime NO_x reductions under the CSAPR ozone season control program. CSAPR requires a total of 28 states to reduce annual SO₂ emissions, annual NO_x emissions and/or ozone season NO_x emissions to assist in attaining the 1997 ozone and fine particle and 2006 fine particle National Ambient Air Quality Standards (NAAQS). On February 7, 2012 and June 5, 2012, EPA issued two sets of minor adjustments to the Cross-State Air Pollution Rule (CSAPR).

The timing of CSAPR's implementation has been affected by a number of court actions. On December 30, 2011, CSAPR was stayed prior to implementation. On April 29, 2014, the U.S. Supreme Court issued an opinion reversing an August 21, 2012 D.C. Circuit decision that had vacated CSAPR. Following the remand of the case to the D.C. Circuit, EPA requested that the court lift the CSAPR stay and toll the CSAPR compliance deadlines by three years. On October 23, 2014, the D.C. Circuit granted EPA's request. Accordingly, CSAPR Phase 1 implementation is now scheduled for 2015, with Phase 2 beginning in 2017.

This rule replaces EPA's 2005 Clean Air Interstate Rule (CAIR). A December 2008 court decision kept the requirements of CAIR in place temporarily but directed EPA to issue a new rule to implement Clean Air Act requirements concerning the transport of air pollution across state boundaries. This action responds to the court's concerns.

- [Read more about the Cross-State Air Pollution Rule \(CSAPR\)](#)
- [Press Release](#)
- [Presentation](#) (PDF 33pp, 1.80 MB) Updated December 15, 2011 to reflect the final supplemental rule for CSAPR, the proposed technical revisions rule, recent implementation activities, and other information.
- [Fact Sheet](#) Updated July 18, 2011 (PDF 7pp 138 kb)
- [Recording of Webinar presented on July 7, 2011 on "CSAPR Website Walkthrough"](#) (WMV 46.77 MB)
- [Public Docket for CSAPR](#).

What's New

July 28, 2015 - The U.S. Court of Appeals for the D.C. Circuit issued its opinion on the remaining issues raised with respect to CSAPR. EPA is pleased that the court decision keeps CSAPR in place. We are reviewing the decision and will determine appropriate further course of action once our review is complete.

May 22, 2015 - EPA issued a NODA, as required by CSAPR, that details 2015 allowance allocations for new units.

January 16, 2015 - EPA filed its brief in the D.C. Circuit on the merits of the remaining legal challenges to CSAPR that were not decided by the April 2014 U.S. Supreme Court decision.

November 21, 2014 - EPA issued a ministerial rule that aligns the dates in the CSAPR rule text with the revised court-ordered schedule, including 2015 Phase 1 implementation and 2017 Phase 2 implementation. In a separate ministerial action, EPA issued a NODA, as required by CSAPR, that aligns the final CSAPR default allowance allocation years with the revised court-ordered schedule.

[More news...](#)

The Cross-State Air Pollution Rule provides cleaner air and healthier lives for millions of Americans

Estimated Annual Number of Adverse Health Effects Avoided Due to Implementing the CSAPR*

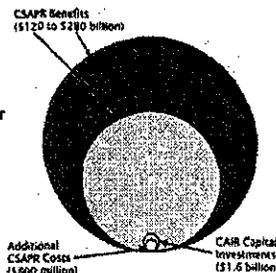
Health Effect	Number of Cases Avoided
Premature mortality	13,000 to 34,000
Non-fatal heart attacks	15,000
Hospital and emergency department visits	19,000
Acute bronchitis	19,000
Upper and lower respiratory symptoms	420,000
Aggravated asthma	400,000
Days when people miss work or school	1.8 million

*Impacts avoided due to improvements in PM_{2.5} and ozone air quality. (see [EPA's Regulatory Impact Analysis](#).)

The CSAPR will help avoid tens of thousands of premature deaths and illnesses, achieving hundreds of billions of dollars in public health benefits. Pollution reductions will also lead to improvements in visibility in national and state parks, and increased protection for sensitive ecosystems including Adirondack lakes and Appalachian streams, coastal waters and estuaries, and forests.

The benefits of the Cross-State Air Pollution Rule far outweigh the costs of the rule.

The final rule yields \$120 to \$280 billion in annual health and environmental benefits, including the value of avoiding 13,000 to 34,000 premature deaths. This far outweighs the estimated annual costs of CSAPR. The \$800 million in annual projected costs of this rule, along with the roughly \$1.6 billion per year in capital investments already under way as a result of CAIR, are improving air quality for over 240 million Americans. This rule will not disrupt a reliable flow of affordable electricity for American consumers and businesses. Health benefits will be achieved at a very low cost, and while the effect on prices for specific regions or states may vary, they are well within the range of normal electricity price fluctuations. Any such costs will be greatly outweighed by the benefits. (see [EPA's Regulatory Impact Analysis](#).)



The Cross-State Air Pollution Rule improves air quality throughout the eastern half of the United States, helping states achieve national clean air standards.

The rule requires significant reductions in sulfur dioxide (SO₂) and nitrogen oxide (NO_x) emissions that cross state lines. These pollutants react in the atmosphere to form fine particles and ground-level ozone and are transported long distances, making it difficult for other states to achieve NAAQS. To see how the rule affects each state in the CSAPR

[Click on the map to see a larger image](#) | [View this map as a table](#)

Map of States covered by the Cross-State Air Pollution Rule (CSAPR)



region, view the table "[States that are included in the CSAPR](#)" on the [Resources for Implementation](#) page.

CSAPR will take effect starting January 1, 2015 for SO₂ and annual NO_x, and May 1, 2015 for ozone season NO_x. Combined with other final state and EPA actions, the Cross-State Air Pollution Rule will reduce power plant SO₂ emissions by 73 percent and NO_x emissions by 54 percent from 2005 levels in the CSAPR region.

The emission reductions expected from EPA's [Mercury and Air Toxics Standards \(MATS\)](#) are not included in the estimated emission reductions from the Cross-State Air Pollution Rule; once those standards are implemented, SO₂ emissions from the power sector are likely to be reduced even further.

Last updated on Tuesday, July 28, 2015



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Part II

Environmental Protection Agency

40 CFR Parts 51, 52, 72 et al.
Federal Implementation Plans: Interstate Transport of Fine Particulate
Matter and Ozone and Correction of SIP Approvals; Final Rule



ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51, 52, 72, 78, and 97

[EPA-HQ-OAR-2009-0491; FRL-9436-8]

RIN 2060-AP50

Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: In this action, EPA is limiting the interstate transport of emissions of nitrogen oxides (NO_x) and sulfur dioxide (SO₂) that contribute to harmful levels of fine particle matter (PM_{2.5}) and ozone in downwind states. EPA is identifying emissions within 27 states in the eastern United States that significantly affect the ability of downwind states to attain and maintain compliance with the 1997 and 2006 fine particulate matter national ambient air quality standards (NAAQS) and the 1997 ozone NAAQS. Also, EPA is limiting these emissions through Federal Implementation Plans (FIPs) that regulate electric generating units (EGUs) in the 27 states. This action will substantially reduce adverse air quality impacts in downwind states from emissions transported across state lines. In conjunction with other federal and state actions, it will help assure that all but a handful of areas in the eastern part of the country achieve compliance with the current ozone and PM_{2.5} NAAQS by the deadlines established in the Clean Air Act (CAA or Act). The FIPs may not fully eliminate the prohibited emissions from certain states with respect to the 1997 ozone NAAQS for two remaining downwind areas and EPA is committed to identifying any additional required upwind emission reductions and taking any necessary action in a future rulemaking. In this action, EPA is also modifying its prior approvals of certain State Implementation Plan (SIP) submissions to rescind any statements that the submissions in question satisfy the interstate transport requirements of the CAA or that EPA's approval of the SIPs affects our authority to issue interstate transport FIPs with respect to the 1997 fine particulate and 1997 ozone standards for 22 states. EPA is also issuing a supplemental proposal to request comment on its conclusion that six additional states significantly affect downwind states' ability to attain and maintain compliance with the 1997 ozone NAAQS.

DATES: This final rule is effective on October 7, 2011.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2009-0491. All documents in the docket are listed on the <http://www.regulations.gov> Web site. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available *only in hard copy form*. Publicly available docket materials are available either electronically through <http://www.regulations.gov> or in hard copy at the EPA Docket Center, EPA West, Room B102, 1301 Constitution Avenue, NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Air Docket is (202) 566-1742.

FOR FURTHER INFORMATION CONTACT: For general questions concerning this action, please contact Ms. Meg Victor, Clean Air Markets Division, Office of Atmospheric Programs, Mail Code 6204J, Environmental Protection Agency, 1200 Pennsylvania Avenue, NW., Washington, DC 20460; telephone number: (202) 343-9193; fax number: (202) 343-2359; e-mail address: victor.meg@epa.gov. For legal questions, please contact Ms. Sonja Rodman, U.S. EPA, Office of General Counsel, Mail Code 2344A, 1200 Pennsylvania Avenue, NW., Washington, DC 20460, telephone (202) 564-4079; e-mail address: rodman.sonja@epa.gov.

SUPPLEMENTARY INFORMATION:

I. Preamble Glossary of Terms and Abbreviations

The following are abbreviations of terms used in the preamble.

AQAT Air Quality Assessment Tool
 ARP Acid Rain Program
 BART Best Available Retrofit Technology
 BACT Best Available Control Technology
 CAA or Act Clean Air Act
 CAIR Clean Air Interstate Rule
 CAMx Comprehensive Air Quality Model with Extensions
 CBI Confidential Business Information
 CCR Coal Combustion Residuals
 CEM Continuous Emissions Monitoring
 CENRAP Central Regional Air Planning Association
 CFR Code of Federal Regulations
 DEQ Department of Environmental Quality
 DSI Dry Sorbent Injection
 EGU Electric Generating Unit
 FERC Federal Energy Regulatory Commission

FGD Flue Gas Desulfurization
 FIP Federal Implementation Plan
 FR Federal Register
 EPA U.S. Environmental Protection Agency
 GHG Greenhouse Gas
 GW Gigawatts
 Hg Mercury
 ICR Information Collection Request
 IPM Integrated Planning Model
 km Kilometers
 lb/mmBtu Pounds Per Million British Thermal Unit
 LNB Low-NO_x Burners
 MACT Maximum Achievable Control Technology
 MATS Modeled Attainment Test Software
 µg/m³ Micrograms Per Cubic Meter
 MSAT Mobile Source Air Toxics
 MOVES Motor Vehicle Emission Simulator
 NAAQS National Ambient Air Quality Standards
 NBP NO_x Budget Trading Program
 NEI National Emission Inventory
 NESHAP National Emissions Standards for Hazardous Air Pollutants
 NO_x Nitrogen Oxides
 NODA Notices of Data Availability
 NSPS New Source Performance Standard
 NSR New Source Review
 OFA Overfire Air
 OSAT Ozone Source Apportionment Technique
 OTAG Ozone Transport Assessment Group
 ppb Parts Per Billion
 PM_{2.5} Fine Particulate Matter, Less Than 2.5 Micrometers
 PM₁₀ Fine and Coarse Particulate Matter, Less Than 10 Micrometers
 PM Particulate Matter
 ppm Parts Per Million
 PUC Public Utility Commission
 RIA Regulatory Impact Analysis
 SCR Selective Catalytic Reduction
 SIP State Implementation Plan
 SMOKE Sparse Matrix Operator Kernel Emissions
 SNCR Selective Non-catalytic Reduction
 SO₂ Sulfur Dioxide
 SO_x Sulfur Oxides, Including Sulfur Dioxide (SO₂) and Sulfur Trioxide (SO₃)
 TAF Terminal Area Forecast
 TCEQ Texas Commission on Environmental Quality
 TIP Tribal Implementation Plan
 TLN3 Tangential Low NO_x
 TPY Tons Per Year
 TSD Technical Support Document
 WRAP Western Regional Air Partnership

II. General Information

A. Does this action apply to me?

This rule affects EGUs, and regulates the following groups:

Industry group	NAICS*
Utilities (electric, natural gas, other systems.) ...	2211, 2212, 2213

*North American Industry Classification System.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists

the types of entities that EPA is aware of that could potentially be regulated. Other types of entities not listed in the table could also be regulated. To determine whether your facility would be regulated by the proposed rule, you should carefully examine the applicability criteria in proposed §§ 97.404, 97.504, and 97.604.

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III. Executive Summary

The CAA section 110(a)(2)(D)(i)(I) requires states to prohibit emissions that contribute significantly to nonattainment in, or interfere with maintenance by, any other state with respect to any primary or secondary NAAQS. In this final rule, EPA finds that emissions of SO₂ and NO_x in 27 eastern, midwestern, and southern states contribute significantly to nonattainment or interfere with maintenance in one or more downwind states with respect to one or more of three air quality standards—the annual PM_{2.5} NAAQS promulgated in 1997, the 24-hour PM_{2.5} NAAQS promulgated in 2006, and the ozone NAAQS promulgated in 1997 (EPA uses the term “states” to include the District of Columbia in this preamble).

These emissions are transported downwind either as SO₂ and NO_x or, after transformation in the atmosphere, as fine particles or ozone. This final rule identifies emission reduction responsibilities of upwind states, and also promulgates enforceable FIPs to achieve the required emission reductions in each state through cost-effective and flexible requirements for power plants. Each state has the option of replacing these federal rules with state rules to achieve the required amount of emission reductions from sources selected by the state.

Section 110(a)(2)(D)(i)(I) of the CAA requires the elimination of upwind state emissions that significantly contribute to nonattainment or interfere with maintenance of a NAAQS in another state. Elimination of these upwind state emissions may not necessarily, in itself, fully resolve nonattainment or maintenance problems at downwind state receptors. Downwind states also have control responsibilities because, among other things, the Act requires each state to adopt enforceable plans to attain and maintain air quality standards. Indeed, states have put in place measures to reduce local emissions that contribute to nonattainment within their borders. Section 110(a)(2)(D)(i)(I) only requires the elimination of emissions that significantly contribute to nonattainment or interfere with maintenance of the NAAQS in other states; it does not shift to upwind states the responsibility for ensuring that all areas in other states attain the NAAQS.

The reductions obtained through the Transport Rule will help all but a few downwind areas come into attainment with and maintain the 1997 annual PM_{2.5} NAAQS, the 2006 24-hour PM_{2.5} NAAQS, and the 1997 ozone NAAQS. With respect to the annual PM_{2.5} NAAQS, this rule finds that 18 states have SO₂ and annual NO_x emission reduction responsibilities, and this rule quantifies each state's full emission reduction responsibility under section 110(a)(2)(D)(i)(I). See Table III-1 for the list of these states. With these reductions, EPA projects that no areas will have nonattainment or maintenance concerns with respect to the annual PM_{2.5} NAAQS.

With respect to the 24-hour PM_{2.5} NAAQS, this rule finds that 21 states have SO₂ and annual NO_x emission reduction responsibilities, and this rule quantifies each state's full emission reduction responsibility under section 110(a)(2)(D)(i)(I). See Table III-1 for the list of these states. In all, this rule requires emission reductions related to interstate transport of fine particles in 23 states. With these reductions, as discussed in section VI.D of this preamble, only one area (Liberty-Clairton) is projected to remain in nonattainment, and three other areas (Chicago,¹ Detroit, and Lancaster) are projected to have remaining

¹ This area is not currently designated as nonattainment for the 24-hour PM_{2.5} standard. EPA is portraying the receptors and counties in this area as a single 24-hour maintenance area based on the annual PM_{2.5} nonattainment designation of Chicago-Gary-Lake County, IL-IN.

maintenance concerns for the 24-hour PM_{2.5} NAAQS.

With respect to the 1997 ozone NAAQS, this rule finds that 20 states have ozone-season NO_x emission reduction responsibilities. For 10 of these states this rule quantifies the state's full emission reduction responsibility under section 110(a)(2)(D)(i)(I).² For 10 additional states, EPA quantifies in this rule the ozone-season NO_x emission reductions that are necessary but may not be sufficient to eliminate all significant contribution to nonattainment and interference with maintenance in other states.³ See Table III-1 for the complete list of 20 states required to reduce ozone-season NO_x emissions in this rule. With the Transport Rule reductions, only one area (Houston) is projected to remain in nonattainment, and one area (Baton Rouge) to have a remaining maintenance concern with respect to the 1997 ozone NAAQS. The 10 states upwind of either of these two areas are the states for which additional reductions may be necessary to fully eliminate each state's significant contribution to nonattainment and interference with maintenance, as discussed in section VI of this preamble.⁴

As discussed further below, EPA's analysis also demonstrates that six additional states should be required to reduce ozone-season NO_x emissions. EPA is issuing a supplemental proposal to request comment on requiring ozone-season NO_x reductions in these six states. For five of these six states, EPA's analysis identifies the state's full emission reduction responsibility under section 110(a)(2)(D)(i)(I), and for the remaining one state EPA's analysis identifies reductions that are necessary

² The 10 states for which this rule quantifies the state's full responsibility under section 110(a)(2)(D)(i)(I) with respect to the 1997 ozone NAAQS are Florida, Maryland, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Virginia, and West Virginia.

