6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R01-OAR-2017-0151; FRL-9967-06-Region 1]

Air Plan Approval; Rhode Island; Infrastructure Requirement for the 2010 Sulfur Dioxide and 2010 Nitrogen Dioxide National Ambient Air Quality Standards

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve an October 15, 2015 State Implementation Plan (SIP) revision submitted by the State of Rhode Island. This revision addresses the interstate transport requirements of the Clean Air Act (CAA), referred to as the good neighbor provision, with respect to the 2010 primary sulfur dioxide (SO_2) and 2010 primary nitrogen dioxide (NO_2) national ambient air quality standards (NAAQS). This action proposes to approve Rhode Island's demonstration that the state is meeting its obligations regarding the transport of SO_2 and NO_2 emissions into other states. This action is being taken under the Clean Air Act.

DATES: Written comments must be received on or before **[insert date 30 days after date of publication in the Federal Register]**.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R01-OAR-2017-0151 at http://www.regulations.gov. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. For either manner of submission, the EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or

other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, please contact the person identified in the "For Further Information Contact" section. For the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit http://www.epa.gov/dockets/commenting-epa-dockets.

FOR FURTHER INFORMATION CONTACT: Donald Dahl, (617) 918-1657; or by e-mail at dahl.donald@epa.gov.

SUPPLEMENTARY INFORMATION:

Throughout this document whenever ''we,'' ''us,'' or ''our'' is used, we mean EPA.

Organization of this document. The following outline is provided to aid in locating information in this preamble.

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I. Background

On February 9, 2010 (75 FR 6474), EPA promulgated a revised primary NAAQS for NO_2 at a level of 100 ppb, based on a 3-year average of the annual 98th percentile of 1-hour daily maximum concentrations. On June 22, 2010 (75 FR 35520), EPA promulgated a revised primary NAAQS for SO_2 at a level of 75 ppb, based on a 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. Pursuant to section 110(a)(1) of the CAA, states are required to submit SIPs meeting the applicable requirements of section 110(a)(2) within three years after promulgation of a new or revised NAAQS, or within such shorter period as EPA may prescribe.[1] These SIPs, which EPA has historically referred to as "infrastructure SIPs," are to provide for the "implementation, maintenance, and enforcement" of such NAAQS, and the requirements are designed to ensure that the structural components of each state's air quality management program are adequate to meet the state's responsibilities under the CAA. A detailed history, interpretation, and rationale of these SIPs and their requirements can be found in, among other documents, EPA's May 13, 2014 proposed rule titled, "Infrastructure SIP requirements for the 2008 Lead NAAQS," in the section "What is the scope of this rulemaking?" (*see* 79 FR 27241 at 27242-27245). As noted above, section 110(a) of the CAA imposes an obligation upon states to submit to EPA a SIP submission for a new or revised NAAQS. The content of

[1] This requirement applies to both primary and secondary NAAQS, but EPA's approval in this notice applies only to the 2010 primary NAAQS for SO_2 and NO_2 because EPA did not establish in 2010 a new secondary NAAQS for SO_2 and NO_2.

individual state submissions may vary depending upon the facts and circumstances, and may also vary depending upon what provisions the state's approved SIP already contains.

On January 2, 2013 and on June 27, 2014, the Rhode Island Department of Environmental Management (RI DEM) submitted proposed revisions to its SIP, certifying that its SIP meets most of the requirements of section 110(a)(2) of the CAA with respect to the 2010 primary NO_2 and 2010 primary SO_2 NAAQS, respectively. However, these two submittals did not address the transport elements of CAA section 110(a)(2)(D)(i)(I). On April 20, 2016 (81 FR 23175), EPA approved RI DEM's certification that its SIP was adequate to meet most of the program elements required by section 110(a)(2) of the CAA. However, EPA conditionally approved the State's submission in relation to subsections (C), (D), and (J) of CAA section 110(a)(2) in relation to the prevention of significant deterioration permit program, and disapproved the State's submission in relation to subsection (H) of CAA section 110(a)(2) in relation to the requirement to revise its SIP when appropriate. On October 15, 2015, RI DEM submitted the transport elements of CAA section 110(a)(2)(D)(i)(I) for the 2010 primary NO_2 and 2010 primary SO_2 NAAQS.

II. State Submittal

Rhode Island presented several facts in its SIP submission on the effect of SO_2 and NO_x emissions from sources within Rhode Island on downwind and adjacent states' SO_2 and NO_2 nonattainment areas and those states' ability to maintain the 2010 SO_2 and 2010 NO_2 NAAQS. With regards to the 2010 NO_2 NAAQS, Rhode Island noted that EPA had designated the entire country as unclassifiable/attainment for the 2010 NO_2 NAAQS. Rhode Island also stated that recent data from all ambient monitors within New England continue to show levels less than 50% of the 2010 NO_2 NAAQS.

Similarly, the SIP submission notes SO_2 ambient monitoring data in Rhode Island and in downwind and adjacent states were substantially below the 2010 SO_2 NAAQS. For the only SO_2 nonattainment area within New England, Rhode Island noted the monitor design value in the Central New Hampshire nonattainment area has declined over time, with the 2012-2014 design value being 31% of the NAAQS. Rhode Island concludes in its submittal that, "since there are no large sources of SO_2 emissions in Rhode Island and monitored SO_2 levels in adjacent and downwind states are substantially below the 2010 SO_2 NAAQS, Rhode Island clearly is not contributing to nonattainment or interfering with maintenance of attainment in downwind and adjacent states."

