of appliance standards. DOE also held a public meeting to receive input from interested parties on potential improvements to the ''Process Rule''. The comment period for the RFI was previously February 16, 2018. At the public meeting, DOE received several requests to extend the comment period to give interested parties sufficient opportunity to provide comments and information on this topic. In addition, in a joint letter dated January 29, 2018, the Air Conditioning, Heating & Refrigeration Institute, Association of Home Appliance Manufacturers, and National Electrical Manufacturers Association together offered DOE support in its efforts to improve the Process Rule and requested that the comment period for the RFI be extended. (EERE–2017–STD–0062–0017)

The Department intends to move forward expeditiously with further actions to improve the ''Process Rule''. Given the importance to DOE of receiving public input on means to make such improvements, however, DOE grants those requests and extends the comment period for an additional two weeks, until March 2, 2018.

Approval of the Office of the Secretary

The Secretary of Energy has approved the publication of this document.

Issued in Washington, DC, on January 31, 2018.

Daniel R Simmons,

Principal Deputy Assistant Secretary, Energy Efficiency and Renewable Energy.

[FR Doc. 2018–02440 Filed 2–6–18; 8:45 am]

BILLING CODE 6450–01–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R09–OAR–2017–0177; FRL–9974–10–Region 9]

Approval and Promulgation of Air Quality State Implementation Plans; California; Interstate Transport Requirements for Ozone, Fine Particulate Matter, and Sulfur Dioxide

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve a State Implementation Plan (SIP) submission from the State of California regarding certain interstate transport requirements of the Clean Air Act (CAA or ''Act''). This submission addresses the 2008 ozone national ambient air quality standards (NAAQS), the 2006 fine particulate matter ($PM_{2.5}$) and 2012 $PM_{2.5}$ NAAQS, and the 2010 sulfur dioxide (SO_2) NAAQS. The interstate transport requirements under the CAA consist of several elements; this proposal pertains only to significant contribution to nonattainment and interference with maintenance of the NAAQS in other states. We are taking comments on this proposal and plan to follow with a final action.

DATES: Any comments must arrive by March 9, 2018.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–R09–OAR–2017–0177 at *http://www.regulations.gov,* or via email to Rory Mays at *mays.rory@epa.gov.* For comments submitted at *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. The 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 *https://www.epa.gov/dockets/commenting-epa-dockets.*

FOR FURTHER INFORMATION CONTACT: Rory Mays, Air Planning Office (AIR–2), EPA Region IX, (415) 972–3227, *mays.rory@epa.gov.*

SUPPLEMENTARY INFORMATION: Throughout this document, ''we'', ''us'' and ''our'' refer to the EPA.

Table of Contents

I. Background

Section 110(a)(1) of the CAA requires states 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 the EPA may prescribe. Section 110(a)(2) requires states to address structural SIP elements such as requirements for monitoring, basic program requirements, and legal authority that are designed to provide for implementation, maintenance, and enforcement of the NAAQS. The EPA refers to the SIP submissions required by these provisions as ''infrastructure SIP'' submissions. Section 110(a) imposes the obligation upon states to make a SIP submission to the EPA for a new or revised NAAQS, but the contents of individual state submissions may vary depending upon the facts and circumstances. This proposed rule pertains to the infrastructure SIP requirements for interstate transport of air pollution.

A. Interstate Transport

Section 110(a)(2)(D)(i) of the CAA 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, or interfere with measures required to prevent significant deterioration of air quality or to protect visibility in any other state. This proposed rule addresses the two requirements under section 110(a)(2)(D)(i)(I), which we refer to as prong 1 (significant contribution to nonattainment of the NAAQS in any other state) and prong 2 (interference with maintenance of the NAAQS in any other state).[1] The EPA refers to SIP revisions addressing the requirements of section 110(a)(2)(D)(i)(I) as ''good

[1] The remaining interstate and international transport requirements of CAA section 110(a)(2)(D) for the 2008 ozone, 2006 $PM_{2.5}$, 2012 $PM_{2.5}$, and 2010 SO_2 NAAQS for California have been addressed in prior State submissions and EPA rulemakings. 81 FR 18766 (April 1, 2016). Specifically, this includes the section 110(a)(2)(D)(i)(II) requirements relating to interference with measures required to be included in the applicable implementation plan for any other state under part C to prevent significant deterioration of air quality (prong 3) or to protect visibility (prong 4), and the section 110(a)(2)(D)(ii) requirements relating to interstate and international pollution abatement.

neighbor SIPs'' or ''interstate transport SIPs.''