³ The 10 states for which this rule quantifies reductions that are necessary but may not be sufficient to satisfy the requirements of 110(a)(2)(D)(i)(I) with respect to the 1997 ozone NAAQS are Alabama, Arkansas, Georgia, Illinois, Indiana, Kentucky, Louisiana, Mississippi, Tennessee, and Texas.

⁴ This preamble uses the term "significant contribution" only in the context of the CAA section 110(a)(2)(D)(i)(I) requirement that states prohibit emissions that "contribute significantly to nonattainment" in any other state with respect to any primary or secondary NAAQS. Thus, a significant contribution, as used in this preamble, is one that is significant for purposes of CAA section 110(a)(2)(D)(i)(I) as coming from a particular state.

but may not be sufficient to satisfy the requirements of 110(a)(2)(D)(i)(I).⁵

On January 19, 2010, EPA proposed revisions to the 8-hour ozone NAAQS that the Agency had issued March 12, 2008 (75 FR 2938); the Agency intends to finalize its reconsideration in the summer of 2011. EPA intends to propose a rule to address transport with respect to the reconsidered 2008 ozone NAAQS as expeditiously as possible after reconsideration is completed. EPA intends to include in that proposed rule requirements to address any remaining significant contribution to nonattainment and interference with maintenance with respect to the 1997 ozone NAAQS for the states identified in this final rule, or the associated supplemental notice of proposed rulemaking, for which EPA was unable to fully quantify the emissions that must be prohibited to satisfy the requirements of 110(a)(2)(D)(i)(I) with respect to the 1997 ozone NAAQS.

The Act requires EPA to conduct periodic reviews of each of the NAAQS. When NAAQS are set or revised, the CAA requires revision of SIPs to ensure the standards are met expeditiously and within relevant timetables in the Act. If more protective NAAQS are promulgated, in the case of pollutants for which interstate transport is important, additional emission reductions to address transported pollution may be required from the power sector, from other sectors, and from sources in additional states. EPA will act promptly to promulgate any future rules addressing transport with respect to revised NAAQS.

The Transport Rule requires substantial near-term emission reductions in every covered state to address each state's significant contribution to nonattainment and interference with maintenance downwind. This rule achieves these reductions through FIPs that regulate the power sector using air quality-assured trading programs whose assurance provisions ensure that necessary reductions will occur within every covered state. This remedy structure is substantially similar to the preferred trading remedy structure presented in the proposal. The Transport Rule's air quality-assured trading approach will assure

⁵ The five states addressed in the supplemental proposal for which EPA's analysis identifies the state's full reduction responsibility under section 110(a)(2)(D)(i)(I) with respect to the 1997 ozone NAAQS are Iowa, Kansas, Michigan, Oklahoma, and Wisconsin. The one state addressed in the supplemental proposal for which EPA's analysis identifies reductions that are necessary but may not be sufficient to satisfy section 110(a)(2)(D)(i)(I) with respect to the 1997 ozone NAAQS is Missouri.

environmental results in each state while providing market-based flexibility to covered sources through interstate trading. The final rule includes four air quality-assured trading programs: An annual NO_x trading program, an ozone-season NO_x trading program, and two separate SO₂ trading programs ("SO₂ Group 1" and "SO₂ Group 2"), as discussed further in sections VI and VII, below.

The first phase of Transport Rule compliance commences January 1, 2012, for SO₂ and annual NO_x reductions and May 1, 2012, for ozone-season NO_x reductions. The second phase of Transport Rule reductions, which commences January 1, 2014, increases the stringency of SO₂ reductions in a number of states as discussed further below.

EPA projects that with the Transport Rule, covered EGU will substantially reduce SO₂, annual NO_x and ozone-season NO_x emissions, as shown in Tables III-2 and III-3, below. This rule generally covers electric generating units that are fossil fuel-fired boilers and turbines producing electricity for sale, as detailed in section VII.B.

EPA is promulgating the Transport Rule in response to the remand of the Clean Air Interstate Rule (CAIR) by the U.S. Court of Appeals for the District of Columbia Circuit ("Court") in 2008. CAIR, promulgated May 12, 2005 (70 FR 25162), required 29 states to adopt and submit revisions to their State Implementation Plans (SIPs) to eliminate SO₂ and NO_x emissions that contribute significantly to downwind nonattainment of the PM_{2.5} and ozone NAAQS promulgated in July 1997. CAIR covered a similar but not identical set of states as the Transport Rule. CAIR FIPs were promulgated April 26, 2006 (71 FR 25328) to regulate electric generating units in the covered states and achieve the emission reduction requirements established by CAIR until states could submit and obtain approval of SIPs to achieve the reductions.

In July 2008, the Court found CAIR and the CAIR FIPs unlawful. *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008), modified on rehearing, *North Carolina v. EPA*, 550 F.3d 1176, 1178 (D.C. Cir. 2008). The Court's original decision vacated CAIR. *North Carolina*, 531 F.3d at 929-30. However, the Court subsequently remanded CAIR to EPA without vacatur because it found that "allowing CAIR to remain in effect until it is replaced by a rule consistent with our opinion would at least temporarily preserve the environmental values covered by CAIR." *North Carolina*, 550 F.3d at 1178. The CAIR requirements have remained in place while EPA has

developed the Transport Rule to replace them.

EPA's approach in the Transport Rule to measure and address each state's significant contribution to downwind nonattainment and interference with maintenance is guided by and consistent with the Court's opinion in *North Carolina* and addresses the flaws in CAIR identified by the Court therein. This final rule also responds to extensive public comments and stakeholder input received during the public comment periods in response to the proposal and subsequent Notices of Data Availability (NODAs).

In this action, EPA both identifies and addresses emissions within states that significantly contribute to nonattainment or interfere with maintenance in other downwind states. In developing this rule, EPA used a state-specific methodology to identify emission reductions that must be made in covered states to address the CAA section 110(a)(2)(D)(i)(I) prohibition on emissions that significantly contribute to nonattainment or interfere with maintenance in a downwind state. EPA believes this methodology addresses the Court's concern that the approach used in CAIR was insufficiently state-specific. EPA used detailed air quality analysis to determine whether a state's contribution to downwind air quality problems is at or above specific thresholds. A state is covered by the Transport Rule if its contribution meets or exceeds one of those air quality thresholds and the Agency identifies, using a multi-factor analysis that takes into account both air quality and cost considerations, emissions within the state that constitute the state's significant contribution to nonattainment and interference with maintenance with respect to the 1997 ozone or the 1997 annual or 2006 24-hour PM_{2.5} NAAQS. Section 110(a)(2)(D)(i)(I) requires states to eliminate the emissions that constitute this "significant contribution" and "interference with maintenance."⁶

In this final rule, EPA determined the emission reductions required from all upwind states to eliminate significant contribution to nonattainment and interference with maintenance with respect to the 1997 ozone, 1997 annual PM_{2.5}, and 2006 24-hour PM_{2.5} NAAQS, using, in part, an assessment of modeled air quality in 2012 and 2014. EPA first

identified the following two sets of downwind receptors: (1) Receptors that EPA projects will have nonattainment problems; and, (2) receptors that EPA projects may have difficulty maintaining the NAAQS based on historic variation in air quality. To identify areas that may have problems attaining or maintaining these air quality standards, EPA projected a suite of future air quality design values, based on measured data during the period 2003 through 2007. EPA used the average of these future design values to assess whether an area will be in nonattainment. EPA used the maximum projected future design value to assess whether an area may have difficulty maintaining the relevant NAAQS (*i.e.*, whether an area has a reasonable possibility of being in nonattainment under adverse emission and weather conditions). Section V.C of this preamble details the Transport Rule's approach to identify downwind nonattainment and maintenance areas.

After identifying downwind nonattainment and/or maintenance areas, EPA next used air quality modeling to determine which upwind states are projected to contribute at or above threshold levels to the air quality problems in those areas. Section V.D details the choice of air quality thresholds and the approach to determine how much each upwind state contributes. States whose contributions meet or exceed the threshold levels were analyzed further, as detailed in section VI, to determine whether they significantly contribute to nonattainment or interfere with maintenance of a relevant NAAQS, and if so, the quantity of emissions that constitute their significant contribution and interference with maintenance.

When EPA proposed this air-quality and cost-based multi-factor approach to identify emissions that constitute significant contribution to nonattainment and interference with maintenance from upwind states with respect to the 1997 ozone, annual PM_{2.5}, and 2006 24-hour PM_{2.5} NAAQS, the Agency indicated that the approach was designed to be applicable to both current and potential future ozone and PM_{2.5} NAAQS (75 FR 45214). EPA believes that the Transport Rule's approach of using air-quality thresholds to determine upwind-to-downwind-state linkages and using the air-quality and cost-based multi-factor approach to determine the quantity of emissions that each upwind state must eliminate, *i.e.*, the state's significant contribution to nonattainment and interference with maintenance, could serve as a precedent for quantifying upwind state emission reduction responsibilities with respect

⁶ In this preamble, EPA uses the terms "significant contribution" and "interference with maintenance" to refer to the emissions that must be prohibited pursuant to section 110(a)(2)(D)(i)(I) because they significantly contribute to nonattainment or interfere with maintenance of the NAAQS in another state.

to potential future NAAQS, as discussed further in section VI.A of this preamble. The Agency further believes that the final Transport Rule demonstrates the strong value of this approach for addressing the role of interstate transport of air pollution in communities' ability to comply with current and future NAAQS.

EPA thus identified specific emission reduction responsibilities for each upwind state found to significantly contribute to nonattainment or interfere with maintenance in other states. Using that information, EPA developed individual state budgets for emissions from covered units under the Transport Rule. The Transport Rule emission budgets are based on EPA's state-by-state analysis of each upwind state's significant contribution to nonattainment and interference with maintenance. Because each state's budget is directly linked to this state-specific analysis of the state's obligations pursuant to section 110(a)(2)(D)(i)(I), this approach addresses the Court's concerns about the development of CAIR budgets.

In this rule, EPA is finalizing SO₂ and annual NO_x budgets for each state covered for the 24-hour and/or annual PM_{2.5} NAAQS and an ozone-season NO_x budget for each state covered for the ozone NAAQS. A state's emission budget is the quantity of emissions that will remain from covered units under the Transport Rule after elimination of significant contribution to nonattainment and interference with maintenance in an average year (*i.e.*, before accounting for the inherent variability in power system operations).⁷

Baseline power sector emissions from a state can be affected by changing weather patterns, demand growth, or disruptions in electricity supply from other units or from the transmission grid. As a consequence, emissions could vary from year to year even in a state where covered sources have installed all controls and taken all measures necessary to eliminate the state's significant contribution to nonattainment and interference with maintenance. As described in detail in

⁷ For the states discussed above for which EPA has quantified the minimum amount of emission reductions needed to make measurable progress toward satisfying the state's section 110(a)(2)(D)(i)(I) responsibility, the emission budget is the quantity of emissions that will remain from covered units after removal of those emissions.

sections VI and VII of this preamble, the Transport Rule accounts for the inherent variability in power system operations through "assurance provisions" based on state-specific variability limits which extend above the state budgets to form each state's "assurance level." The state assurance levels take into account the inherent variability in baseline emissions from year to year. The final Transport Rule FIPs will implement assurance provisions starting in 2012 as discussed in section VII, below.

The emission reduction requirements (*i.e.*, the "remedy") EPA is promulgating in this rule respond to the Court's concerns that in CAIR, EPA had not shown that the emission reduction requirements would get all necessary reductions within the state as required by section 110(a)(2)(D)(i)(I). The Transport Rule FIPs include assurance provisions specifically designed to ensure that no state's emissions are allowed to exceed that specific state's budget plus the variability limit (*i.e.*, the state's assurance level).

Each state's Transport Rule SO₂, annual NO_x, or ozone-season NO_x emission budget is composed of a number of emission allowances ("allowances") equivalent to the tonnage of that specific state budget. Under the Transport Rule FIPs, EPA is distributing ("allocating") allowances under each state's budget to covered units in that state. In this rule, EPA analyzed each individual state's significant contribution to nonattainment and interference with maintenance and calculated budgets that represent each state's emissions after the elimination of those prohibited emissions in an average year. The methodology used to allocate allowances to individual units in a particular state has no impact on that state's budget or on the requirement that the state's emissions not exceed that budget plus the variability limit; the allocation methodology therefore has no impact on the rule's ability to satisfy the statutory mandate of CAA section 110(a)(2)(D)(i)(I).

The Transport Rule's approach to allocate emission allowances to existing units is based on historic heat-input data, as detailed in section VII.D of this preamble. The Transport Rule SO₂, annual NO_x, and ozone-season NO_x emission allowances each authorize the emission of one ton of SO₂, annual NO_x, or ozone-season NO_x emissions, respectively, during a Transport Rule

control period, and are the currency in the Transport Rule's air quality-assured trading programs. As discussed in section IX.A.2 below, EPA is creating these Transport Rule allowances as distinct compliance instruments with no relation to allowances from the CAIR trading programs. EPA agrees with the general principle that it is desirable, where possible, to provide continuity under successive regulatory trading programs, for example through the carryover of allowances from one program into a subsequent one. However, EPA is promulgating the Transport Rule as a court-ordered replacement for (not a successor to) CAIR's trading programs. In light of the specific circumstances of this case, including legal and technical issues discussed in Section IX.A.2 below, the final rule will not allow any carryover of banked SO₂ or NO_x allowances from the Title IV or CAIR trading programs. EPA will strongly consider administrative continuity of this rule's trading programs under any future actions designed to address related problems of interstate transport of air pollution. A state may submit a SIP revision under which the state (rather than EPA) would determine allocations for one or more of the Transport Rule trading programs beginning with vintage year 2013 or later allowances.⁸ Section X of this preamble discusses the final rule's provisions for SIP submissions in detail.

Table III-1 lists states covered by the Transport Rule for PM_{2.5} and ozone. It also, with respect to PM_{2.5}, identifies whether EPA determined the state was significantly contributing to nonattainment or interfering with maintenance of the 1997 annual PM_{2.5} NAAQS, the 2006 24-hour PM_{2.5} NAAQS, or both. As discussed below, the Transport Rule sorts the states required to reduce SO₂ emissions due to their contribution to PM_{2.5} downwind into two groups of varying reduction stringency, with "Group 1" states subject to greater SO₂ reduction stringency than "Group 2" states starting in 2014. Table III-1 also lists which SO₂ Group each of the states is in.

⁸ This final rule allows states to make 2013 allowance allocations through the use of a SIP revision that is narrower in scope than the other SIP revisions states can use to replace the FIPs and/or to make allocation decisions for 2014 and beyond, as discussed in section X.

TABLE III-1—STATES THAT SIGNIFICANTLY CONTRIBUTE TO NONATTAINMENT OR INTERFERE WITH MAINTENANCE OF A NAAQS DOWNWIND IN THE FINAL TRANSPORT RULE

State	1997 Ozone NAAQS	1997 Annual PM _{2.5} NAAQS	2006 24-Hour PM _{2.5} NAAQS	SO ₂ group
Alabama	X	X	X	2
Arkansas	X			
Florida	X			
Georgia	X	X	X	2
Illinois	X	X	X	1
Indiana	X	X	X	1
Iowa		X	X	1
Kansas			X	2
Kentucky	X	X	X	1
Louisiana	X			
Maryland	X	X	X	1
Michigan		X	X	1
Minnesota			X	2
Mississippi	X			
Missouri		X	X	1
Nebraska			X	2
New Jersey	X		X	1
New York	X	X	X	1
North Carolina	X	X	X	1
Ohio	X	X	X	1
Pennsylvania	X	X	X	1
South Carolina	X	X		2
Tennessee	X	X	X	1
Texas	X	X		2
Virginia	X		X	1
West Virginia	X	X	X	1
Wisconsin		X	X	1
Number of States	20	18	21	

As explained in this preamble, EPA has improved and updated both steps of its significant contribution analysis. It updated and improved the modeling platforms and modeling inputs used to identify states with contributions to certain downwind receptors that meet or exceed specified thresholds. It also updated and improved its analysis for identifying any emissions within such states that constitute the state's significant contribution to nonattainment or interference with maintenance. Therefore, the results of the analysis conducted for the final rule differ somewhat from the results of the analysis conducted for the proposal.⁹

With respect to the 1997 ozone NAAQS, the analysis EPA conducted for the proposal did not identify Wisconsin, Iowa and Missouri as states that significantly contribute to nonattainment or interfere with maintenance of the ozone NAAQS in another state. However, the analysis conducted for the final rule shows that emissions from these states do significantly contribute to nonattainment or interfere with maintenance of the ozone NAAQS in

another state. EPA is not issuing FIPs with respect to the 1997 ozone NAAQS or finalizing ozone season NO_x budgets for these states in this rule. EPA is publishing a supplemental notice of proposed rulemaking that will provide an opportunity for public comment on our conclusion that these states significantly contribute to nonattainment or interfere with maintenance of the 1997 ozone NAAQS.