III. Summary of the Proposed Action

This proposed approval of Rhode Island's October 15, 2015 SIP submission addressing interstate transport of SO_2 and NO_2 is intended to show that the State is meeting its obligations regarding CAA section 110(a)(2)(D)(i)(I) relative to the 2010 primary SO_2 and 2010 primary NO_2 NAAQS.[2] Interstate transport requirements for all NAAQS pollutants prohibit any source, or other type of emissions activity, in one state from emitting any air pollutant in amounts that will contribute significantly to nonattainment, or interfere with maintenance, of the NAAQS in another state. As part of this analysis, and as explained in detail below, EPA has taken several approaches to addressing interstate transport in other actions based on the characteristics of the

[2] This proposed approval of Rhode Island's SIP submission under CAA section 110(a)(2)(D)(i)(I) is based on the information contained in the administrative record for this action, and does not prejudge any other future EPA action that may make other determinations regarding Rhode Island's air quality status. Any such future actions, such as area designations under any NAAQS, will be based on their own administrative records and EPA's analyses of information that becomes available at those times. Future available information may include, and is not limited to, monitoring data and modeling analyses conducted pursuant to EPA's Data Requirements Rule (80 FR 51052, August 21, 2015) and information submitted to EPA by states, air agencies, and third party stakeholders such as citizen groups and industry representatives.

pollutant, the interstate problem presented by emissions of that pollutant, the sources that emit the pollutant, and the information available to assess transport of that pollutant.

Despite being emitted from a similar universe of point and nonpoint sources, interstate transport of SO_2 is unlike the transport of fine particulate matter ($PM_{2.5}$) or ozone that EPA has addressed in other actions, in that SO_2 is not a regional mixing pollutant that commonly contributes to widespread nonattainment of the SO_2 NAAQS over a large, multi-state area. While in certain respects transport of SO_2 is more analogous to the transport of lead (Pb) because SO_2's and Pb's physical properties result in localized impacts very near the emissions source, in another respect the physical properties and release height of SO_2 are such that impacts of SO_2 do not experience the same sharp decrease in ambient concentrations as rapidly and as nearby as they do for Pb. While emissions of SO_2 travel farther and have sufficiently wider ranging impacts than emissions of Pb such that it is reasonable to require a different approach for assessing SO_2 transport than assessing Pb transport, the differences are not significant enough to treat SO_2 in a manner similar to the way in which EPA treats and analyzes regional transport pollutants such as ozone or $PM_{2.5}$.

Put simply, a different approach is needed for interstate transport of SO_2 than the approach used for the other pollutants identified above: the approaches EPA has adopted for Pb transport are too tightly circumscribed to the source, and the approaches for ozone or $PM_{2.5}$ transport are too regionally focused. SO_2 transport is therefore a unique case, and EPA's evaluation of whether Rhode Island has met is transport obligations in relation to SO_2 was accomplished in several discrete steps.

First, EPA evaluated the universe of sources in Rhode Island likely to be responsible for SO_2 emissions that could contribute to interstate transport. An assessment of the 2014 National

Emissions Inventory (NEI) for Rhode Island made it clear that the vast majority of SO_2 emissions in Rhode Island are from fuel combustion at point and nonpoint sources[3], and therefore it would be reasonable to evaluate the downwind impacts of emissions from these two fuel combustion source categories, combined, in order to help determine whether the State has met is transport obligations.

Second, EPA selected a spatial scale—essentially, the geographic area and distance around the point sources in which we could reasonably expect SO_2 impacts to occur—that would be appropriate for its analysis, ultimately settling on utilizing an "urban scale" with dimensions from 4 to 50 kilometers from point and nonpoint sources, given the usefulness of that range in assessing trends in both area-wide air quality and the effectiveness of large-scale pollution control strategies. As such, EPA utilized an assessment up to 50 kilometers from fuel-combustion sources in order to assess trends in area-wide air quality that might have an impact on the transport of SO_2 from Rhode Island to downwind states.

Third, EPA assessed all available data at the time of this rulemaking regarding SO_2 emissions in Rhode Island and their possible impacts in downwind states, including: 1) SO_2 ambient air quality; 2) SO_2 emissions and SO_2 emissions trends; 3) SIP-approved SO_2 regulations and permitting requirements; and 4) other SIP-approved or federally-promulgated regulations which may yield reductions of SO_2 at Rhode Island's fuel-combustion point and nonpoint sources.

Fourth, using the universe of information identified in steps 1-3 (i.e., emissions sources, spatial scale and available data, and enforceable regulations), EPA then conducted an analysis under CAA section 110(a)(2)(D)(i)(I) to evaluate whether or not fuel-combustion sources in Rhode Island would significantly contribute to SO_2 nonattainment in other states, and then

[3] *See* EPA's webpage https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei for a description of what types of sources of air emissions are considered point and nonpoint sources.

whether emissions from those sources would interfere with maintenance of the SO_2 NAAQS in other states.

EPA took a different approach that is more appropriate for NO_2. EPA analyzed the effects of transport by taking into account: 1) Rhode Island's and the surrounding states' designations for the 2010 NO_2 NAAQS; 2) ambient monitoring of NO_2 concentrations in Rhode Island and surrounding states; (3) the fact that total NO_x[4] emissions in Rhode Island and surrounding states are trending downward; and (4) the fact that there are SIP-approved state regulations in place to control NO_x emissions in Rhode Island.