Each of the following NAAQS revisions triggered the requirement for states to submit infrastructure SIPs, including provisions to address interstate transport prongs 1 and 2. On September 21, 2006, the EPA revised the primary and secondary 24-hour NAAQS for $PM_{2.5}$ to 35 micrograms per cubic meter (μg/m^3) and retained the primary and secondary annual NAAQS for $PM_{2.5}$ of 15.0 μg/m^3.[2] On March 12, 2008, the EPA revised the levels of the primary and secondary 8-hour ozone standards to 0.075 parts per million (ppm).[3] On June 2, 2010, the EPA established a new primary 1-hour SO_2 standard of 75 ppb.[4] Finally, on December 14, 2012, the EPA revised the primary annual $PM_{2.5}$ standard by lowering the level to 12.0 μg/m^3 and retained the secondary annual $PM_{2.5}$ standard of 15.0 μg/m^3 and the primary and secondary 24-hour $PM_{2.5}$ standards of 35 μg/m^3.[5]

The EPA has issued several guidance documents and informational memos that inform the states' development and the EPA's evaluation of interstate transport SIPs for section 110(a)(2)(D)(i)(I). These include the following memos relating to the NAAQS at issue in this proposed rule:

- Information on interstate transport SIP requirements for the 2008 ozone NAAQS (''Ozone Transport Memo''),[6]
- Cross-State Air Pollution Rule (CSAPR) Update ozone transport modeling (''CSAPR Update Modeling''),[7]
- Supplemental information on interstate transport SIP requirements for the 2008 ozone NAAQS (''Supplemental Ozone Transport Memo''),[8]
- Guidance on infrastructure SIP requirements for the 2006 $PM_{2.5}$ NAAQS (''2006 $PM_{2.5}$ NAAQS Transport Guidance''),[9] and
- Information on interstate transport SIP requirements for the 2012 $PM_{2.5}$ NAAQS (''2012 $PM_{2.5}$ NAAQS Transport Memo'').[10]

For the 2006 $PM_{2.5}$ and 2008 ozone NAAQS, the EPA previously found that California failed to submit the required SIP revisions addressing interstate transport prongs 1 and 2 by certain dates.[11] Those actions triggered the obligation for the EPA to promulgate a federal implementation plan (FIP) for these requirements unless the State submits and the EPA approves a SIP submission that addresses the two prongs. As discussed further in this notice, the EPA proposes that California's interstate transport SIP submission adequately addresses these requirements for the 2006 $PM_{2.5}$ and 2008 ozone NAAQS, as well as the 2012 $PM_{2.5}$ and 2010 SO_2 NAAQS, for which the EPA has not made a finding of failure to submit.

B. California's Submission

The California Air Resources Board (CARB) submitted the ''California Infrastructure State Implementation Plan (SIP) Revision, Clean Air Act Section 110(a)(2)(D)'' on January 19, 2016 (''California Transport Plan'' or ''Plan'').[12] We are proposing action on the California Transport Plan, which addresses interstate transport for the 2008 ozone, 2006 $PM_{2.5}$, 2012 $PM_{2.5}$, and 2010 SO_2 NAAQS. We find that this submission meets the procedural requirements for public participation under CAA section 110(a)(2) and 40 CFR 51.102.