In the other direction, the analysis conducted for the proposal supported EPA's conclusion at the time that Connecticut, Delaware, and the District of Columbia significantly contributed to nonattainment or interfered with maintenance with respect to the 1997 ozone NAAQS, whereas the modeling for the final rule no longer supports that conclusion for those states.

Additionally, the modeling conducted for the final rule identified two ozone maintenance receptors that were not identified in the modeling conducted for the proposal—Allegan County (MI) and Harford County (MD). Five states that EPA identified as significantly contributing to maintenance problems at the Allegan and/or Harford County receptors in the modeling for the final rule uniquely contribute to these receptors, *i.e.*, absent these receptors the states would not be covered by the Transport Rule ozone-season program.

The five states that uniquely contribute to these receptors are Iowa, Kansas, Michigan, Oklahoma, and Wisconsin. EPA is not issuing FIPs with respect to the 1997 ozone NAAQS or finalizing ozone-season NO_x budgets for these states in this rule. EPA is publishing a supplemental notice of proposed rulemaking that will provide an opportunity for public comment on our conclusion that these states significantly contribute to nonattainment or interfere with maintenance of the 1997 ozone NAAQS.

EPA did not change its methodology between the proposed Transport Rule and the final Transport Rule for identifying upwind states that significantly contribute to nonattainment or interfere with maintenance in other states; nor did EPA change its methodology for identifying receptors of concern with respect to maintenance of the 1997 ozone NAAQS. The final rule's air quality modeling identifies the new states and new receptors described above based on updated input information (including emission inventories), much of which was provided to EPA through public comment on the proposal and subsequent NODAs. Section V of this preamble details the approach EPA used

⁹ EPA updated its modeling platforms and modeling inputs in response to public comments received on the proposed Transport Rule and subsequent NODAs and performed other standard updates.

to identify contributing states and receptors of concern.

With respect to the annual PM_{2.5} NAAQS, the analysis EPA conducted for the proposal supported EPA's conclusion that the states of Delaware, the District of Columbia, Florida, Louisiana, Minnesota, New Jersey, and Virginia were significantly contributing to nonattainment and interfering with maintenance of the annual PM_{2.5} NAAQS while the final rule's analysis does not. Also, with respect to the 24-hour PM_{2.5} NAAQS, the analysis conducted for the proposal supported EPA's conclusion that the states of Connecticut, Delaware, the District of Columbia, and Massachusetts were significantly contributing to nonattainment or interfering with maintenance in other states while the analysis conducted for the final rule did not.

In the proposal EPA also requested comment on whether Texas should be included in the Transport Rule for annual PM_{2.5}. EPA's analysis for the proposal showed that emissions in Texas would significantly contribute to nonattainment or interfere with maintenance of the annual PM_{2.5} NAAQS if Texas were not included in the rule for PM_{2.5}. The proposal did not include an illustrative budget for Texas or illustrative allowance allocations. However, the budgets and allowance allocations provided for other states in the proposal were included solely to illustrate the result of applying EPA's proposed methodology for quantifying significant contribution to the data EPA proposed to use. EPA provided an ample opportunity for comment on this methodology and on the data, including data regarding emissions from Texas sources, used in the significant contribution analysis. EPA received numerous comments on and corrections to Texas-specific data. The modeling conducted for the final rule demonstrates that Texas significantly contributes to nonattainment or interferes with maintenance of the annual PM_{2.5} NAAQS in another state. EPA provided a full opportunity for comment on whether Texas should be included in the rule for annual PM_{2.5}, as well as on the methodology and data

used for the significant contribution analysis for the final rule. EPA therefore believes its determination that Texas must be included in the rule for annual PM_{2.5} is a logical outgrowth of its proposal.

With respect to the 24-hour PM_{2.5} NAAQS, the analysis EPA conducted for the proposal did not identify Texas as a state that significantly contributes to nonattainment or interferes with maintenance of 24-hour PM_{2.5} in another state. However, the analysis conducted for the final rule shows that emissions from Texas do significantly contribute to nonattainment of the 24-hour PM_{2.5} NAAQS in another state. EPA is not issuing a FIP for Texas with respect to the 24-hour PM_{2.5} NAAQS in this rule. However, EPA believes that the FIP for Texas with respect to the 1997 annual PM_{2.5} NAAQS also addresses the emissions in Texas that significantly contribute to nonattainment and interference with maintenance of the 2006 24-hour PM_{2.5} NAAQS in another state.

The final rule, however, does not cover the states of Connecticut, Delaware, the District of Columbia, Florida, Louisiana, or Massachusetts for annual or 24-hour PM_{2.5} as the analysis for the final rule does not support their inclusion.

The Transport Rule FIPs require the 23 states covered for purposes of the 24-hour and/or annual PM_{2.5} NAAQS to reduce SO₂ and annual NO_x emissions by specified amounts. The FIPs require the 20 states covered for purposes of the ozone NAAQS to reduce ozone-season NO_x emissions by specified amounts. As discussed in detail in section VI, below, the 23 states covered for the 24-hour and/or annual PM_{2.5} NAAQS are grouped in two tiers reflecting the stringency of SO₂ reductions required to eliminate that state's significant contribution to nonattainment and interference with maintenance downwind. The more-stringent SO₂ tier ("Group 1") is comprised of the 16 states indicated in Table III-1, above, and the less-stringent SO₂ tier ("Group 2") is comprised of the 7 states identified in the table. The two SO₂ trading programs are exclusive, i.e., a covered source in a Group 1 state may

use only a Group 1 allowance for compliance, and likewise a source in a Group 2 state may use only a Group 2 allowance for compliance. In Group 1 states, the SO₂ reduction requirements become more stringent in the second phase, which starts in 2014.

In response to the Court's opinion in *North Carolina*, EPA has coordinated the Transport Rule's compliance deadlines with the NAAQS attainment deadlines that apply to the downwind nonattainment and maintenance areas. The Transport Rule requires that all significant contribution to nonattainment and interference with maintenance identified in this action with respect to the 1997 annual PM_{2.5} NAAQS and the 2006 24-hour PM_{2.5} NAAQS be eliminated by no later than 2014, with an initial phase of reductions starting in 2012 to ensure that reductions are made as expeditiously as practicable and, consistent with the Court's remand, to "preserve the environmental values covered by CAIR." Sources must comply by January 1, 2012 and January 1, 2014 for the first and second phases, respectively.

With respect to the 1997 ozone NAAQS, the Transport Rule requires NO_x reductions starting in 2012 to ensure that reductions are made as expeditiously as practicable to assist downwind state attainment and maintenance of the standard. Sources must comply by May 1, 2012. The Transport Rule's compliance schedule and alignment with downwind NAAQS attainment deadlines are discussed in detail in section VII below.

Table III-2 shows projected Transport Rule emissions compared to projected base case emissions, and Table III-3 shows projected Transport Rule emissions compared to historical emissions (i.e., 2005 emissions), for the power sector in all Transport Rule states. The ozone-season NO_x results shown in Tables III-2 and III-3 are based on analysis of the group of 26 states that would be covered for the ozone-season program if EPA finalizes the supplemental proposal regarding ozone-season requirements for Iowa, Kansas, Michigan, Missouri, Oklahoma, and Wisconsin.

TABLE III-2--PROJECTED SO₂ AND NO_x ELECTRIC GENERATING UNIT EMISSION REDUCTIONS IN COVERED STATES WITH THE TRANSPORT RULE COMPARED TO BASE CASE WITHOUT TRANSPORT RULE OR CAIR **

[Million tons]

	2012 Base case emissions	2012 Transport rule emissions	2012 Emission reductions	2014 Base case emissions	2014 Transport rule emissions	2014 Emission reductions
SO ₂	7.0	3.0	4.0	6.2	2.4	3.9
Annual NO _x	1.4	1.3	0.1	1.4	1.2	0.2

TABLE III-2—PROJECTED SO₂ AND NO_x ELECTRIC GENERATING UNIT EMISSION REDUCTIONS IN COVERED STATES WITH THE TRANSPORT RULE COMPARED TO BASE CASE WITHOUT TRANSPORT RULE OR CAIR **—Continued
(Million tons)

	2012 Base case emissions	2012 Transport rule emissions	2012 Emission reductions	2014 Base case emissions	2014 Transport rule emissions	2014 Emission reductions
Ozone-Season NO _x	0.7	0.6	0.1	0.7	0.6	0.1

* Note that numbers may not sum exactly due to rounding.

** As explained in section V.B, EPA's base case projections for the Transport Rule assume that CAIR is not in place.

Notes: The SO₂ and annual NO_x emissions in this table reflect EGUs in the 23 states covered by this rule for purposes of the 24-hour and/or annual PM_{2.5} NAAQS (Alabama, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Minnesota, Missouri, Nebraska, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South

Carolina, Tennessee, Texas, Virginia, West Virginia, and Wisconsin). The ozone-season NO_x emissions reflect EGUs in the 20 states covered by this rule for purposes of the ozone NAAQS (Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Mississippi, New Jersey, New York, North Carolina, Ohio,

Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and West Virginia) and the six states that would be covered for the ozone NAAQS if EPA finalizes its supplemental proposal (Iowa, Kansas, Michigan, Missouri, Oklahoma, and Wisconsin).

TABLE III-3—PROJECTED SO₂ AND NO_x ELECTRIC GENERATING UNIT EMISSION REDUCTIONS IN COVERED STATES WITH THE TRANSPORT RULE COMPARED TO 2005 ACTUAL EMISSIONS
(Million tons)

	2005 Actual emissions	2012 Transport rule emissions	2012 Emission reductions from 2005	2014 Transport rule emissions	2014 Emission reductions from 2005
SO ₂	8.8	3.0	5.8	2.4	6.4
Annual NO _x	2.6	1.3	1.3	1.2	1.4
Ozone-Season NO _x	0.9	0.6	0.3	0.6	0.3

Notes: The SO₂ and annual NO_x emissions in this table reflect EGUs in the 23 states covered by this rule for purposes of the 24-hour and/or annual PM_{2.5} NAAQS (Alabama, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Minnesota, Missouri, Nebraska, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, West Virginia, and Wisconsin). The ozone-season NO_x emissions reflect EGUs in the 20 states covered by this rule for purposes of the ozone NAAQS (Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Mississippi, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and West Virginia) and the six states that would be covered for the ozone NAAQS if EPA finalizes its supplemental proposal (Iowa, Kansas, Michigan, Missouri, Oklahoma, and Wisconsin).

substantial benefits of the Transport Rule, as described in section VIII in this preamble. EPA used air quality modeling to quantify the improvements in PM_{2.5} and ozone concentrations that are expected to result from the Transport Rule emission reductions in 2014. The Agency used the results of this modeling to calculate the average and peak reduction in annual PM_{2.5}, 24-hour PM_{2.5}, and 8-hour ozone concentrations for monitoring sites in the Transport Rule covered states (including the six states for which EPA issued a supplemental proposal for ozone-season NO_x requirements) in 2014.

For annual PM_{2.5}, the average reduction across all monitoring sites in covered states in 2014 is 1.41 microgram per meter cubed (µg/m³) and the greatest reduction at a single site is 3.60 µg/m³.

For 24-hour PM_{2.5}, the average reduction across all monitoring sites in covered states in 2014 is 4.3 µg/m³ and the greatest reduction at a single site is 11.6 µg/m³. And finally, for 8-hour ozone, the average reduction across all monitoring sites in covered states in 2014 is 0.3 parts per billion (ppb) and the greatest is 3.9 ppb. See section VIII for further information on air quality improvements.

EPA estimated the Transport Rule's costs and benefits, including effects on sensitive and vulnerable and environmental justice communities. Table III-4, below, summarizes some of these results. Further discussion of the results is provided in preamble section VIII, below, and in the Regulatory Impact Analysis (RIA). Estimates here are subject to uncertainties discussed further in the RIA.

In addition to the emission reductions shown above, EPA projects other

TABLE III-4.—SUMMARY OF ANNUAL BENEFITS, COSTS, AND NET BENEFITS OF THE FINAL TRANSPORT RULE IN 2014
(Billions of 2007\$)^a

Description	Transport rule remedy (billions of 2007 \$)	
	3% discount rate	7% discount rate
Social costs	\$0.81	\$0.81.
Total monetized benefits ^b	\$120 to \$280	\$110 to \$250.
Net benefits (benefits-costs)	\$120 to \$280	\$110 to \$250.

^a All estimates are for 2014, and are rounded to two significant figures.

^b The total monetized benefits reflect the human health benefits associated with reducing exposure to PM_{2.5} and ozone and the welfare benefits associated with improved visibility in Class I areas. The reduction in premature mortalities account for over 90 percent of total monetized PM_{2.5} and ozone benefits.

As a result of updated analyses and in response to public comments, the final Transport Rule differs from the proposal in a number of ways. The differences between proposal and final rule are discussed throughout this preamble. Some key changes between proposal and final rule are that EPA:

- Updated emission inventories (resulting in generally lower base case emissions). See section V.C.
- Updated modeling and analysis tools (including improved alignment between air quality estimates and air quality modeling results). See sections V and VI.
- Updated conclusions regarding which states significantly contribute to nonattainment or interfere with maintenance of the NAAQS in other states. See Table III-1 and sections V.D and VI.
- Recalculated state budgets and variability limits, *i.e.*, state assurance levels, based on updated modeling. See section VI.
- Simplified variability limits for one-year application only. See section VI.E.
- Revised allocation methodology for existing and new units and revised new unit set-asides for new units in Transport Rule states and new units potentially locating in Indian country. See section VII.D.
- Changed start of assurance provisions to 2012 and increased assurance provision penalties. See section VII.E.
- Removed opt-in provisions. See section VII.B
- Added provisions for full and abbreviated Transport Rule SIP revisions. See section X.

EPA conducted substantial stakeholder outreach in developing the Transport Rule, starting with a series of “listening sessions” in the spring of 2009 with states, nongovernmental organizations, and industry. EPA docketed stakeholder-related materials in the Transport Rule docket (Docket ID No. EPA-HQ-OAR-2009-0491). The Agency conducted general teleconferences on the rule with tribal environmental professionals, conducted consultation with tribal governments, and hosted a webinar for communities and tribal governments. EPA continued to provide updates to regulatory partners and stakeholders through several conference calls with states as well as at conferences where EPA officials often made presentations. The Agency conducted additional

stakeholder outreach during the public comment period. EPA responded to extensive public comments received during the public comment periods on the proposed rule and associated NODAs.

This Transport Rule is one of a series of regulatory actions to reduce the adverse health and environmental impacts of the power sector. EPA is developing these rules to address judicial review of previous rulemakings and to issue rules required by environmental laws. Finalizing these rules will effectuate health and environmental protection mandated by Congress while substantially reducing uncertainty over the future regulatory obligations of power plants, which will assist the power sector in planning for compliance more cost effectively. The Agency is providing full opportunity for notice and comment for each rule.

As discussed above, rules to address transport under revised NAAQS, including the reconsidered 2008 ozone NAAQS, may result in additional emission reduction requirements for the power sector. In addition, existing Clean Air Act rules establishing best available retrofit technology (BART) requirements and other requirements for addressing visibility and regional haze may also result in future state requirements for certain power plant emission reductions where needed.

On May 3, 2011 (76 FR 24976), EPA proposed national emission standards for hazardous air pollutants from coal- and oil-fired electric utility steam generating units under CAA section 112(d), also called Mercury and Air Toxics Standards (MATS), and proposed revised new source performance standards for fossil fuel-fired EGUs under section 111(b). As discussed in the EPA-led public listening sessions during February and March 2011, EPA is preparing to propose innovative, cost-effective and flexible greenhouse gas (GHG) emissions performance standards under section 111 for steam electric generating units, the largest U.S. source of greenhouse gas emissions. On April 20, 2011 (76 FR 22174), EPA proposed requirements under section 316(b) of the Clean Water Act for existing power generating facilities, manufacturing and industrial facilities that withdraw more than two million gallons per day of water from waters of the U.S. and use at least twenty-five percent of that water exclusively for cooling purposes. On

June 21, 2010 (75 FR 35128), the Agency proposed to regulate coal combustion residuals (CCRs) under the Resource Conservation and Recovery Act to address the risks from the disposal of CCRs generated from the combustion of coal at electric utilities and independent power producers.