Based on the analysis provided by the State in its October 15, 2015 SIP submission and EPA's assessment of the information discussed at length below, EPA proposes to find that sources or other emissions activity within Rhode Island will not contribute significantly to nonattainment, nor will they interfere with maintenance of, the 2010 primary SO_2 NAAQS and the 2010 primary NO_2 NAAQS in any other state.

IV. Section 110(a)(2)(D)(i)(I) – Interstate Transport

A. General Requirements and Historical Approaches for Criteria Pollutants

Section 110(a)(2)(D)(i)(I) requires SIPs to include provisions prohibiting any source or other type of emissions activity in one state from emitting any air pollutant in amounts that will contribute significantly to nonattainment, or interfere with maintenance, of the NAAQS in another state. The two clauses of this section are referred to as prong 1 (significant contribution to nonattainment) and prong 2 (interference with maintenance of the NAAQS).

[4] The NO_2 NAAQS is designed to protect against exposure to the entire group of nitrogen oxides (NO_x). NO_2 is the component of greatest concern and is used as the indicator for the larger group of NO_x.

EPA's most recent infrastructure SIP guidance, the September 13, 2013 "Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and 110(a)(2)," did not explicitly include criteria for how the Agency would evaluate infrastructure SIP submissions intended to address section 110(a)(2)(D)(i)(I).[5] With respect to certain pollutants, such as ozone and particulate matter, EPA has addressed interstate transport in eastern states in the context of regional rulemaking actions that quantify state emission reduction obligations.[6] In other actions, such as EPA action on western state SIPs addressing ozone and particulate matter, EPA has considered a variety of factors on a case-by-case basis to determine whether emissions from one state interfere with the attainment and maintenance of the NAAQS in another state. In such actions, EPA has considered available information such as current air quality, emissions data and trends, meteorology, and topography.[7]

For other pollutants such as Pb, EPA has suggested the applicable interstate transport requirements of section 110(a)(2)(D)(i)(I) can be met through a state's assessment as to whether or not emissions from Pb sources located in close proximity to its borders have emissions that impact a neighboring state such that they contribute significantly to nonattainment or interfere

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[5] At the time the September 13, 2013 guidance was issued, EPA was litigating challenges raised with respect to its Cross State Air Pollution Rule ("CSAPR"), 76 FR 48208 (Aug. 8, 2011), designed to address the CAA section 110(a)(2)(D)(i)(I) interstate transport requirements with respect to the 1997 ozone and the 1997 and 2006 PM2.5 NAAQS. CSAPR was vacated and remanded by the D.C. Circuit in 2012 pursuant to *EME Homer City Generation, L.P. v. EPA*, 696 F.3d 7. EPA subsequently sought review of the D.C. Circuit's decision by the Supreme Court, which was granted in June 2013. As EPA was in the process of litigating the interpretation of section 110(a)(2)(D)(i)(I) at the time the infrastructure SIP guidance was issued, EPA did not issue guidance specific to that provision. The Supreme Court subsequently vacated the D.C. Circuit's decision and remanded the case to that court for further review. 134 S.Ct. 1584 (2014). On July 28, 2015, the D.C. Circuit issued a decision upholding CSAPR, but remanding certain elements for reconsideration. 795 F.3d 118.

[6] NO_x SIP Call, 63 FR 57371 (October 27, 1998); Clean Air Interstate Rule (CAIR), 70 FR 25172 (May 12, 2005); CSAPR, 76 FR 48208 (August 8, 2011).

[7] *See, e.g.*, Approval and Promulgation of Implementation Plans; State of California; Interstate Transport of Pollution; Significant Contribution to Nonattainment and Interference With Maintenance Requirements, Proposed Rule, 76 FR 146516, 14616-14626 (March 17, 2011); Final Rule, 76 FR 34872 (June 15, 2011); Approval and Promulgation of State Implementation Plans; State of Colorado; Interstate Transport of Pollution for the 2006 24-Hour $PM_{2.5}$ NAAQS, Proposed Rule, 80 FR 27121, 27124-27125 (May 12, 2015); Final Rule, 80 FR 47862 (August 10, 2015).

with maintenance in that state. For example, EPA noted in an October 14, 2011 memorandum titled, "Guidance on Infrastructure SIP Elements Required Under Sections 110(a)(1) and 110(a)(2) for the 2008 Pb NAAQS,"[8] that the physical properties of Pb prevent its emissions from experiencing the same travel or formation phenomena as $PM_{2.5}$ or ozone, and there is a sharp decrease in Pb concentrations, at least in the coarse fraction, as the distance from a Pb source increases. Accordingly, while it may be possible for a source in a state to emit Pb in a location and in quantities that may contribute significantly to nonattainment in, or interfere with maintenance by, any other state, EPA anticipates that this would be a rare situation, e.g., where large sources are in close proximity to state boundaries.[9] Our rationale and explanation for approving the applicable interstate transport requirements under section 110(a)(2)(D)(i)(I) for the 2008 Pb NAAQS, consistent with EPA's interpretation of the October 14, 2011 guidance document, can be found in, among other instances, the proposed approval and a subsequent final approval of interstate transport SIPs submitted by Illinois, Michigan, Minnesota, and Wisconsin.[10]

B. Approach for Addressing the Interstate Transport Requirements of the 2010 Primary SO_2 NAAQS in Rhode Island

This notice describes EPA's evaluation of Rhode Island's conclusion contained in the State's October 15, 2015 infrastructure SIP submission that the State satisfies the requirements of CAA section 110(a)(2)(D)(i)(I) for the 2010 SO_2 NAAQS.[11]

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8 https://www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/20111014_page_lead_caa_110_infrastructure_guidance.pdf.