The California Transport Plan outlines the CAA interstate transport requirements, describes the State's and, to some degree, the local air districts' emission limits and other control measures, and presents its methodology for analyzing ozone, $PM_{2.5}$, and SO_2 transport and conclusions for each. It includes appendices with CARB's analysis for each of the NAAQS addressed in the SIP submission, $PM_{2.5}$ data and graphics from selected Interagency Monitoring of Protected Visual Environments (IMPROVE) monitors[13] near areas in other western states with elevated levels of ambient $PM_{2.5}$, emissions data from the 70 facilities closest to each $PM_{2.5}$ receptor, and a list of CARB control measures for mobile sources of air pollution.

II. Interstate Transport Evaluation

A. The EPA's General Evaluation Approach

We review the state's submission to see how it evaluates the transport of air pollution to other states for a given air pollutant, the types of information the state used in its analysis, how that analysis compares with prior EPA rulemaking, modeling, and guidance, and the conclusions drawn by the state. Taking stock of the state's submission, the EPA generally evaluates the interstate transport of a given pollutant through a stepwise process. The following discussion addresses the EPA's approach to evaluating interstate transport for regional pollutants such as ozone and $PM_{2.5}$. Our evaluation approach for interstate transport of SO_2 is described in section II.D.1 of this proposed rule.

Typically, for assessing interstate transport for regional pollutants, such as $PM_{2.5}$ or ozone, we first identify the areas that may have problems attaining or maintaining attainment of the NAAQS. We refer to regulatory monitors that are expected to exceed the NAAQS under average conditions as ''nonattainment receptors'' (*i.e.,* not expected to attain) and those that may have difficulty maintaining the NAAQS as ''maintenance receptors.''[14] Such receptors may include regulatory monitors operated by states, tribes, or local air agencies.[15]

In some cases, we have identified these receptors by modeling air quality in a future year that is relevant to CAA attainment deadlines for a given NAAQS. This type of modeling has been

[2] 71 FR 61144 (October 17, 2006). Regarding the annual $PM_{2.5}$ standards, we note that the EPA previously approved a California SIP submission for the 1997 $PM_{2.5}$ NAAQS (and the 1997 ozone NAAQS) for interstate transport prongs 1 and 2. 76 FR 34872 (June 15, 2011).

[3] 73 FR 16436 (March 27, 2008).

[4] 75 FR 35520 (June 22, 2010).

[5] 78 FR 3086 (January 15, 2013).

[6] Memorandum from Stephen D. Page, Director, OAQPS, EPA, ''Information on Interstate Transport ''Good Neighbor'' Provision for the 2008 Ozone National Ambient Air Quality Standards (NAAQS) under Clean Air Act (CAA) Section 110(a)(2)(D)(i)(I),'' January 22, 2015.

[7] The EPA updated its ozone transport modeling through the CSAPR Update rulemaking. 81 FR 74504 (October 26, 2016). The modeling results are found in the ''Ozone Transport Policy Analysis Final Rule TSD,'' EPA, August 2016, and an update to the affiliated final CSAPR Update ozone design value and contributions spreadsheet that includes additional analysis by EPA Region IX (''CSAPR Update Modeling Results and EPA Region IX Analysis'').

[8] Memorandum from Stephen D. Page, Director, OAQPS, EPA, ''Supplemental Information on the Interstate Transport State Implementation Plan Submissions for the 2008 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I),'' October 27, 2017.

[9] Memorandum from William T. Harnett, Director, Air Quality Policy Division, OAQPS, EPA, ''Guidance on SIP Elements Required Under Sections 110(a)(1) and (2) for the 2006 24-Hour Fine Particulate Matter National Ambient Air Quality Standards,'' September 25, 2009.

[10] Memorandum from Stephen D. Page, Director, OAQPS, EPA, ''Information on Interstate Transport 'Good Neighbor' Provision for the 2012 Fine Particulate Matter National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I),'' March 17, 2016.

[11] 79 FR 63536 (October 24, 2014) for the 2006 $PM_{2.5}$ NAAQS and 80 FR 39961 (July 13, 2015) for the 2008 ozone NAAQS.