EPA will coordinate utility-related air pollution rules with each other and with other actions affecting the power sector including these rules from EPA’s Office of Water and its Office of Resource Conservation and Recovery to the extent consistent with legal authority in order to provide timely information needed to support regulated sources in making informed decisions. Use of a small number of air pollution control technologies, widely deployed, can assist with compliance for multiple rules. EPA also notes that the flexibility inherent in the allowance-trading mechanism included in the Transport Rule affords utilities themselves a degree of latitude to determine how best to integrate compliance with the emission reduction requirements of this rule and those of the other rules. EPA will pursue energy efficiency improvements in the use of electricity throughout the economy, along with other federal agencies, states and other groups, which will contribute to additional environmental and public health improvements while lowering the costs of realizing those improvements.

IV. Legal Authority, Environmental Basis, and Correction of CAIR SIP Approvals

A. EPA’s Authority for Transport Rule

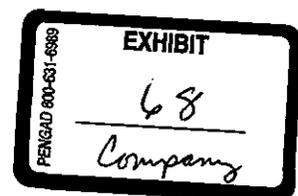
The statutory authority for this action is provided by the CAA, as amended, 42 U.S.C. 7401 *et seq.* Section 110(a)(2)(D) of the CAA, often referred to as the “good neighbor” provision of the Act, and requires states to prohibit certain emissions because of their impact on air quality in downwind states. Specifically, it requires all states, within 3 years of promulgation of a new or revised NAAQS, to submit SIPs that prohibit certain emissions of air pollutants because of the impact they would have on air quality in other states. 42 U.S.C. 7410(a)(2)(D). This action addresses the requirement in section 110(a)(2)(D)(i)(I) regarding the prohibition of emissions within a state that will significantly contribute to nonattainment or interfere with maintenance of the NAAQS in any other

Fact Sheet

Status and Next Steps: Area Designations for the National Air Quality Standard for Sulfur Dioxide Established in 2010

ACTIONS

- On March 20, 2015, the U.S. Environmental Protection Agency (EPA) informed environmental commissioners of 28 states that certain areas within their states will be addressed in the next round of designations under the one-hour health-based national air quality standard for sulfur dioxide (SO₂). The standard was set in 2010 at 75 parts per billion (ppb). Air quality in parts of these states may be impacted by large sources of SO₂ emissions. In addition, air quality monitors in some of these states are measuring preliminary violations of the standard. EPA is also informing seven tribes that they may be impacted by nearby sources of SO₂ emissions. The EPA intends to designate these areas as either unclassifiable/attainment, nonattainment or unclassifiable by July 2, 2016.
- EPA will follow its standard open and transparent process to designate these areas and will work closely with states and Tribes to ensure that the decisions are based on the best available information.
- On July 25, 2013, the EPA identified or “designated” 29 areas in 16 states as “nonattainment” for the 2010 SO₂ standard. Air quality monitors in each of these areas measured violations of the standard based on 2009 – 2011 data. State plans demonstrating how these areas will meet the SO₂ standard are due to the EPA by April 4, 2015. At that time, EPA indicated that it intended to address designation for the remainder of the country in separate future actions.
- On March 2, 2015, the U.S. District Court for the Northern District of California accepted, as an enforceable order, an agreement between the EPA and Sierra Club and Natural Resources Defense Council to resolve litigation concerning the deadline for completing the designations. The court’s order directs EPA to complete designations for all remaining areas in the country in up to three additional rounds: the first round by July 2, 2016, the second round by December 31, 2017, and the final round by December 31, 2020.
- In the designations to be completed by July 2, 2016, the EPA will designate two groups of areas:



1. areas that have monitored violations of the 2010 SO₂ standard based on 2013 – 2015 air quality data
 - a. Based on preliminary data, EPA has identified 6 counties with monitors that are newly violating the standard.
 2. areas that contain any stationary source not announced for retirement that according to EPA's Air Markets Database emitted in 2012 either (a) more than 16,000 tons of SO₂, or (b) more than 2,600 tons of SO₂ and had an average emission rate of at least 0.45 lbs SO₂/mmbtu.
 - a. EPA has identified 69 sources that meet these criteria.
- The court's order directs the EPA to complete an additional round of area designations by December 31, 2017 addressing areas where states have not installed and begun operating a new SO₂ monitoring network meeting the EPA's specifications referenced in the Agency's anticipated final titled, "Data Requirements Rule for the 1-hour SO₂ primary NAAQS". This rule would direct air agencies to provide data to characterize current air quality in areas with large sources of SO₂ through air quality modeling or new monitoring.
 - Lastly, the court's order directs the EPA to designate all remaining areas by December 31, 2020.

REQUIREMENTS FOR NONATTAINMENT AREAS

- The Clean Air Act requires state, local and tribal governments to take steps to control pollution in SO₂ nonattainment areas. SO₂ is emitted by various types of industrial facilities, fossil fuel fired power plants and certain mobile sources.
- State and local governments detail these steps in plans that demonstrate how they will meet the SO₂ standard. Those plans are known as state implementation plans or SIPs. States have 18 months after the effective date of final designations to develop and submit their plans to EPA.
- Once designated, nonattainment areas are subject to nonattainment new source review requirements. New Source Review is a permitting program for industrial facilities to ensure that new and modified sources of pollution do not impede progress toward cleaner air.
- Nonattainment areas are required to meet the standard as quickly as possible, but no later than five years after designation. No later than six months after that date, EPA

must determine whether the area has attained the standard. If EPA determines that an area has failed to meet the standard, the state has up to 12 months to submit a SIP revision that demonstrates that the area will attain the standard within five years of EPA's determination.

BACKGROUND

- The Clean Air Act requires EPA to issue designations after the agency sets a new National Ambient Air Quality Standard or revises an existing standard. Areas not meeting the standard are designated "nonattainment."
- In June 2010, EPA set a one-hour average, health-based national air quality standard for SO₂ at 75 parts per billion. The revised standard will improve public health protection, especially for children, the elderly and people with asthma. These groups are susceptible to health problems, including narrowing of the airways which can cause difficulty breathing and increased asthma symptoms, associated with breathing SO₂.
- EPA is updating its March 2011 designation guidance for the 2010 SO₂ air quality standard to support analysis of designations and boundaries for these next rounds of designations. The updated guidance will be available shortly on EPA's website at <http://epa.gov/airquality/sulfurdioxide/guidance.html>.
- The EPA has also provided two technical assistance documents that provide advice on the use of modeling and monitoring data when determining if an area is meeting or not meeting the one-hour SO₂ standard. These documents can be found on the EPA's website at <http://epa.gov/airquality/sulfurdioxide/implement.html>.

FOR MORE INFORMATION

- For more information on the designation process for the SO₂ standard go to EPA's Web site at <http://www.epa.gov/so2designations>.

Area Designations for the 2010 SO₂ National Ambient Air Quality Standard to be Completed by July 2, 2016

Electric Power Plant Sources Exceeding the Emissions Thresholds Established by Court Order** of:

16,000 Tons of SO₂ Emitted in 2012 or

2,600 Tons of SO₂ Emitted in 2012 with an Average Emission Rate

of at least 0.45 pounds (lbs) SO₂ per mmbtu

*Sources meeting the emissions thresholds that have announced units for retirement by March 2, 2015, are excluded from this round of designations.

EPA Region	State	County	Facility Name	2012 SO ₂ Emissions (Tons)	2012 Average SO ₂ Emissions Rate (lbs/mmBtu)
6	AR	Independence	Independence Power Plant	32,974	0.59
6	AR	Jefferson	White Bluff Power Plant	31,687	0.59
8	CO	El Paso	Martin Drake Power Plant	4,792	0.56
8	CO	Morgan	Pawnee Generating station	13,510	0.76
4	GA	Bartow	Robert W Scherer Power Plant (Plant Scherer)	42,349	0.37
7	IA	Des Moines	Burlington Generating Station	4,697	0.67
7	IA	Wapello	Ottumwa Generating Station	11,985	0.67
7	IA	Woodbury	George Neal Station South	14,273	0.64
5	IL	Jasper	Newton Power Station	16,519	0.59
5	IL	Madison	Wood River Power Station	6,756	0.48
5	IL	Massac	Joppa Steam Coal Power Plant	16,991	0.47
5	IL	Putnam	Hennepin Power Station	5,906	0.50
5	IL	Williamson	Marion Power Station	5,850	0.49
5	IN	Gibson	Gibson Generating Station	22,447	0.25
5	IN	Jefferson	Clifty Creek Power Plant	52,839	1.77
5	IN	LaPorte	Michigan City Generating Station	11,584	1.01
5	IN	Posey	A B Brown Generating Station	7,091	0.52
5	IN	Spencer	Rockport Power Plant/Rockport Generating Station	54,390	0.58
7	KS	Linn	La Cygne Generating Station	16,235	0.36
7	KS	Shawnee	Tecumseh Energy Center	3,979	0.58
7	KS	Wyandotte	Nearman Creek Power Station	4,612	0.64
4	KY	Ohio	D B Wilson Generating Station	7,387	0.45

Area Designations for the 2010 SO₂ National Ambient Air Quality Standard to be Completed by July 2, 2016

Electric Power Plant Sources Exceeding the Emissions Thresholds Established by Court Order* of:

16,000 Tons of SO₂ Emitted in 2012 or

2,600 Tons of SO₂ Emitted in 2012 with an Average Emission Rate of at least 0.45 pounds (lbs) SO₂ per mmmBtu

*Sources meeting the emissions thresholds that have announced units for retirement by March 2, 2015, are excluded from this round of designations.

EPA Region	State	County	Facility Name	2012 SO ₂ Emissions (Tons)	2012 Average SO ₂ Emissions Rate (lbs/mmBtu)
4	KY	Pulaski	John S Cooper Power Station	7,428	1.07
6	LA	Mansfield/ De Soto Parish	Dolet Hills Power Station	20,887	0.80
6	LA	Westlake/ Calcasieu Parish	Nelson Industrial Steam Company	6,706	0.69
6	LA	Westlake/ Calcasieu Parish	R S Nelson Generating Plant	12,513	0.46
3	MD	Anne Arundel	Herbert A Wagner Generating Station	7,514	1.10
5	MI	Bay	Dan E Kam/JC Weadock Generating Complex	6,853	0.54
5	MI	Eaton	Erickson Power Plant	2,685	0.64
5	MI	Ingham	Eckert Power Station	3,677	0.58
5	MI	Marquette	Presque Isle	6,028	0.51
5	MI	Monroe	Monroe Power Plant	49,151	0.62
5	MI	Ottawa	J H Campbell Generating Complex	21,501	0.52
5	MI	St Clair	Belle River Power Plant	24,869	0.62
5	MI	St Clair	St. Clair Power Plant	28,208	0.94
7	MO	Franklin	Labadie Power Plant	42,235	0.57
7	MO	Jackson	Sibley Generating Station	6,095	0.55
7	MO	Scott	Sikeston Power station	5,243	0.62
4	MS	Lamar	R D Morrow Senior Generating Plant	3,948	0.63
4	NC	Brunswick	CPI USA North Carolina Southport	2,923	0.74
8	ND	McLean	Coal Creek Station	16,273	0.34
8	ND	Mercer	Coyote Station	10,639	0.79

Area Designations for the 2010 SO₂ National Ambient Air Quality Standard to be Completed by July 2, 2016

Electric Power Plant Sources Exceeding the Emissions Thresholds Established by Court Order* of:

16,000 Tons of SO₂ Emitted in 2012 or

2,600 Tons of SO₂ Emitted in 2012 with an Average Emission Rate

of at least 0.45 pounds (lbs) SO₂ per mmBtu

*Sources meeting the emissions thresholds that have announced units for retirement by March 2, 2015, are excluded from this round of designations.

EPA Region	State	County	Facility Name	2012 SO ₂ Emissions (Tons)	2012 Average SO ₂ Emissions Rate (lbs/mmBtu)
8	ND	Mercer	Leland Olds Power Plant	38,323	2.06
7	NE	Lancaster	Sheldon Station	2,760	0.46
7	NE	Lincoln	Gerald Gentleman Station	26,438	0.59
7	NE	Otoe	Nebraska City Station	16,766	0.35
2	NY	Erie	NRG Huntley Generation Station	2,716	0.70
2	NY	Niagara	Kintigh Generating Station (AES Somerset LLC)	5,653	0.53
5	OH	Clermont	W H Zimmer Generating Station	11,975	0.53
5	OH	Gallia	General James M Gavin	31,269	0.36
6	OK	Choctaw	Hugo Plant	8,066	0.60
6	OK	Muskogee	Muskogee Generating Station	22,647	0.50
6	OK	Noble	Sooner Generating Station	15,029	0.50
8	SD	Grant	Big Stone Plant - Otter Tail Power Company	12,290	0.81
4	TN	Sumner	TVA: Gallatin Fossil Plant	21,732	0.62
6	TX	Atascosa	San Miguel Electric	10,950	0.63
6	TX	Fort Bend	W A Parish Electric Generating Station	37,861	0.49
6	TX	Freestone	Big Brown Power Plant	60,681	1.59
6	TX	Goliad	Coletto Creek Power Station	16,218	0.62
6	TX	Lamb	Tolk Generating Station	19,168	0.52
6	TX	Leon	Limestone Generating Station	20,671	0.36
6	TX	McLennan	Sandy Creek Energy Station	4,955	1.14
6	TX	Milam	Luminant Sandow Yorktown Power Plant	22,511	1.00
6	TX	Potter	Harrington Generating Station	15,383	0.46

Area Designations for the 2010 SO₂ National Ambient Air Quality Standard to be Completed by July 2, 2016

Electric Power Plant Sources Exceeding the Emissions Thresholds Established by Court Order* of:

- 16,000 Tons of SO₂ Emitted in 2012 *or*
- 2,600 Tons of SO₂ Emitted in 2012 with an Average Emission Rate of at least 0.45 pounds (lbs) SO₂ per mmBtu

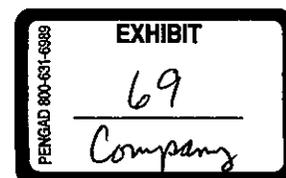
*Sources meeting the emissions thresholds that have announced units for retirement by March 2, 2015, are excluded from this round of designations.

EPA Region	State	County	Facility Name	2012 SO ₂ Emissions (Tons)	2012 Average SO ₂ Emissions Rate (lbs/mmBtu)
6	TX	Robertson	Optim Energy Twin Oaks Power Station	4,038	0.51
6	TX	Rusk	Luminant Power Plant at Martin Lake	43,093	0.55
6	TX	Titus	Monticello Steam Electric Station	31,447	0.78
5	WI	Columbia	Columbia Energy Center	24,599	0.60

Fact Sheet
Proposed Data Requirements Rule for the 1-Hour Sulfur Dioxide
Primary National Ambient Air Quality Standard (NAAQS)

ACTION

- On April 17, 2014, the U.S. Environmental Protection Agency (EPA) proposed requirements for air agencies to characterize sulfur dioxide (SO₂) air quality more extensively across the country for purposes of implementing the 1-hour SO₂ National Air Ambient Quality Standards (NAAQS). This approach would focus on characterizing air quality in areas with large sources of SO₂ emissions, and include smaller sources in areas with higher population. This action proposes a reasonable schedule for state and tribal air agencies to characterize air quality and provide that air quality data to the EPA.
- Air agencies would have the flexibility to characterize air quality using either modeling of actual source emissions or using appropriately sited ambient air quality monitors. The EPA intends to use these data in two future rounds of area designations in 2017 and 2020. Air quality modeling for SO₂ has been demonstrated to be an effective way to assess local air quality and may be a cost effective alternative to air quality monitoring in many circumstances.
- The proposed rule includes options for emissions thresholds which would identify the sources around which air agencies would need to characterize SO₂ air quality. To increase public health protection in more highly populated areas, each option includes a lower annual emissions threshold for sources located in metropolitan areas greater than 1 million in population, and a higher threshold for sources outside these areas.
 - Option 1 would cover sources greater than 1000 tons of SO₂ in metro areas with population greater than 1 million; and sources greater than 2000 tons everywhere else.
 - Option 2 would cover sources greater than 2000 tons of SO₂ in metro areas with population greater than 1 million; and sources greater than 5000 tons everywhere else.
 - Option 3 would cover sources greater than 3000 tons of SO₂ in metro areas with population greater than 1 million; and sources greater than 10,000 tons everywhere else.
- Air agencies can avoid a nonattainment designation for an area by working with sources to establish permanent and enforceable emission limitations that show attainment with the SO₂ standards through modeling prior to the next round of designations in 2017. Compliance with other emission reduction programs, such as the Mercury and Air Toxics Standards for power plants and emission standards for boilers, may help these areas improve ambient SO₂ air quality earlier.
- In July 2013, the EPA identified or “designated” as nonattainment, 29 areas in 16 states where monitored air quality showed violations of the 2010 1-hour standard. The EPA based these nonattainment designations on certified air quality monitoring data provided



by the states as well as an assessment of other factors (such as nearby emission sources and weather patterns) that contribute to the monitored levels. These areas are now taking steps to reduce SO₂ emissions and improve air quality.