9 Id. at pp 7-8

10 *See* 79 FR 27241 at 27249 (May 13, 2014) and 79 FR 41439 (July 16, 2014).

11 EPA notes that the evaluation of other states' satisfaction of section 110(a)(2)(D)(i)(I) for the 2010 SO_2 NAAQS can be informed by similar factors found in this proposed rulemaking, but may not be identical to the approach taken

As previously noted, section 110(a)(2)(D)(i)(I) requires an evaluation of any source or other type of emissions activity in one state and how emissions from these sources or activities may impact air quality in other states. As the analysis contained in Rhode Island's submittal demonstrates, a state's obligation to demonstrate that it is meeting section 110(a)(2)(D)(i)(I) cannot be based solely on the fact that there are no DRR sources within the state. Therefore, EPA believes that a reasonable starting point for determining which sources and emissions activities in Rhode Island are likely to impact downwind air quality with respect to the SO_2 NAAQS is by using information in the NEI.[12] The NEI is a comprehensive and detailed estimate of air emissions of criteria pollutants, criteria precursors, and hazardous air pollutants from air emissions sources, and is updated every three years using information provided by the states. At the time of this rulemaking, the most recently available dataset is the 2014 NEI, and the state summary for Rhode Island is included in the table below.

Table 1: Summary of 2014 NEI SO_2 Data for Rhode Island

Category	Emissions (tons per year)
Fuel Combustion: Electric Utilities	33
Fuel Combustion: Industrial	599
Fuel Combustion: Other	2,757
Petroleum and related Industries	6
Waste Disposal and Recycling	140
Highway Vehicles	75
Off-Highway	178
Miscellaneous	2
Total	3,790

in this or any future rulemaking for Rhode Island, depending on available information and state-specific circumstances.

[12] https://www.epa.gov/air-emissions-inventories/national-emissions-inventory

The EPA observes that according to the 2014 NEI, the vast majority of SO_2 emissions in Rhode Island originate from fuel combustion at point and nonpoint sources. Therefore, an assessment of Rhode Island's satisfaction of all applicable requirements under section 110(a)(2)(D)(i)(I) of the CAA for the 2010 SO_2 NAAQS may reasonably be based upon evaluating the downwind impacts of emissions from the combined fuel combustion categories (i.e., electric utilities, industrial processes, and other sources[13]).

The definitions contained in Appendix D to 40 CFR Part 58 are helpful indicators of the travel and formation phenomenon for SO_2 originating from stationary sources in its stoichiometric gaseous form in the context of the 2010 primary SO_2 NAAQS. Notably, section 4.4 of this appendix titled, "Sulfur Dioxide (SO_2) Design Criteria" provides definitions for SO_2 Monitoring Spatial Scales for microscale, middle scale, neighborhood, and urban scale monitors. The microscale includes areas in close proximity to SO_2 point and area sources, and those areas extend approximately 100 meters from a facility. The middle scale generally represents air quality levels in areas 100 meters to 500 meters from a facility, and may include locations of maximum expected short-term concentrations due to the proximity of major SO_2 point, area, and non-road sources. The neighborhood scale characterizes air quality conditions between 0.5 kilometers and 4 kilometers from a facility, and emissions from stationary and point sources may under certain plume conditions, result in high SO_2 concentrations at this scale. Lastly, the urban scale is used to estimate concentrations over large portions of an urban area with dimensions of 4 to 50 kilometers from a facility, and such measurements would be useful for assessing trends and concentrations in area-wide air quality, and hence, the effectiveness of large-scale pollution control strategies. Based on these definitions contained in EPA's own regulations, we believe

[13] The "other" category of fuel combustion in Rhode Island is comprised almost entirely of residential heating through fuel oil combustion.

that it is appropriate to examine the impacts of emissions from electric utilities and industrial processes in Rhode Island in distances ranging from 0 km to 50 km from the facility. In other words, SO_2 emissions from stationary sources in the context of the 2010 primary NAAQS do not exhibit the same long-distance travel, regional transport or formation phenomena as either ozone or $PM_{2.5,}$ but rather, these emissions behave more like Pb with localized dispersion. Therefore, an assessment up to 50 kilometers from potential sources would be useful for assessing trends and SO_2 concentrations in area-wide air quality.[14]

The largest category of SO_2 emissions in Table 1 is for "other" fuel combustion sources. The majority of emissions in this category is from residential fuel combustion (2,561 tons per year), or 68% of the total statewide SO_2 emissions for 2014. Residential homes combusting fuel are considered nonpoint sources. For any state where the SO_2 contribution from nonpoint sources make up a majority of all statewide SO_2 emissions, EPA believes it is reasonable to evaluate any regulations intended to address fuel oil, specifically with respect to the sulfur content in order to determine interstate transport impacts from the category of "other" sources of fuel combustion.

Our current implementation strategy for the 2010 primary SO_2 NAAQS includes the flexibility to characterize air quality for stationary sources via either data collected at ambient air quality monitors sited to capture the points of maximum concentration, or air dispersion modeling.[15] Our assessment of SO_2 emissions from fuel combustion categories in the state and their potential on neighboring states are informed by all available data at the time of this rulemaking, and include: SO_2 ambient air quality; SO_2 emissions and SO_2 emissions trends; SIP-

[14] EPA recognizes in Appendix A.1 titled, "AERMOD (AMS/EPA Regulatory Model) –" of Appendix W to 40 CFR Part 51 that the model is appropriate for predicting SO_2 up to 50 kilometers.
[15] https://www.epa.gov/so2-pollution/2010-1-hour-sulfur-dioxide-so2-primary-national-ambient-air-quality-standards-naaqs

approved SO_2 regulations and permitting requirements; and, other SIP-approved or federally promulgated regulations which may yield reductions of SO_2.

C. Approach for Addressing the Interstate Transport Requirements of the 2010 Primary NO_2 NAAQS in Rhode Island

This notice also describes EPA's evaluation of Rhode Island's conclusion contained in the State's October 15, 2015 infrastructure SIP submission that the State satisfies the requirements of CAA section 110(a)(2)(D)(i)(I) for the 2010 NO_2 NAAQS.[16]

EPA and the State's approach to assessing impacts from the transportation of NO_2 emissions is similar, but different, from the approach discussed above for SO_2 emissions. As previously noted, the approach used to analyze the effects of transport for NO_2 emissions in Rhode Island consists of four elements: 1) the area designation for the 2010 NO_2 NAAQS, 2) ambient monitoring of NO_2 concentrations; (3) the fact that total NO_x emissions in the State and surrounding states are trending downward; and (4) the fact that there are SIP-approved state regulations in place to control NO_x emissions in the State.

V. Interstate Transport Demonstration for SO_2 Emissions

A. Prong 1 Analysis – Significant Contribution to SO_2 Nonattainment

Prong 1 of the good neighbor provision requires state plans to prohibit emissions that will significantly contribute to nonattainment of a NAAQS in another state. In order to evaluate Rhode Island's satisfaction of prong 1, EPA evaluated the State's SIP submission in relation to the following four factors: 1) SO_2 emission trends for Rhode Island and neighboring states; 2) SO_2 ambient air quality; 3) SIP-approved regulations specific to SO_2 emissions and permit

[16] EPA notes that the evaluation of other states' satisfaction of section 110(a)(2)(D)(i)(I) for the 2010 NO_2 NAAQS can be informed by similar factors found in this proposed rulemaking, but may not be identical to the approach taken in this or any future rulemaking for Rhode Island, depending on available information and state-specific circumstances.

requirements; and 4) other SIP-approved or federally-enforceable regulations that, while not directly intended to address or reduce SO_2 emissions, may yield reductions of the pollutant. A detailed discussion of each of these factors is below.

1. SO_2 Emissions Trends

As noted above, EPA's approach for addressing the interstate transport of SO_2 in Rhode Island is based upon emissions from fuel combustion at electric utilities, industrial sources, and residential heating. As part of the SIP submittal, Rhode Island observed that, in accordance with the most recently available designations guidance at the time,[17] there were no facilities in Rhode Island with reported actual emissions greater than or equal to 100 tons per year (tpy) of SO_2 in 2014.

According to the 2014 NEI data, the highest SO_2 emissions from a single point source was 60 tons from Rhode Island Hospital. Also during 2014, the largest industrial or electric generating facility was Rhode Island LFG Genco, LLC which emitted 33 tons of SO_2.

As demonstrated by the data in Table 2, statewide SO_2 emissions in Rhode Island and in its three neighboring states, Connecticut, Massachusetts and New York, have significantly decreased over the last several years. This decreasing trend should continue into the near future as all four states have adopted strategies to lower fuel oil's sulfur content by weight.[18] By July 1, 2018, the home heating oil in all four states will be limited to 15 parts per million (ppm) of sulfur by weight.

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[17] March 24, 2011 guidance document titled, "Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards." *See*, e.g. http://dnr.wi.gov/topic/AirQuality/documents/SO2DesignationsGuidance2011.pdf

[18] On October 7, 2015, EPA approved Rhode Island's low sulfur fuel regulation. *See* 80 FR 60541. On May 25, 2016 and June 3, 2016, EPA approved Connecticut's low sulfur fuel regulations. *See* 81 FR 33134 and 81 FR 35636, respectively. On September 19, 2013, EPA approved Massachusetts' low sulfur fuel regulation. *See* 78 FR 57487. On August 8, 2012, EPA approved New York's low sulfur fuel statute. *See* 77 FR 51915.

Table 2: Statewide SO_2 Data (tons per year) for Rhode Island, Connecticut, and Massachusetts[19]				
State	2000	2005	2010	2016
Rhode Island	8,976	7,356	4,416	3,639
Connecticut	60,309	34,638	16,319	10,953
Massachusetts	208,146	139,937	57,892	13,518
New York	543,868	386,568	170,247	59,520

2. SO_2 Ambient Air Quality

Data collected at ambient air quality monitors indicate the monitored values of SO_2 in the State have remained below the NAAQS. Relevant data from Air Quality Standards (AQS) Design Value (DV)[20] reports for recent and complete 3-year periods are summarized in the table below.

Table 3: Trend in SO_2 Design Values for AQS Monitors in Rhode Island				
AQS Monitor Site	Monitor Location	2012-2014 DV (ppb)	2013-2015 DV (ppb)	2014-2016 DV (ppb)
44-007-0012	Brown University, Providence	11	8	7
44-007-1010	Francis School, East Providence	14	10	7

As shown in Table 3 above, the DVs for the two monitoring sites for all years between 2012 and 2016 have decreased between each of the 3-year blocks shown in the table. The highest valid DV in Rhode Island for 2014 - 2016 is 7 ppb, which is 83% below the NAAQS.

While the monitor (AQS Site ID 44-007-0012) closest to Rhode Island Hospital (the largest SO_2 emitter in 2014) may not be sited in the area to capture points of maximum concentration from the facility, the monitor is located in the neighborhood spatial scale in relation to the facility, i.e., emissions from stationary and point sources may under certain plume conditions,

[19] *See* Air Pollution Emissions Trend Data at https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data.