PROPOSED IMPLEMENTATION APPROACH

- The EPA's Comprehensive Implementation Strategy for the 2010 SO₂ standard lays out a commonsense approach that focuses resources on identifying and addressing unhealthy levels of SO₂. In developing the strategy, the EPA carefully considered stakeholder feedback obtained during an extensive outreach process.
- By January 15, 2016, air agencies would be required to submit to the relevant EPA Regional Administrator a final list identifying the specific sources in the state around which SO₂ air quality is to be characterized, and indicating the air agency's approach to characterizing air quality around the source either through monitoring, modeling or a combination.
- For source areas that the air agency identifies would be evaluated through air quality modeling, the EPA proposes that the air agency must also provide a modeling protocol to the EPA Regional Administrator by January 15, 2016.
- The EPA intends to conduct a second phase of designations during 2017, relying on modeling analyses and other related information and to notify the states of intended designations by August 2017. The EPA therefore encourages states to submit modeling analyses and updated designation recommendations by January 13, 2017. By December 2017, the EPA intends to issue final designations for areas with modeled violations.
- Air agencies may elect to characterize air quality around some or all sources through ambient SO₂ monitoring, using existing and new monitoring sites. The EPA proposes that air agencies be required to submit relevant information about these monitoring sites to the EPA Regional Administrator by July 1, 2016, as part of their annual monitoring network plan, in accordance with the EPA's monitoring requirements specified in 40 CFR part 58. States electing to monitor to satisfy this rule will need to take specific actions to identify, relocate and/or install new ambient SO₂ monitors that would characterize peak 1-hour SO₂ concentrations in areas around or impacted by identified SO₂ sources.
- The EPA proposes that air agencies that have chosen to characterize air quality for certain SO₂ sources through ambient monitoring must have any relocated and/or new monitors operational by January 1, 2017. Air agencies will quality assure data from these monitors and submit it to the EPA Air Quality System in the same manner as is currently done for existing SO₂ monitors. Under this approach, it is anticipated that the first 3 years of data would be collected for calendar years 2017 through 2019; and using these data, the intended designations process for these areas would be completed in 2020.

- Recent Clean Air Act (CAA) rules will help states meet the revised SO₂ standard by reducing pollution both regionally and across the country. The schedule for designations and planning requirements in this rule aligns with the implementation schedules for national rules that will reduce SO₂ emissions – including the Mercury and Air Toxics Standards for power plants, and rules to control emissions from industrial boilers.

BACKGROUND

- The CAA requires the EPA to issue designations after the agency sets a new NAAQS or revises an existing standard. Areas not meeting the standard are designated “nonattainment.”
- On June 2, 2010, the EPA strengthened the primary SO₂ air quality standard. The revised standard will improve public health protection, especially for people with asthma, children and the elderly. In the final SO₂ standard rulemaking, the EPA provided initial thinking on how states and emission sources should implement the new 1-hour SO₂ standard.

On September 21, 2011, the EPA asked for public comment on draft guidance to states about how to implement the primary standard for SO₂.

- In May-June 2012, the EPA held a series of stakeholder discussions with states, tribes and other interested parties to refine the agency’s approach for implementing the SO₂ standard. To facilitate the discussion, the EPA developed a White Paper that identified important monitoring, modeling and implementation issues. The White Paper and summaries of the stakeholder discussions can be found on the EPA’s website at: <http://www.epa.gov/airquality/sulfurdioxide/implement.html>.
- Based on the input on the White Paper received from a diverse group of stakeholders, the EPA developed a comprehensive implementation strategy for the 2010 SO₂ standard in February 2013. The strategy included the development of a regulation that would require states to further characterize air quality near large sources of emissions so that the air quality data could be the basis of future SO₂ designations. The strategy, “Next Steps for Area Designations and Implementation of the Sulfur Dioxide National Ambient Air Quality Standards,” is available at: <http://www.epa.gov/airquality/sulfurdioxide/implement.html>.
- On August 5, 2013, the EPA published a rule which identified or “designated” 29 areas in 16 states as “nonattainment.” (No areas in Indian Country were designated nonattainment as part of these designations.) The EPA based these nonattainment designations on the most recent set of certified air quality monitoring data as well as an assessment of nearby emission sources and weather patterns that contribute to the monitored levels. These areas now need to develop and implement plans to reduce pollution to meet the SO₂ standard.

- After evaluating and responding to stakeholder comments on a May 2013 draft, in January 2014, the EPA made available two updated draft documents that provide technical assistance for states implementing the 2010 health-based, SO₂ standard. These documents provide technical advice on the use of air quality modeling (based on actual emissions data) and on properly siting ambient monitors to characterize peak 1-hour SO₂ air quality in order to determine if an area meets the 2010 SO₂ air quality standard. These technical assistance documents are available at:
<http://www.epa.gov/airquality/sulfurdioxide/implement.html>.

HOW TO COMMENT

- The EPA will accept comments on this proposed rule for 60 days following publication in the *Federal Register*.
- Comments on the proposed federal plan requirements, identified by Docket ID No. EPA-HQ-OAR-2013--0711, can be submitted by one of the following methods:
 - *www.regulations.gov*: Follow the on-line instructions for submitting comments.
 - *Email*: Send your comments via electronic mail [to a-and-r-Docket@epa.gov](mailto:a-and-r-Docket@epa.gov), Attention Docket ID No. EPA-HQ-OAR-2013-0711.
 - *Facsimile*: Fax your comments to (202) 566-9744, Attention Docket ID No. EPA-HQ-OAR-2013-0711.
 - *Mail*: Send your comments to: EPA Docket Center (EPA/DC), Environmental Protection Agency, Mailcode 6102T, 1200 Pennsylvania Ave., NW, Washington, DC 20460, Attention Docket ID No. EPA-HQ-OAR-2013-0711. Please include a total of two copies.
 - *Hand Delivery*: Deliver your comments to: EPA Docket Center (EPA/DC), William Jefferson Clinton Building, Room 3334, 1301 Constitution Ave., NW, Washington, DC, 20004, Attention Docket ID No. EPA-HQ-OAR-2013-0711. Such deliveries are accepted only during the normal hours of operation (8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays), and special arrangements should be made for deliveries of boxed information.

FOR MORE INFORMATION

- To download a copy of this proposed rule, go to the EPA's website at:
<http://www.epa.gov/airquality/sulfurdioxide/implement.html>.
- Today's Rule and other associated information are available either electronically at <http://www.regulations.gov>, the EPA's electronic public docket and comment system, or

in hardcopy at the EPA Docket Center's Public Reading Room, (Docket ID No. EPA-HQ-OAR-2013-0711)

- The Public Reading Room is located in the EPA Headquarters, Room Number 3334 in the William Jefferson Clinton West Building, located at 1301 Constitution Avenue, NW, Washington, DC. Hours of operation are 8:30 a.m. to 4:30 p.m. eastern standard time, Monday through Friday, excluding Federal holidays.
- Visitors are required to show photographic identification, pass through a metal detector, and sign the EPA visitor log. All visitor materials will be processed through an X-ray machine as well. Visitors will be provided a badge that must be visible at all times.

Fact Sheet
Final Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO₂)
Primary National Ambient Air Quality Standard (NAAQS)

ACTION

- On August 10, 2015, the U.S. Environmental Protection Agency finalized requirements for air agencies to monitor or model ambient sulfur dioxide (SO₂) levels in areas with large sources of SO₂ emissions to help implement the 1-hour SO₂ National Air Ambient Quality Standard (NAAQS).
- This final rule establishes that, at a minimum, air agencies must characterize air quality around sources that emit 2,000 tons per year (tpy) or more of SO₂. An air agency may avoid the requirement for air quality characterization near a source by adopting enforceable emission limits that ensure that the source will not emit more than 2,000 tpy of SO₂.
- This final rule gives air agencies the flexibility to characterize air quality using either modeling of actual source emissions or using appropriately sited ambient air quality monitors. Modeling and monitoring are both appropriate ways to assess local SO₂ concentrations, and this flexibility allows an air agency to select a cost-effective approach that adequately characterizes each required area.
- This final rule establishes a schedule for air agencies to characterize air quality and to provide that air quality data to the EPA. EPA expects to use this data to designate areas across the country as meeting or not meeting the SO₂ standard set in 2010. The EPA has designed the implementation milestones in this data requirements rule to allow air agencies to take into account compliance dates for achieving SO₂ emission reductions under other major national rules, such as the Mercury and Air Toxics Standards for power plants and emission standards for boilers.
- The final rule for the 2010 1-hour SO₂ standard lays out a common sense, orderly approach for characterizing current air quality in areas with large SO₂ sources. In developing the rule, the EPA carefully considered stakeholder feedback obtained during an extensive outreach process.

FINAL RULE IMPLEMENTATION TIMELINE

- By January 15, 2016, each air agency is required to submit to the relevant EPA Regional Administrator a final list identifying the sources in the state around which SO₂ air quality is to be characterized. The list must include sources with emissions above 2,000 tpy of SO₂. The EPA Regional Offices or air agencies may include additional sources on this list if they deem it necessary.
- By July 1, 2016, each air agency is required to identify, for each source area on the list, the approach (ambient monitoring or air quality modeling) it will use to characterize air



quality. In lieu of characterizing areas around listed 2,000 tpy or larger sources, air agencies may indicate by July 1, 2016 that they will adopt enforceable emissions limitations that will limit those sources' emissions to below 2,000 tpy.

- For source areas that an air agency decides to evaluate through air quality modeling, the air agency must provide a modeling protocol to the EPA Regional Administrator by July 1, 2016. The modeling analysis must be submitted to the EPA by January 13, 2017.
- For source areas that an air agency decides to evaluate through ambient monitoring, the air agency must submit relevant information concerning monitoring sites to the EPA Regional Administrator by July 1, 2016, as part of its annual monitoring network plan and in accordance with the EPA's monitoring requirements specified in 40 CFR part 58.
- The air agency must ensure that ambient monitors are operational by January 1, 2017. Before then air agencies will need to identify appropriate sites to characterize peak 1-hour SO₂ concentrations, and may need to relocate existing monitors or install new monitors.
- Air agencies will quality assure data from these monitors and submit them to the EPA Air Quality System in the same manner as is currently done for existing SO₂ monitors. The first 3 years of data will be collected for calendar years 2017 through 2019.
- If an air agency adopts emission limits keeping sources' emissions below 2,000 tpy in lieu of characterizing the areas surrounding sources, these limits must be adopted and effective by January 13, 2017.

BACKGROUND

- On June 2, 2010, the EPA established a primary 1-hour SO₂ air quality standard at a level of 75 parts per billion (99th percentile value, averaged over 3 consecutive years). The revised standard will improve public health protection, especially for people with asthma, children and the elderly.
- In May-June 2012, the EPA held a series of stakeholder discussions with states, tribes and other interested parties to refine the agency's approach for implementing the SO₂ standard. The EPA also developed a White Paper which identified important monitoring, modeling and implementation issues. The White Paper can be found on the EPA's website at: <http://www.epa.gov/airquality/sulfurdioxide/implement.html>. Based on the input on the White Paper, the EPA also developed an implementation strategy for the 2010 SO₂ standard in February 2013. The strategy paper can be found at: <http://www.epa.gov/airquality/sulfurdioxide/implement.html>.
- In July 2013, the EPA identified or "designated" as nonattainment 29 areas in 16 states where monitored air quality showed violations of the 2010 1-hour SO₂ standard. The EPA based these nonattainment designations on certified air quality monitoring data provided by the states, as well as an assessment of nearby emission sources, and weather

patterns that contribute to the monitored levels. These areas are now taking steps to reduce SO₂ emissions and improve air quality, and this rule does not require further characterization of sources in these areas, unless air agencies or the EPA Regional Offices decide that further characterization is warranted.

- A March 2015 court order requires the EPA to complete designations for the 2010 SO₂ standard for all remaining areas in the country in up to three additional rounds:
 1. By July 2, 2016 --
 - areas that have monitored violations of the 2010 SO₂ standard based on 2013 – 2015 air quality data; and
 - areas that contain any stationary source not announced for retirement that according to EPA's Air Markets Database emitted in 2012 either (a) more than 16,000 tons of SO₂ or (b) more than 2,600 tons of SO₂ and had an average emission rate of at least 0.45 lbs SO₂/mmbtu.
 2. By December 31, 2017 – areas where states have not installed and begun operating a new SO₂ monitoring network.
 3. By December 31, 2020 – all remaining areas.

For most areas, the data required by this final rule will be available in time to inform the designations made under the Court ordered schedule.

FOR MORE INFORMATION

- To download a copy of this final rule, go to the EPA's website at: <http://www.epa.gov/airquality/sulfurdioxide/implement.html>. The official version of this rule will be published in the Federal Register.
- Today's Final Rule and other associated information are available either electronically at <http://www.regulations.gov>, the EPA's electronic public docket and comment system, or in hardcopy at the EPA Docket Center's Public Reading Room. (Docket ID No. EPA-HQ-OAR-2013-0711)
- The Public Reading Room is located in the EPA Headquarters, Room Number 3334 in the William Jefferson Clinton West Building, located at 1301 Constitution Avenue, NW, Washington, D.C. Hours of operation are 8:30 a.m. to 4:30 p.m. eastern standard time, Monday through Friday, excluding Federal holidays.
- Visitors are required to show photographic identification, pass through a metal detector, and sign the EPA visitor log. All visitor materials will be processed through an X-ray machine as well. Visitors will be provided a badge that must be visible at all times.

IN THE SUPREME COURT
OF THE STATE OF OREGON

In re:)	
)	
Complaint as to the Conduct of)	Case No. 10-148
)	
SCOTT J. RUBIN,)	
)	
Accused.)	

Counsel for the Bar:	Susan Roedl Cournoyer
Counsel for the Accused:	None.
Disciplinary Board:	None.
Disposition:	Violation of RPC 3.4(c) and RPC 8.4(a)(4). Stipulation for Discipline. Public Reprimand.
Effective Date of Order:	February 16, 2011

ORDER APPROVING STIPULATION FOR DISCIPLINE

This matter having been heard upon the Stipulation for Discipline entered into by the Accused and the Oregon State Bar, and good cause appearing,

IT IS HEREBY ORDERED that the stipulation between the parties is approved and the Accused is publicly reprimanded for violation of RPC 3.4(c) and RPC 8.4(a)(4).

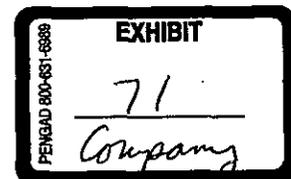
DATED this 16th day of February 2011.

/s/ R. Paul Frasier
 R. Paul Frasier
 State Disciplinary Board Chairperson

/s/ William B. Crow
 William B. Crow, Region 5
 Disciplinary Board Chairperson

STIPULATION FOR DISCIPLINE

Scott J. Rubin, attorney at law (hereinafter "Accused"), and the Oregon State Bar (hereinafter "the Bar") hereby stipulate to the following matters pursuant to Oregon State Bar Rule of Procedure 3.6(c).



1.

The Bar was created and exists by virtue of the laws of the State of Oregon and is, and at all times mentioned herein was, authorized to carry out the provisions of ORS chapter 9 relating to the discipline of attorneys.

2.

The Accused, a member of the Bar of the Commonwealth of Pennsylvania (“Pennsylvania Bar”), was admitted to appear pro hac vice in a matter pending before the Public Utility Commission of Oregon (“PUC”). The Accused is subject to the Bar’s disciplinary authority with respect to his acts and omissions occurring during his pro hac vice admission. RPC 8.5(a); UTCR 3.170(1)(d). Discipline imposed in this proceeding may subject the Accused to reciprocal or other discipline in Pennsylvania.

3.

The Accused enters into this Stipulation for Discipline freely and voluntarily. This Stipulation for Discipline is made under the restrictions of Bar Rule of Procedure 3.6(h).

4.

On December 11, 2010, the State Professional Responsibility Board (hereinafter “SPRB”) authorized formal disciplinary proceedings against the Accused for alleged violations of RPC 3.4(c) and RPC 8.4(a)(4) of the Oregon Rules of Professional Conduct. The parties intend that this stipulation set forth all relevant facts, violations, and the agreed-upon sanction as a final disposition of this proceeding.

Facts

5.

The Accused represented the International Brotherhood of Electrical Workers, Local 89 (“IBEW”), which the PUC had permitted to intervene in The Matter of Verizon Communications, Inc., and Frontier Communications Corporation, PUC UM 1431 (“the Verizon matter”).

On July 17, 2009, the PUC entered a Superseding Highly Confidential Protective Order (“Protective Order”) governing the acquisition and use of confidential information in the Verizon matter. Pursuant to the Protective Order, parties responding to discovery requests were permitted to designate and label documents or information they considered to be confidential when they produced the material to other parties in the Verizon matter. The Protective Order allowed a party to challenge by motion the designation of any document or information as confidential. All persons who were given access to information designated confidential by reason of the Protective Order were prohibited from using or disclosing that information for any purpose other than to prepare for and conduct the Verizon matter before the PUC and were obligated to keep the confidential information secure. The Protective

Order also required each person for whom access to confidential information was sought to sign and file with the PUC an agreement certifying that he or she had read, understood, and agreed to be bound by the terms of the Protective Order (“confidential information agreement”).