[20] A "Design Value" is a statistic that describes the air quality status of a given location relative to the level of the NAAQS. The interpretation of the 2010 primary SO_2 NAAQS (set at 75 parts per billion [ppb]) including the data handling conventions and calculations necessary for determining compliance with the NAAQS can be found in Appendix T to 40 CFR part 50.

result in high SO_2 concentrations at this scale. Forty CFR part 58, Appendix D, section 4.4.4(3) defines neighborhood scale as "[t]he neighborhood scale would characterize air quality conditions throughout some relatively uniform land use areas with dimensions in the 0.5 to 4.0 kilometer range."

However, the absence of a violating ambient air quality monitor within the State is insufficient to demonstrate that Rhode Island has met its interstate transport obligation. While the decreasing DVs and their associated spatial scales may help to assist in characterizing air quality within Rhode Island, prong 1 of section 110(a)(2)(D)(i)(I) specifically addresses the effects that sources within Rhode Island have on air quality in neighboring states. Therefore, an evaluation and analysis of SO_2 emissions data from facilities within the State, together with the potential effects of such emissions on ambient data in neighboring states, is appropriate.

As previously discussed, EPA's definitions of spatial scales for SO_2 monitoring networks indicate that the maximum impacts from stationary sources can be expected within 4 kilometers of such sources, and that distances up to 50 kilometers would be useful for assessing trends and concentrations in area-wide air quality. The only nearby states within 50 km of a source in Rhode Island are Massachusetts, Connecticut, and New York. As a result, no further analysis of other Northeast states was conducted for assessing the impacts of the interstate transport of SO_2 pollution from facilities located in Rhode Island.

There are no ambient SO_2 monitors operating in Connecticut or New York within 50 km of Rhode Island's border[21]. There are four such monitors in Massachusetts, which are identified in Table 4, below, along with those monitors' DVs for SO_2 for the last three year periods. As shown

[21] The closest ambient SO_2 monitors in Connecticut and New York with recent valid design values are in New Haven and Suffolk Counties, respectively. The 2014-2016 design value at each of these monitors (i.e., 09-009-0027 and 36-103-0009) is below 10 ppb. See https://www.epa.gov/air-trends/air-quality-design-values.

in Table 4, SO_2 DVs for these monitors are decreasing, with the highest DV for 2014-2016 being 13% of the NAAQS.

Table 4: Trend in SO_2 Design Values for AQS Monitors in Massachusetts within 50 km of Rhode Island

AQS Monitor Site	Monitor Location	2012-2014 DV (ppb)	2013-2015 DV (ppb)	2014-2016 DV (ppb)
25-025-0042	Dudley Square, Roxbury	12	11	9
25-025-0002	Kenmore Square, Boston	12	9	6
25-027-0023	Worcester	9	7	6
25-005-1004	Fall River	47	28	10

3. Federally Enforceable Regulations Specific to SO_2 and Permitting Requirements

The State has various regulations to ensure that SO_2 emissions are not expected to substantially increase in the future. One notable example consists of the federally-enforceable conditions contained in Rhode Island's Air Pollution Control Regulation (APCR) No. 8, "Sulfur Content of Fuels." This regulation, last approved by EPA into the SIP on October 7, 2015 (80 FR 60541) limits the amount of sulfur by weight in fuel oil. As discussed earlier in this notice, the 2014 NEI indicates that the single largest, albeit diffuse, source category of SO_2 emissions in Rhode Island is from fuel combustion for residential heating (2,561 tpy). Starting on July 1, 2014 the sulfur content for home heating oil in Rhode Island was lowered to 500 parts per million (ppm), or 0.05% by weight. An additional reduction in the amount of SO_2 emissions from the use of home heating oil will occur after July 1, 2018 when the sulfur content will be reduced from 500 ppm to 15 ppm or 0.0015% by weight, representing a 97% decrease in SO_2 emissions from this source category.

In addition, for the purposes of ensuring that SO_2 emissions at new or modified stationary sources in Rhode Island do not adversely impact air quality, the State's SIP-approved nonattainment new source review (NNSR) and prevention of significant deterioration (PSD)

programs are contained in APCR, No. 9, "Air Pollution Control Permits." This regulation ensures that SO_2 emissions due to new facility construction or to modifications at existing facilities will not adversely impact air quality in Rhode Island and will likely not adversely impact air quality in neighboring states.

Finally, in addition to the State's SIP-approved regulations, EPA observes that facilities in Rhode Island are also subject to the federal requirements contained in regulations such as the National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters. This regulation reduces acid gases, which includes reductions in SO_2 emissions.

4. Conclusion

As discussed in more detail above, EPA has considered the following information in evaluating the State's satisfaction of the requirements of prong 1 of CAA section 110(a)(2)(D)(i)(I):

1) EPA has not identified any current air quality problems in neighboring states (i.e., Connecticut, Massachusetts and New York) relative to the 2010 primary SO_2 NAAQS;

2) Past and projected future SO_2 emission trends demonstrate that SO_2 air quality problems in other neighboring states are unlikely to occur due to sources in Rhode Island; and

3) Current SIP provisions and other federal programs will further reduce SO_2 emissions from sources within Rhode Island.

Based on the analysis provided by the State in its October 15, 2015 SIP submission and based on each of the factors listed above, EPA proposes to find that any sources or other emissions activity within the State will not contribute significantly to nonattainment of the 2010 primary SO_2 NAAQS in any other state.

B. Prong 2 Analysis – Interference with Maintenance of the SO_2 NAAQS

Prong 2 of the good neighbor provision requires state plans to prohibit emissions that will interfere with maintenance of a NAAQS in another state. Given the continuing trend of decreased emissions from sources within Rhode Island, EPA believes that reasonable criteria to ensure that sources or other emissions activity originating within Rhode Island do not interfere with its neighboring states' ability to maintain the NAAQS consists of evaluating whether these decreases in emissions can be maintained over time.

As shown in Table 2, above, state-wide SO_2 emissions in Rhode Island, and the three neighboring states, Massachusetts, Connecticut and New York, have significantly decreased since 2000. All four of these states have adopted low sulfur fuel oil requirements, requiring the sulfur content in home heating oil and other sources using distillate oil to be lowered by 97% by July 1, 2018.[22,] According to the 2014 NEI data, home heating oil is the largest category of SO_2 emissions in three of the states, Rhode Island, Massachusetts, and Connecticut. Home heating oil in 2014 was not the largest category of SO_2 emissions in New York because the sulfur content in home heating oil was reduced to 15 ppm as of July 1, 2012.

Utilizing United States census data and EPA emission factors, future SO_2 emissions from home heating oil can be forecasted in each of the three states where the reduction in sulfur content to 15 ppm does not take effect until 2018. According to EPA's guidance titled "Air Emission Factors and Quantification AP 42, Compilation of Air Pollutant Emission Factors" Chapter 1.3 titled, "Fuel Oil Combustion,"[23] more than 95% of the sulfur in fuel is converted to SO_2. The Census Bureau provides state specific data for the year 2000 regarding the number of

[22] *See* 80 FR 60541 (October 15, 2015) for Rhode Island, 78 FR 57487 (September 19, 2013) for Massachusetts, and 81 FR 35636 (June 3, 2016) for Connecticut.
[23] https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s03.pdf.

homes using oil for heating purposes.[24] Finally, it is not uncommon for typical households in the southern New England states to use 800 gallons of fuel oil per season.[25] Table 5 provides both the census data and current and future SO_2 emission estimates for each of the three relevant states.

Table 5: Estimated Future SO_2 Emissions from Home Heating Oil			
State	Number of Households Using Oil for Heat	Estimate of SO_2 Emissions (Tons) From Households Using Oil (2016)	Estimate of SO_2 Emissions (Tons) From Households Using Oil (2019)
Rhode Island	168,400	478.2	14
Connecticut	681,200	1,935	58
Massachusetts	945,600	2,686	81

While EPA does not currently have a way to quantify the impacts of multiple small sources of SO_2 (the current estimate is approximately 6 pounds of SO_2 per year per household that uses 800 gallons of fuel oil) in neighboring states, the drastic decrease in the allowable sulfur content in fuel oil and the associated reductions in SO_2 emissions, combined with the diffuse nature of these emissions, make it unlikely that the current and future emissions from residential combustion of fuel oil are likely to lead to an exceedance of the NAAQS in a neighboring state. Specifically, by 2018, the yearly SO_2 emissions per household using fuel oil will drop to under 0.20 pounds per year.

As shown in Table 2, above, statewide SO_2 emissions in Rhode Island have decreased over time. A number of factors are involved that caused this decrease in emissions, including the effective date of APCR No. 8, "Sulfur Content of Fuels," and the change in capacity factors at EGUs over time due to increased usage of natural gas to generate electricity. The EPA believes that since actual SO_2 emissions from the facilities currently operating in Rhode Island have

[24] https://www.census.gov/hhes/www/housing/census/historic/fuels.html.
[25] *See* 82 FR 21351 (May 8, 2017)

decreased between 2000 and 2015, this trend shows that emissions originating in Rhode Island are not expected to interfere with the neighboring states' ability to maintain the 2010 SO_2 NAAQS.

EPA expects SO_2 from point sources combusting fuel oil in Rhode Island will be lower in the future. In 2014, the state adopted lower sulfur-in-fuel limits for all stationary sources (APCR No. 8). These new limits were approved by EPA into the SIP in 2015. The sulfur-in-fuel limits contained in APCR No. 8 will limit stationary sources combusting residual fuel oil with a sulfur content of 0.5% or less by weight and distillate fuel oil of 0.0015% or less by weight as of July 1, 2018.

Lastly, any future large sources of SO_2 emissions will be addressed by Rhode Island's SIP-approved Prevention of Significant Deterioration (PSD) program. Future minor sources of SO_2 emissions will be addressed by the State's minor new source review permit program. The permitting regulations contained within these programs, along with the other factors already discussed, are expected to help ensure that ambient concentrations of SO_2 in Massachusetts or Connecticut are not exceeded as a result of new facility construction or modification occurring in Rhode Island.

It is also worth noting air quality trends for concentrations of SO_2 in the Northeastern United States.[26] This region has experienced a 77% decrease in the annual 99^{th} percentile of daily maximum 1-hour averages between 2000 and 2015 based on 46 monitoring sites, and the most recently available data for 2015 indicates that the mean value at these sites was 17.4 ppb, or less than 25% of the NAAQS. When this trend is evaluated alongside the monitored SO_2 concentrations within the State of Rhode Island as well as the SO_2 concentrations recorded at

[26] *See* https://www.epa.gov/air-trends/sulfur-dioxide-trends

monitors in Massachusetts and Connecticut, EPA does not believe that sources or emissions activity from within Rhode Island are significantly different than the overall decreasing monitored SO_2 concentration trend in the Northeast region. As a result, EPA finds it unlikely that sources or emissions activity from within Rhode Island will interfere with other states' ability to maintain the 2010 primary SO_2 NAAQS.