On July 17, 2009, the Accused signed a confidential information agreement stating that he had read and understood, and agreed to be bound by, the Protective Order.

On July 18, 2009, Randy Barber (“Barber”), an outside expert hired by IBEW, also signed a confidential information agreement stating that he had read and understood, and agreed to be bound by, the Protective Order.

Pursuant to the Protective Order, Verizon provided discovery to IBEW on September 9, 2009. The discovery materials included a document showing Verizon’s largest shareholders and the number of shares each held; the document was marked “Highly Confidential—Use Restricted per [Protective Order]” (“Verizon document”). A footnote in the Verizon document identified public filings with the Securities and Exchange Commission as the source of the shareholder information.

Upon reviewing the Verizon document, the Accused concluded that the shareholder information it contained was not confidential under the terms of the Protective Order. However, the Accused did not file a motion or otherwise challenge Verizon’s designation of this information as confidential.

On September 11, 2009, the Accused filed a motion in a proceeding pending before the Pennsylvania Public Utilities Commission (“PA Commission”), in which he described the shareholder information contained in the Verizon document. The Accused also filed an affidavit signed by Barber, which affidavit further described the shareholder information contained in the Verizon document.

On September 17, 2009, Verizon filed a motion to terminate IBEW’s participation in the Verizon matter based, *inter alia*, on the Accused’s use of Verizon’s discovery document in the motion he filed before the PA Commission. By order dated October 14, 2009, the PUC revoked IBEW’s status as an intervening party in the Verizon matter.

Violations

6.

The Accused admits that he knowingly disobeyed an obligation under the rules of a tribunal in violation of RPC 3.4(c) and that he engaged in conduct prejudicial to the administration of justice in violation of RPC 8.4(a)(4).

Sanction

7.

The Accused and the Bar agree that in fashioning an appropriate sanction in this case, the Disciplinary Board should consider the ABA *Standards for Imposing Lawyer Sanctions* (hereinafter "*Standards*"). The *Standards* require that the Accused's conduct be analyzed by considering the following factors: (1) the ethical duty violated, (2) the Accused's mental state, (3) the extent of actual or potential injury, and (4) the existence of aggravating and mitigating circumstances.

- a. **Duty Violated.** The Accused violated his duty to the legal system to comply with applicable orders or rules. *Standards*, §§ 6.0, 6.2.
- b. **Mental State.** The Accused acted on a belief that the Protective Order did not apply to public information contained within a confidential document. However, he knowingly failed to challenge Verizon's designation of the shareholder information as confidential and knowingly used that information without first obtaining relief under the Protective Order. Therefore, his mental state was, in part, knowing (defined as acting with the conscious awareness of the nature or attendant circumstances of his conduct but without a conscious objective or purpose to accomplish a particular result). The Accused also acted with negligence (defined as a failure to heed a substantial risk that circumstances exist or that a result will follow when such failure deviates from the standard of care that a reasonable lawyer would exercise in the situation) when he concluded that describing (while not disclosing) the shareholder information did not constitute "using" information designated as confidential under the Protective Order. *Standards*, at 7.
- c. **Injury.** The legal system was injured by the Accused's misconduct in that the PUC was required to expend time and attention addressing the Accused's violation of the Protective Order. Verizon was potentially injured by the Accused's misconduct because it may have incurred the expense of preparing additional pleadings in response to the Accused's violation of the Protective Order.
- d. **Aggravating Circumstances.** There are no aggravating circumstances present in this matter.
- e. **Mitigating Circumstances.** Mitigating circumstances include:
 1. Absence of a prior disciplinary record. *Standards*, § 9.32(a); and
 2. Full and free disclosure and a cooperative attitude toward the bar investigation and proceedings. *Standards*, § 9.32(e).

8.

Standards, §6.22, provides that suspension is generally appropriate when a lawyer knowingly violates a court order or rule and there is interference with a legal proceeding or injury or potential injury to a client or a party.

Standards, § 6.23, provides that reprimand is generally appropriate when a lawyer negligently fails to comply with a court order or rule, and causes injury or potential injury to a client or other party, or causes interference or potential interference with a legal proceeding.

9.

Oregon case law supports the imposition of a public reprimand in this case. See *In re Dodge*, 22 DB Rptr 271 (2008) (attorney disclosed to a Bureau of Labor and Industries investigator the existence and terms of a confidential mediation settlement offer his client's employer had extended in a workers' compensation mediation); *In re Carusone*, 20 DB Rptr 231 (2006) (attorney filed two motions and obtained two orders ex parte without complying with ORCP 80 (requiring notice to opposing party before appointment of a receiver) and local court rules); *In re Foley*, 19 DB Rptr 205 (2005) (attorney served three records subpoenas on opposing party's credit union without providing notice to opposing counsel, in violation of ORCP 39 and 55 and despite a warning from opposing counsel after the first subpoena was improperly served); *In re Egan*, 13 DB Rptr 96 (1999) (attorney filed two improper motions in violation of court's specific instruction).

10.

Consistent with the *Standards* and Oregon case law, the parties agree that the Accused shall be publicly reprimanded for violations of RPC 3.4(c) and RPC 8.4(a)(4).

11.

This Stipulation for Discipline is subject to review by Disciplinary Counsel of the Oregon State Bar and to approval by the SPRB. If approved by the SPRB, the parties agree the stipulation is to be submitted to the Disciplinary Board for consideration pursuant to the terms of BR 3.6.

Cite as *In re Rubin*, 25 DB Rptr 13 (2011)

EXECUTED this 3rd day of February 2011.

/s/ Scott J. Rubin

Scott J. Rubin

EXECUTED this 10th day of February 2011.

OREGON STATE BAR

By: /s/ Susan Roedl Cournoyer

Susan R. Cournoyer

OSB No. 863381

Assistant Disciplinary Counsel



Week of July 15th, 2013
PJM RTO Operations & Markets

MRC Meeting
August 29, 2013





System Conditions

During the hot weather week, PJM experienced the following system conditions:

- Transmission constraints on the South Canton Transformer and surrounding area
- High loads in all areas of the PJM service territory
- Unplanned Generation Outages





Time Line of Week of July 15th, 2013

Sunday, July 14th

10:00 Hot Weather Alert – RTO (except CE) thru July 17th,
Mid-Atlantic and Dominion only for 7/18 & 7/19

Monday, July 15th

13:50 Long Lead DR, EEA2, Max Emerg Gen Action – ATSI to
help control actual overloads on the South Canton #3
765/345KV XF.

14:45 PJM Responds to TVA TLR5b (RTO Spin and Shared
Reserves with NYISO)

18:00 Cancel Long Lead DR, EEA2, Max Emerg Gen – ATSI

20:00 Max Emerg Gen Alert, EEA1 – RTO for July 16th

Tuesday, July 16th

08:30 HLV Schedule Warning – RTO

11:30 Long Lead DR, EEA2, Max Emerg Gen Action – ATSI

16:30 Cancel Long Lead DR, EEA2, Max Emerg Gen – ATSI

20:00 Max Emerg Gen Alert, EEA1 – RTO for July 17th

Wednesday, July 17th

11:00 Hot Weather Alert Revised – RTO thru July 19th

20:00 Max Emerg Gen Alert, EEA1 – RTO for July 18th

Thursday, July 18th

12:40 Long Lead DR, EEA2 – PECO, PPL, ATSI

12:40 Max Emerg Gen Action – ATSI

13:00 Long Lead DR, EEA2 – AEP S. Canton

18:00 Cancel Long Lead DR, EEA2, Max Emerg Gen Action
- PECO, PPL, ATSI, AEP S. Canton

Friday, July 19th

08:25 HLV Warning – RTO

10:25 Hot Weather Alert – Mid-Atlantic & Dominion for July 20th

10:25 HLV Schedule – RTO



- **Actions and Outcomes**
 - Events outside PJM Service Territory
 - System Conditions
 - Use of Demand Response
 - Reserves/Reserve Sharing Agreements
 - Price Formation
 - Interchange
 - Balancing Congestion



Events Outside the PJM System



External coordination

- PJM participates in daily coordination calls with neighboring entities. During these conference calls, each participant shares the following:
 - Load forecast
 - Reserve estimates and requirements
 - Significant outages
 - Expected TLR activity and potential issues.
- SERC conference call occurs at 03:30 AM each morning.
- MISO conference call occurs at 08:00 AM each morning.
- NPCC conference call occurs at 09:30 AM each morning.



External coordination

- PJM participated in hot weather coordination calls with the NPCC during the week of July 15, 2013. These call were held at 10:00 AM each day.
- The following entities participated in these calls:
 - NYISO, NEISO, IESO, New Brunswick, Hydro Quebec, MISO, and PJM
- Each entity shares weather, load forecast, reserve position, current and expected Emergency Procedures (including DSR activation).
- On each of these calls, NYISO indicated that forecasted reserves were expected to be slightly above the requirement. NEISO reported reserve requirement deficiencies.
- These types of conference calls are arranged between the neighboring entities that expect higher loads/extreme weather conditions and are therefore arranged on an as needed basis (in addition to the normal, daily calls noted on the previous slide).



TLR timeline

10:38: TVA issues TLR 1 for Trimble County – Clifty Creek 345kv line l/o Jefferson – Rockport 765kv line (Flowgate 1025).

13:37: TVA issues TLR 3A for Flowgate 1025 requesting 796 MW of curtailments to take effect at 14:00 (cut of 48 MW of non-firm imports to PJM).

14:14: TVA issues TLR 3B requesting 150 MW relief on Flowgate 1025. 1,227 MW of curtailments to take effect at 14:30 (cut of 361 MW of non-firm imports to PJM).

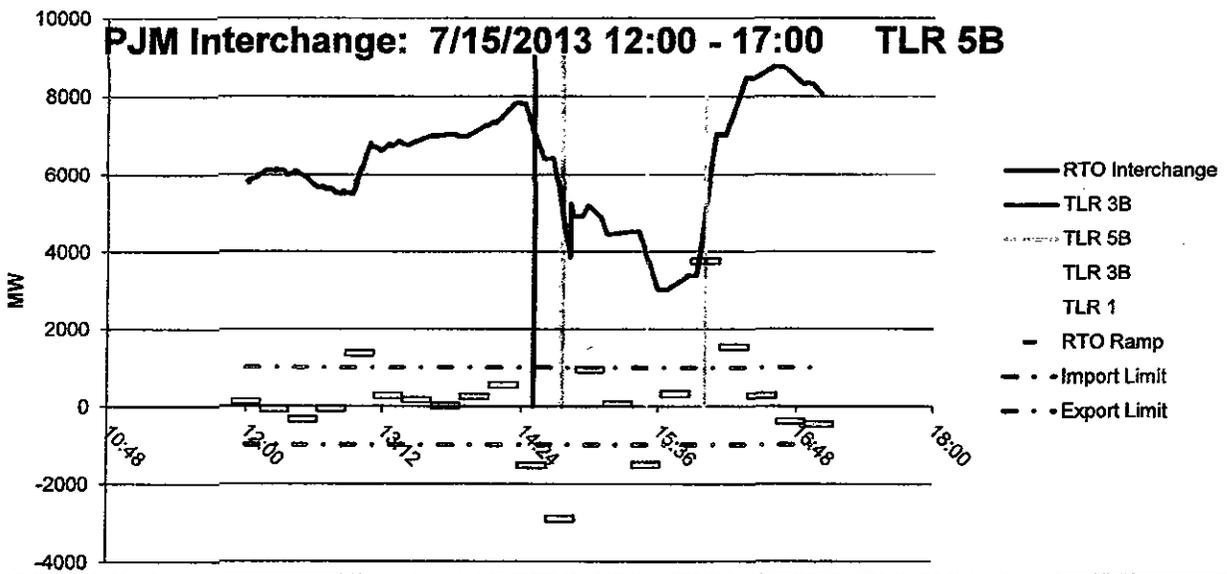
14:26: Unit in MISO begins running back. Unit was loaded at 200 MW.

14:30: TVA issues TLR 5B requesting 200 MW relief on Flowgate 1025. 3,381 MW of curtailments scheduled for 14:45 (cut of 3352 MW of non-firm and 29 MW of firm imports to PJM).

TLR timeline

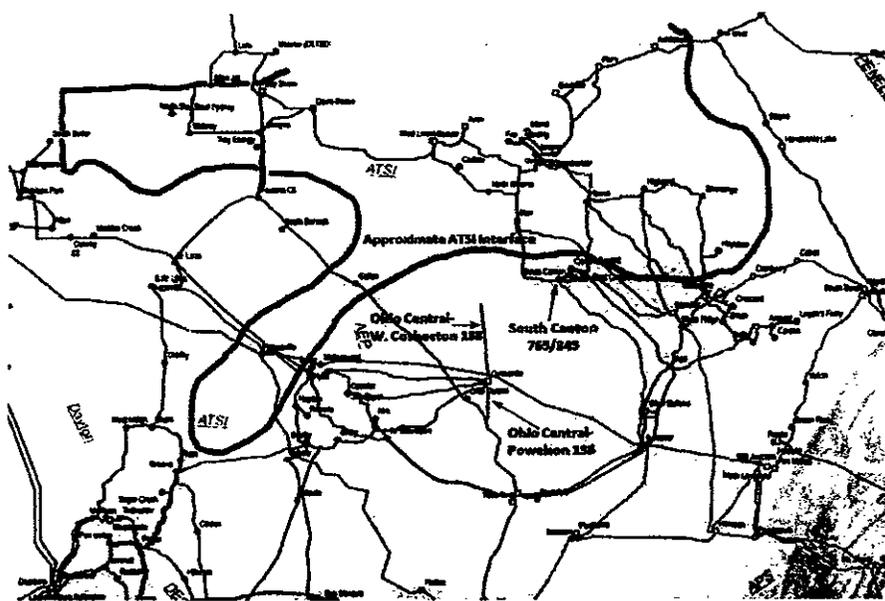
- 14:43: 100% synchronized reserves requested in Mid-Atlantic zone to recover from low ACE from TLR 5B.
- 14:47: System frequency dropped to 59.95 Hz.
- 14:48: PJM requested NPCC Shared Reserves to help recover low ACE resulting from the TLR 5B.
- 15:00 TVA called to report that Unit in MISO is ramping back up.
- 15:07 TVA drops to a TLR 3B on Flowgate 1025. Due to a TLR 5A on Sheridan – Mabelvale 500kv flo White Bluff – Keo 500kv, 1,857 MW of curtailments are scheduled to take effect at 15:30, resulting in a loss of 1618 MW of non-firm imports to PJM.
- 15:30: TVA steps down to a TLR 1 on Flowgate 1025. (Loading of 3703 MW non-firm imports to PJM at 16:00).