Based on each of factors contained in the prong 2 maintenance analysis above, EPA proposes to find that sources or other emissions activity within the State will not interfere with maintenance of the 2010 primary SO_2 NAAQS in any other state.

VI. Significant Contribution to Nonattainment and Interference with Maintenance of the NO_2 NAAQS

Rhode Island's October 15, 2015 infrastructure SIP submission addressing the good neighbor requirements of CAA section 110(a)(2)(D)(i)(I) notes that on January 20, 2012, EPA designated all areas of the country as "unclassifiable/attainment" for the 2010 primary NO_2 NAAQS. EPA did this because DVs for the 2008-2010 period at all monitored sites met the NAAQS. Measurements from 2013-2015 indicate continued attainment of the 2010 primary NO_2 NAAQS throughout the country.[27] Rhode Island currently operates four NO_2 monitors, two in Providence, one in East Providence, and one in West Greenwich. The DV is based on the 3-year average of the 98th percentile of the yearly distribution of 1-hour daily maximum concentrations. Table 6 contains the design values for the two monitors with complete, valid data.

Table 6: NO_2 Design Values in Rhode Island

AQS Monitor Site	Monitor Location	2013-2015 DV (ppb)	2014-2016 DV (ppb)
44-007-0012	Brown University, Providence	46	45
44-007-1010	Francis School, East Providence	39	38

[27] *See* https://www.epa.gov/air-trends/air-quality-design-values for NO_2 design values.

As shown in Table 6, the DVs are significantly less than the national ambient air quality standard for NO_2, which is 100 ppb. However, the absence of a violating ambient air quality monitor within the State is insufficient by itself to demonstrate that Rhode Island has met its interstate transport obligation. While the DV may help to assist in characterizing air quality within Rhode Island, section 110(a)(2)(D)(i)(I) specifically addresses the effects that sources within Rhode Island have on air quality in neighboring states. Therefore, an evaluation and analysis of DV's in neighboring states is appropriate.

Table 7 contains the highest NO_2 DVs for the three states neighboring Rhode Island, i.e., Massachusetts, Connecticut, and New York.

Table 7: Highest NO_2 design values in ppb for AQS monitors in Massachusetts and Connecticut

State	AQS Monitor Site	Monitor Location	Design Value (2014-2016)
Connecticut	09-009-0027	Criscuolo Park-New Haven	53
Massachusetts	25-025-0002	Kenmore Square, Boston	51
	25-025-0042	Dudley Square, Roxbury	51
	25-027-0023	Worcester	51
New York	36-005-0110	Bronx	64

As shown by the chart above, the highest NO_2 DV in each neighboring state is significantly less than the NO_2 NAAQS.

Lastly, APCR No. 27 "Control of Nitrogen Oxide Emissions," among other regulations, contains NO_x emissions limits for existing sources. For ensuring that new or modified sources of NO_2 emissions in Rhode Island do not adversely impact air quality, the State's SIP-approved nonattainment new source review (NNSR) and prevention of significant deterioration (PSD) programs are contained in APCR, No. 9, "Air Pollution Control Permits." This regulation ensures that NO_2 emissions due to new facility construction or modifications at existing facilities will not adversely impact air quality in Rhode Island or in neighboring states.

EPA also notes that NO_x emissions have been declining, with total statewide NO_x emissions from Rhode Island sources dropping from 38,308 tons in 2000 to 19,680 tons in 2016. In light of the above analysis, EPA is approving Rhode Island's October 15, 2015 infrastructure submittal for the 2010 primary NO_2 NAAQS as it pertains to section 110(a)(2)(D)(i)(I) of the CAA. Based on the analysis provided by the State in its October 15, 2015 SIP submission and based on each of the factors listed above, for the 2010 primary NO_2 NAAQS EPA proposes to find that any sources or other emissions activity within the State will not contribute significantly to nonattainment in, or interfere with maintenance by, any other state.

VII. Proposed Action

In light of the above analysis, EPA is proposing to approve Rhode Island's October 15, 2015 infrastructure submittal for the 2010 primary SO_2 and 2010 primary NO_2 NAAQS as it pertains to Section 110(a)(2)(D)(i)(I) of the CAA. EPA is soliciting public comments on the issues discussed in this notice. These comments will be considered before taking final action. Interested parties may participate in the Federal rulemaking procedure by submitting written comments to the EPA New England Regional Office listed in the **ADDRESSES** section of this **Federal Register** or by submitting comments electronically, by mail, or through hand delivery/courier following the directions in the **ADDRESSES** section of this **Federal Register**.

VIII. Statutory and Executive Order Reviews

Under the Clean Air Act, the Administrator is required to approve a SIP submission that complies with the provisions of the Act and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the Clean Air Act. Accordingly, this proposed action

merely approves state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- Is not a significant regulatory action subject to review by the Office of Management and Budget under Executive Orders12866 (58 FR 51735, October 4, 1993) and 13563 (76 FR 3821, January 21, 2011);
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- Does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- Is not subject to requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the Clean Air Act; and

- Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, the SIP is not approved to apply on any Indian reservation land or in any other area where EPA or an Indian tribe has demonstrated that a tribe has jurisdiction. In those areas of Indian country, the rule does not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Sulfur oxides, Nitrogen oxides.

Dated: August 15, 2017.

Deborah A. Szaro,
Acting Regional Administrator,
EPA New England.

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