TLR ramp impact



System Conditions

ATSI & Canton Area System Diagram

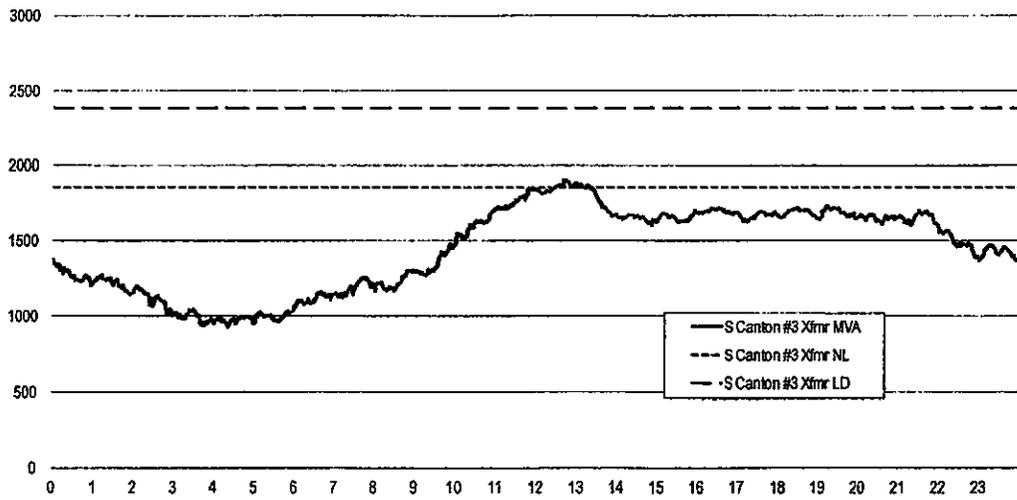


South Canton

- Generation outages
 - ≈ 2700 MW of unplanned generation outages to the north/east of South Canton.
- Ratings
 - Using coordinated / approved ratings
 - After 1st day – AEP reviewed ratings and found an error in their database. Ratings were then changed :

Thru 7/16	7/17 – Today
1718 MVA	1852 MVA
- RTEP upgrade
 - B1972 planned in service 10/4/2013 (Replace disconnect switch on the South Canton 765/345 kV transformer)
 - <http://www.pjm.com/planning/rtep-upgrades-status/construct-status.aspx>
- DR
 - Called in ATSI 7/15, 7/17, & 7/18
 - Load shed would have been necessary without DR to control

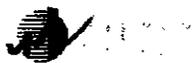
South Canton #3 Transformer on July 18th, 2013





Maximum Generation Emergencies

- Alert Issued the day before (when anticipated)
 - NERC EEA1 issued with alert
- Demand Response
 - Long Lead time issued
 - NERC EEA2 issued with Long Lead time notice
 - Maximum Emergency Generation issued with Long Lead time notice – with a “do not load until directed” for generation
- Issued for:
 - 7/15 & 7/17 – ATSI zone
 - 7/18 – ATSI zone; South Canton Subzone; PPL & PECO zones



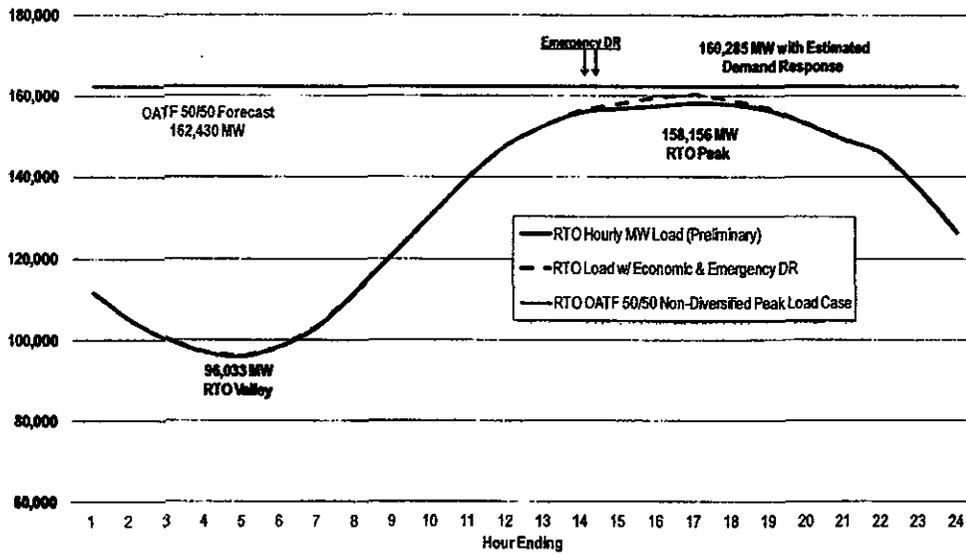
Post Contingency Local Load Relief Warning (PCLLRW)

PJM Manual 13: Emergency Operations, Section 5.4

The purpose of the Post Contingency Local Load Relief Warning is to provide advance notice to a transmission owner(s) of the potential for manual load dump in their area(s). It is issued after all other means of transmission constraint control have been exhausted or until sufficient generation is on-line to control the constraint within designated limits and timelines as identified in PJM Manual 3 Transmission Operations, Section 2 – Thermal Operating Guidelines

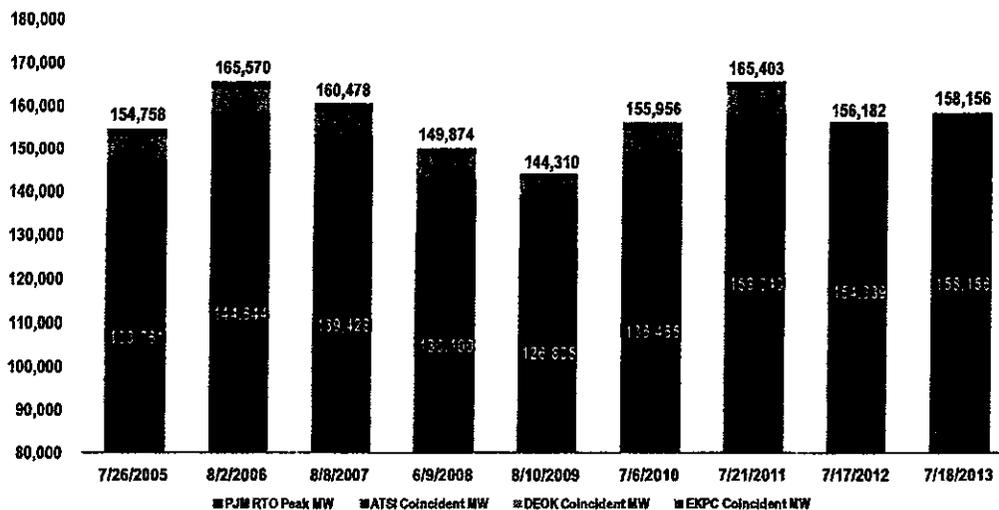


July 18th, 2013 Actual Load versus Summer Peak Load Forecast

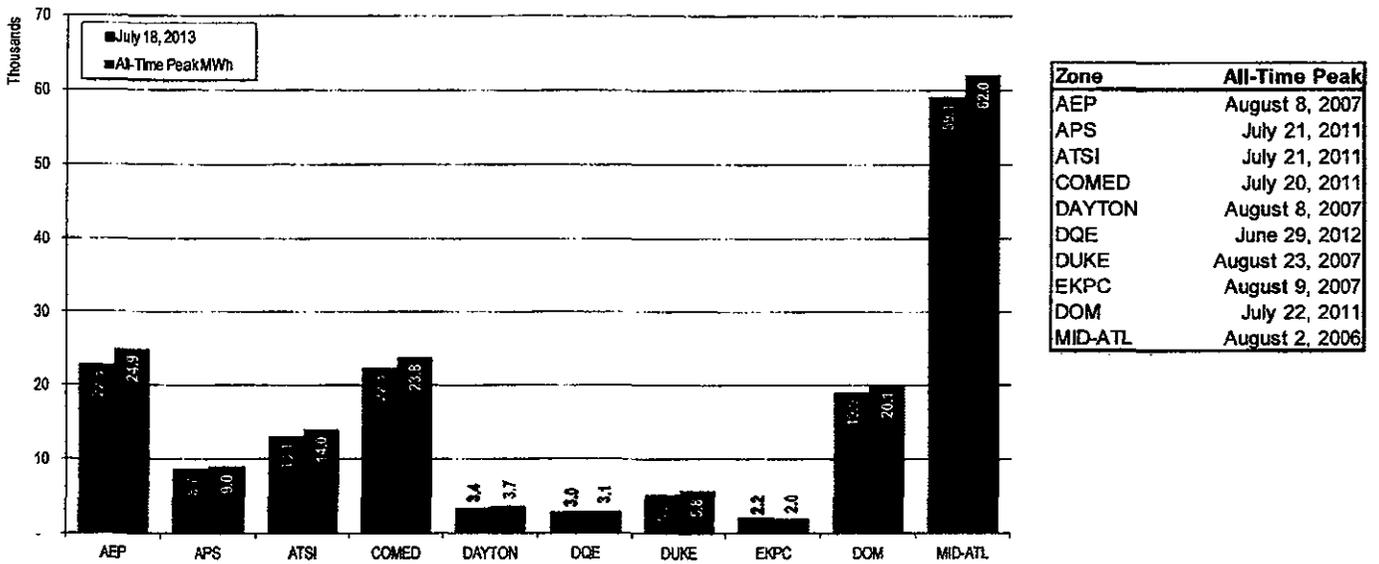




PJM RTO Historic Annual Peak Loads



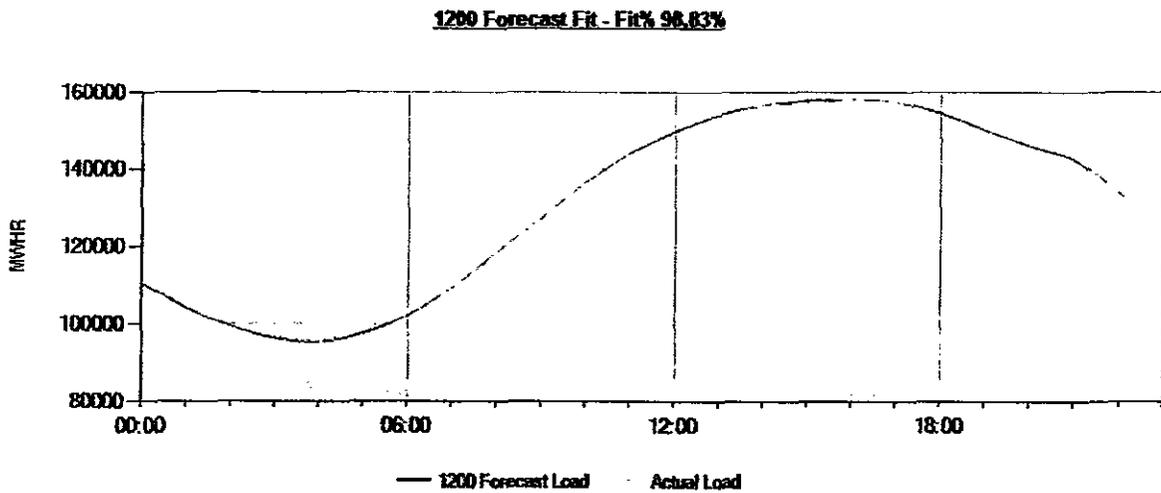
Zonal Loads – July 18th, 2013 versus All-Time Zonal Peaks



Zone	All-Time Peak
AEP	August 8, 2007
APS	July 21, 2011
ATSI	July 21, 2011
COMED	July 20, 2011
DAYTON	August 8, 2007
DQE	June 29, 2012
DUKE	August 23, 2007
EKPC	August 9, 2007
DOM	July 22, 2011
MID-ATL	August 2, 2006

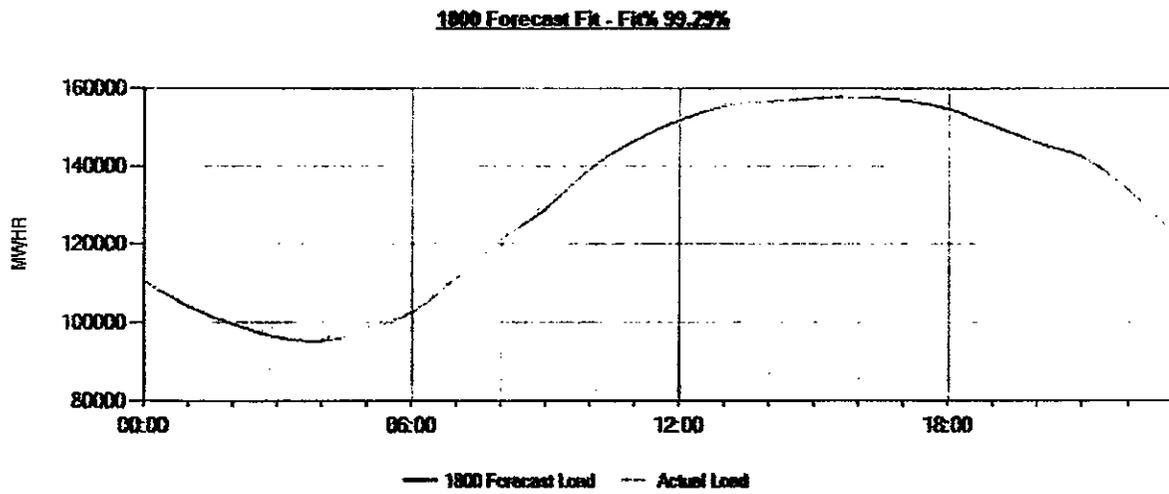


July 18th, 2013 Day-Ahead 12:00 Forecast versus Actual Load

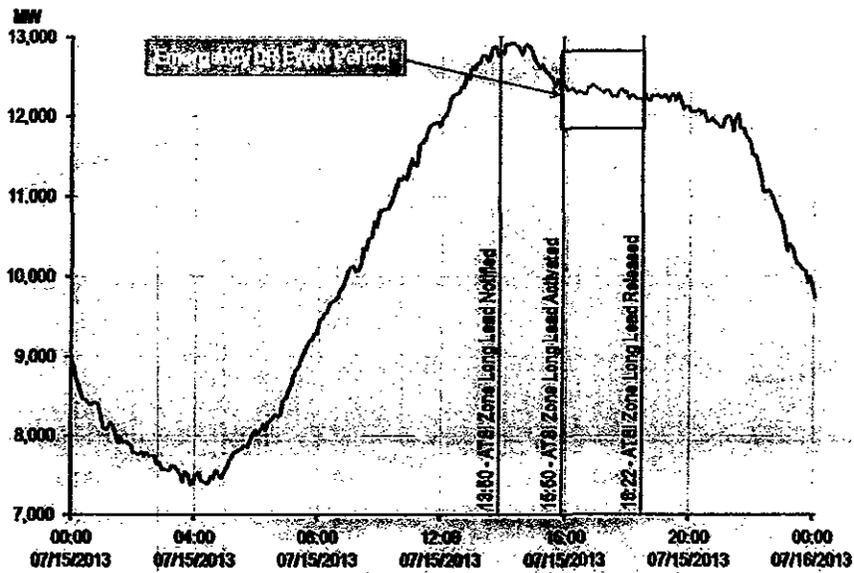




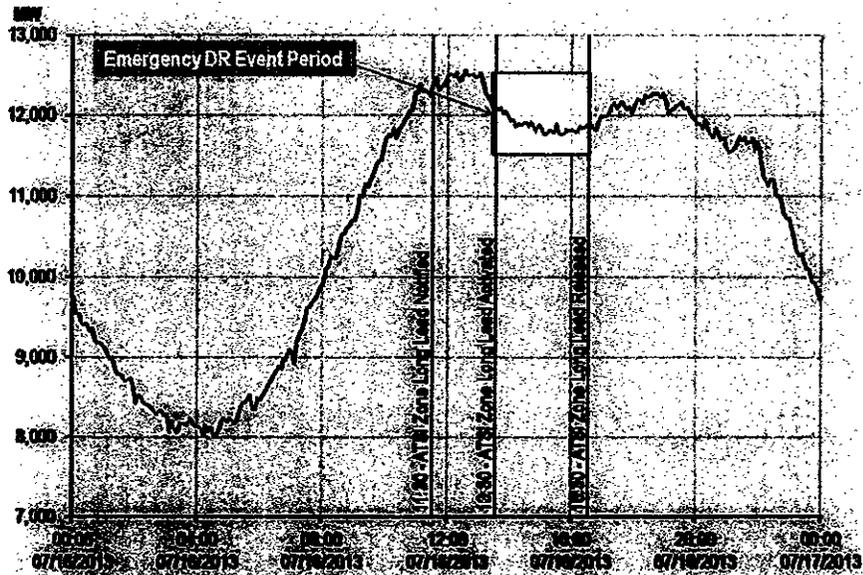
July 18th, 2013 Day-Ahead 18:00 Forecast versus Actual Load



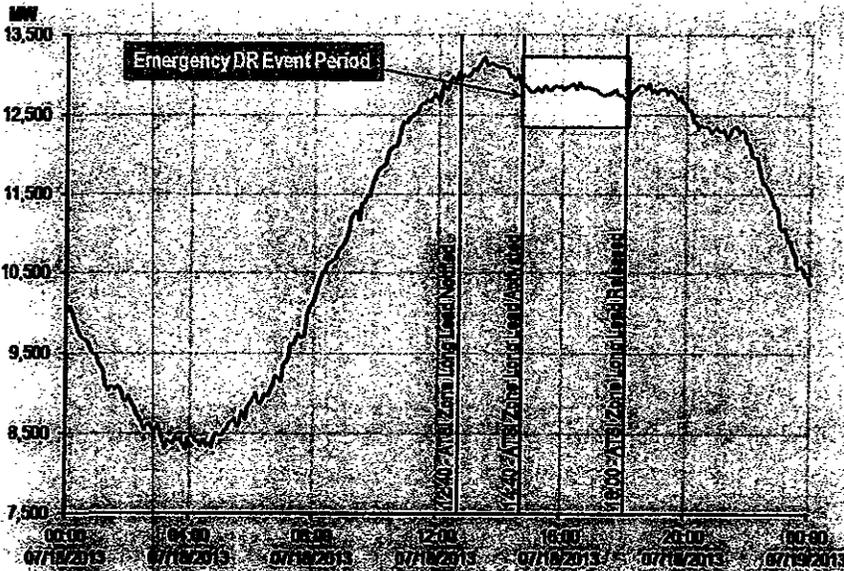
ATSI Zone Instantaneous Load July 15, 2013



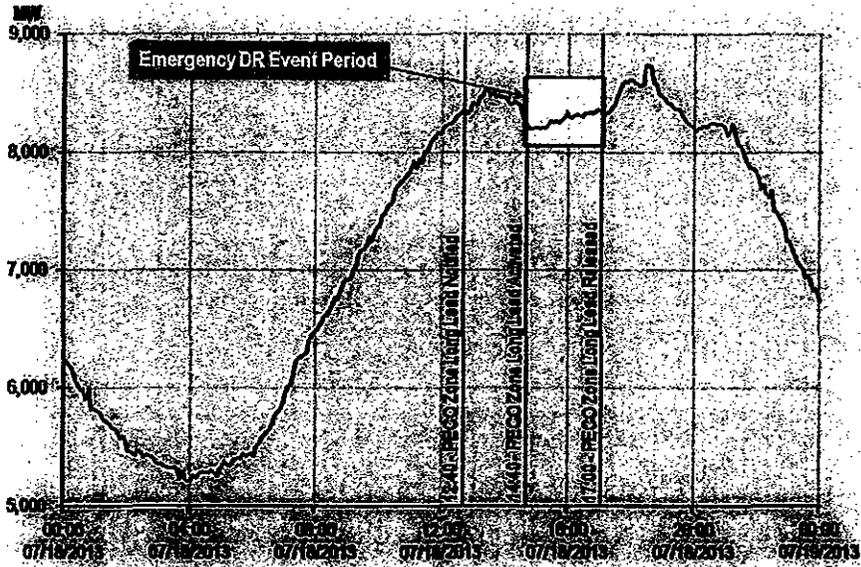
ATSI Zone Instantaneous Load July 16, 2013



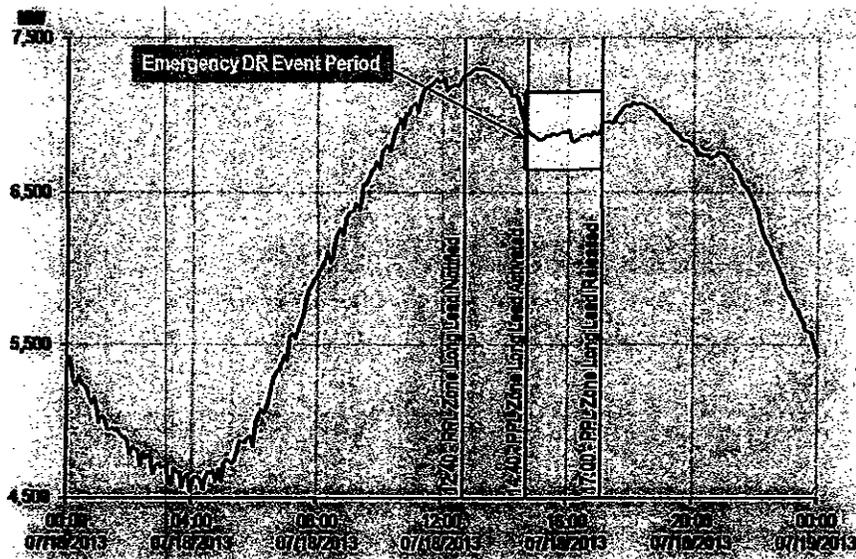
ATSI Zone Instantaneous Load July 18, 2013



PECO Zone Instantaneous Load July 18, 2013



PPL Zone Instantaneous Load July 18, 2013



DR calls

Date	Time	Location	Amount*	Run Time**	Approach
Monday 7/15	13:50 to 18:22	ATSI	~650 MW	~2.5 hours	Long Lead Time (2 hour notification at 13:50)
Tuesday 7/16	13:30 to 16:30	ATSI	~650 MW	3 hours	Long Lead Time (2 hour notification at 11:30)
Thursday 7/18	14:40 to 17:00	RECO PPA	~950 MW	~2.3 hours	Long Lead Time (2 hour notification at 12:40)
Thursday '18	14:40 to 18:00	ATSI	~650 MW	~3.3 hours	Long Lead Time (2 hour notification at 12:40)
Thursday 7/18	15:00 to 18:00	AEP, CAN TONI	~40 MW Voluntary Response (because subzone)	3 hours	Long Lead Time (2 hour notification at 13:00)

*Capacity values. Some sites may be off already and reduction could be different.

** Does not include ramp in period.

Reserves

	August 18, 2013 1200					August 18, 2013 1700				
	RT0	RFC	DOM	MID-ATL	MAD	RT0	RFC	DOM	MID-ATL	MAD
Peak Load Estimate	157,786	138,929	18,857	58,469	77,326	158,426	139,426	19,000	59,024	78,024
Current Load	153,582	135,413	18,170	57,319	75,489	158,163	139,178	18,981	59,038	78,023
Delta Load	4,277	3,577	700	1,186	1,885	262	262	(0)	3	3
SR Requirement	1,318	N/A	N/A	1,191	1,189	1,321	N/A	N/A	1,184	1,184
SR Available	2,597	2,169	333	1,015	1,516	3,935	3,391	443	937	1,6
Primary Requirement	1,978	N/A	427	1,700	1,700	1,982	N/A	427	1,700	1,700
Primary Available	3,971	3,543	333	2,182	2,241	4,970	4,426	443	1,427	2,482



Reserve Sharing Agreements and Accounting for Reserve MWs



Reserve Sharing Agreements

- Northeast Power Coordinating Council (NPCC)
 - NYISO, ISONE, IMO, etc.
- Virginia-Carolinas (VACAR)
 - Duke Energy Carolinas, Progress, South Carolina Electric and Gas, etc.
 - On behalf of Dominion



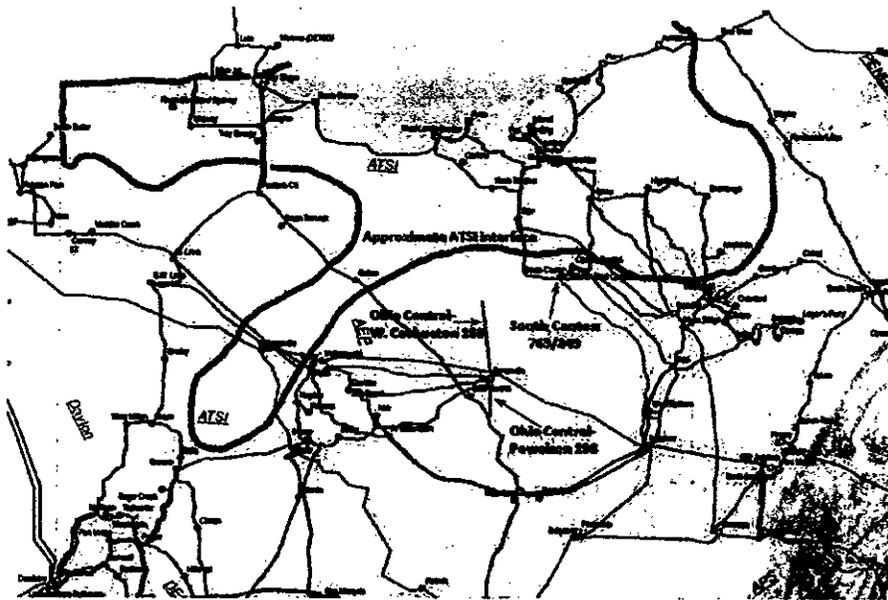
Nature of Agreements

- Nature of these agreements - obligations which are outside of our NERC and Ancillary Service requirements for reserves.
- PJM does not rely on shared reserves and does not include them in reserve calculations for scheduling and dispatch



Price Formation

ATSI & Canton Area System Diagram

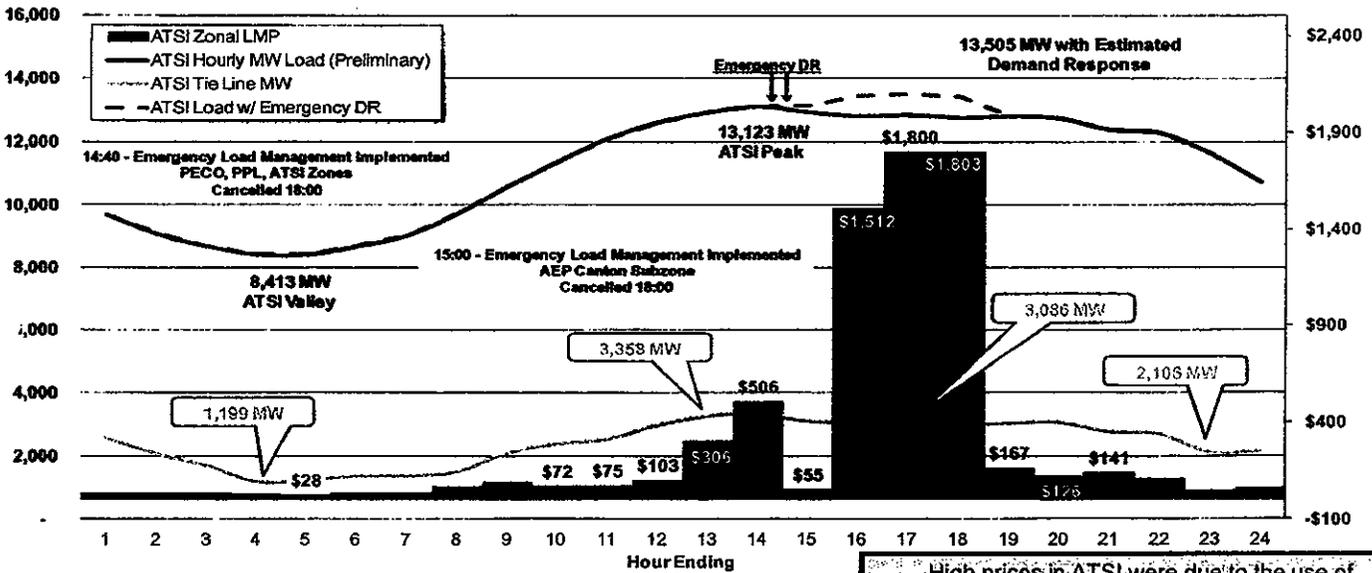




Event Timeline – July 18th, 2013

- 12:00 *Neighbors expecting capacity shortage and may need PJM assistance*
- 12:40 Long Lead DR, EEA2 – PECO, PPL, ATSI
- 12:40 Max Emergency Generation Action – ATSI
- 13:00 Long Lead DR, EEA2 – AEP S. Canton
- 14:00 *Neighbors did not need assistance from PJM coincident with a sharp increase in interchange into PJM*
- 15:10 Emergency DR in ATSI begins to set clearing price for ATSI Interface
- 17:00 Cancel Long Lead DR, Max Emergency Generation Action
 - PECO, PPL
- 18:00 Cancel Long Lead DR, EEA2, Max Emergency Generation Action
 - ATSI, AEP S. Canton
- 18:00 Emergency DR in ATSI no longer marginal

ATSI Load, LMP & Tie-Line Flow on July 18th, 2013



High prices in ATSI were due to the use of Emergency DR for transmission congestion that impact the zone. *There is no reserve requirement specific to ATSI and therefore no reserve shortage in that region.*



ATSI LMPs on July 18, 2013

- Emergency DR was called in the ATSI zone on July 15, 16 & 18, 2013
- It was marginal for the ATSI Interface during hours ending 16-18 on the 18th
- It set price at ~ \$1800/MWh in the ATSI zone during all or part of those hours



\$1,800/MWh Offer Cap

- The legacy \$1,000/MWh offer cap applies to capacity generation resources ONLY
- The \$1,800/MWh offer cap applies to all other types of transactions in the market
- The differentiation was not part of the original Shortage Pricing compliance filing made by PJM



Original SP Filing

- PJM's original Shortage Pricing filing contained provisions to cap the market-based offers of ALL capacity resources to \$1,000/MWh
 - Consistent with the current rules at the time
- PJM filing also contained provisions for emergency DR to set LMP when marginal
- FERC Order back to PJM
 - **Accepted:** Provisions for Emergency DR to be able to set LMP
 - **Denied:** *"...we require PJM to revise its Tariff to remove the \$1,000/MWh offer cap for capacity demand resources."*



\$1,800/MWh Offer Cap

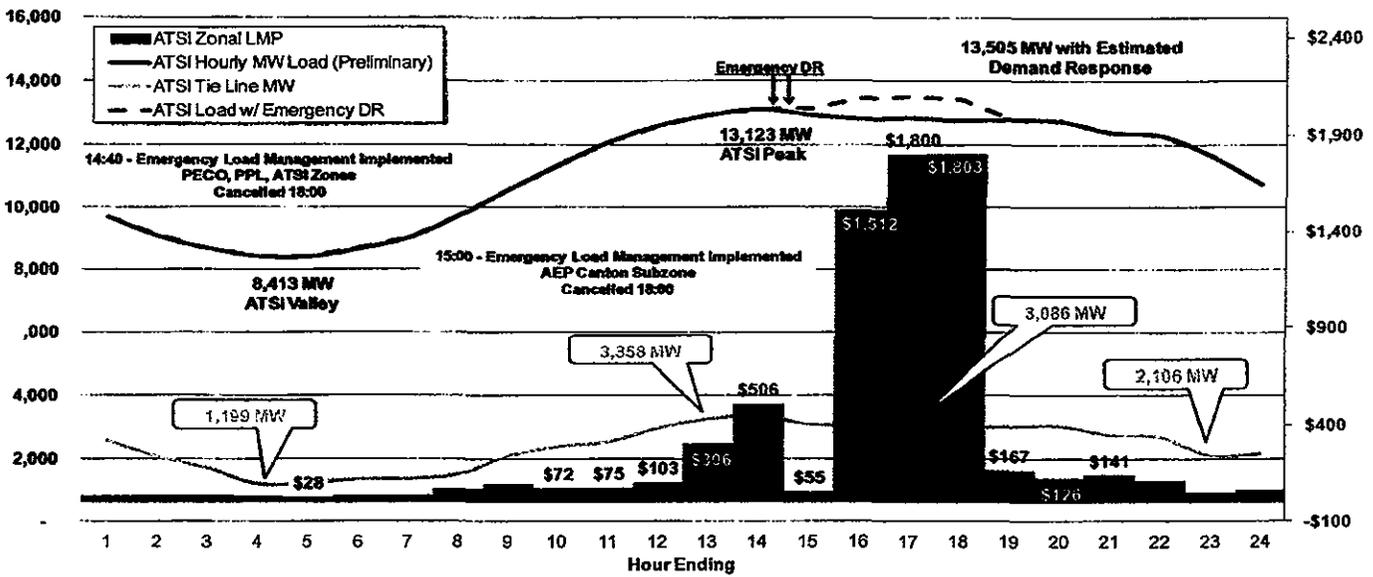
- To preserve the pricing outcomes accepted in PJM's compliance filing, the MRC endorsed changes to M-11 to implement an offer cap of $\$1,000/\text{MWh} + (2 * \text{Reserve Penalty Factor})$ for all transactions except capacity generation resources
 - Capacity generation still capped at $\$1,000/\text{MWh}$



Is \$1,800/MWh an Appropriate Offer Cap?

- It can result in market outcomes that are not intuitive or rational
 - Cost to go short Primary Reserves is less than the cost to maintain reserves by using Emergency DR
- FERC stated it felt that a \$1,000/MWh offer cap would discourage participation of DR in the Day Ahead market
 - Can we conclude that a higher offer cap has incentivized participation?
 - Emergency DR still has no requirement to offer DA

ATSI Load, LMP & Tie-Line Flow on July 18th, 2013



Prices in ATSI

- ATSI prices were high during hours ending 16-18 due to Emergency DR setting price for a transmission constraint
- PJM does not require a specific reserve quantity to be in any single transmission zone
 - Requirements are for the RTO and Mid-Atlantic+Dominion regions
- ***There was no reserve shortage in ATSI because there is no ATSI reserve requirement.***



ATSI Interface

- Interface created to price controlling actions for actual on the South Canton transformer and multiple post-contingency overloads
 - South Canton has a scheduled upgrade for this fall
- These overloads were more a result of coincidental generator outages at peak loads than long-term reliability concerns in the area



Impacts on Balancing Congestion



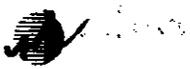
Congestion – ATSI interface

ATSI Interface Congestion: July 18, 2013

- **ATSI Interface reduced Real-time flows into ATSI zone**
 - Only used during real-time, peak load conditions to model the impact of multiple constraints into the ATSI zone

- **Day-ahead Congestion: \$0**
 - Entire set of constraints not present in the DA market

- **Balancing Congestion:**
 - Total of about -\$238,000 over 3 hours
 - 0.2% of total July congestion
 - 1.4% of July FTR revenue inadequacy



Congestion – ATSI interface

- Negative Balancing Congestion exists when capability in Real-time is less than capability in Day-ahead
 - Real-time market flow < Day-ahead market flow

- Balancing Congestion only slightly impacted
 - Congested only 3 hours
 - Day-ahead market flow averaged 8% higher than Real-time
 - Day-ahead congestion on South Canton Transformer and lower load resulted in reduced flows into the ATSI zone in the DA market, although not completely down to real time level