[12] Letter from Richard W. Corey, Executive Officer, CARB to Jared Blumenfeld, Regional Administrator, Region 9, EPA, January 19, 2016.

[13] IMPROVE monitors are located in national parks and wilderness areas to monitor air pollutants that impair visibility.

[14] Regulatory monitoring sites are those that meet certain siting and data quality requirements such that they may be used as a basis for regulatory decisions with respect to a given NAAQS.

[15] In California, there are two federally-recognized tribes that operate regulatory monitors for ozone or $PM_{2.5}$: The Morongo Band of Mission Indians operates a regulatory ozone monitor and the Pechanga Band of Luiseño Indians operates regulatory monitors for both ozone and $PM_{2.5}$.

based on air quality data, emissions inventories, existing and planned air pollution control measures, and other information. For purposes of this proposed rule, such modeling is available for western states [16] for the 2008 ozone and 2012 $PM_{2.5}$ NAAQS; in each case the EPA modeled air quality in the 48 contiguous states of the continental U.S.[17] When such modeling is not available, the EPA has considered available relevant information, including recent air quality data. An interstate transport SIP can rely on modeling when an appropriate technical analysis is available, but the EPA does not believe that modeling is necessarily required if other available information is sufficient to evaluate the presence or degree of interstate transport. Further, the EPA believes it is appropriate to identify areas that violate the NAAQS or have the potential to violate the NAAQS within a geographic scope that reflects the potential dispersion of certain air pollutants. In the context of this proposed rule, this concept applies to the 2006 $PM_{2.5}$ NAAQS, where we focused on air quality data in 10 western states outside of California, and the 2010 SO_2 NAAQS, where we reviewed air quality data in the California's three neighboring states (*i.e.,* Arizona, Nevada, and Oregon).[18] Identifying such receptors or areas helps to focus analytical efforts by the states and the EPA on the areas where transported air pollution is more likely to adversely affect air quality.

After identifying potential receptors, the EPA's second step for regional pollutants such as $PM_{2.5}$ or ozone is to assess how much the upwind state of interest (*i.e.,* California) may contribute to air pollution at each of the identified receptors or areas in other states. The EPA has conducted contribution modeling for the 2008 ozone NAAQS to estimate the amount of the projected average ozone design value at each receptor that will result from the emissions of each state within the continental U.S., and we have considered this modeling in this proposed rule. The EPA has typically compared that contribution amount (*e.g.,* from California to Colorado) against an air quality threshold, selected based on the level and nature of the contribution from other states, as discussed in section II.B.2 of this proposed rule. We use this information to determine whether further analysis of the emission sources in a state is warranted (*i.e.,* step 3). When the EPA assesses state-to-state contribution, if we conclude that the upwind state contributes only insignificant amounts to all nonattainment and maintenance receptors or areas in other states, the EPA may approve a submission that concludes that the submitting state does not significantly contribute to nonattainment, or interfere with maintenance, of the NAAQS in any other state.

Third, if warranted based on step 2, the EPA analyzes emission sources in the upwind state, including emission levels, state and federal measures, and how well such sources are controlled. We also review whether the applicable control measures are included in the SIP, consistent with CAA section 110(a)(2)(D)(i). For example, for ozone, this analysis has generally focused on the emissions of nitrogen oxides (NO_X), given that prior assessments of ozone control approaches concluded that a NO_X control strategy would be most effective for reducing regional scale ozone transport,[19] and on large stationary sources, such as electricity generating units (EGUs), given their historic potential to produce large, cost-effective emission reductions.[20]

If contribution modeling is not available, we conduct a weight of evidence analysis. This analysis is based on a review of the state's submission and other available information, including air quality trends; topographical, geographical, and meteorological information; local emissions in downwind states and emissions from the upwind state; and existing and planned emission control measures in the state of interest. In CSAPR and for the 2012 $PM_{2.5}$ NAAQS Transport Memo, the EPA did not calculate the portion of any downwind state's predicted $PM_{2.5}$ concentrations that would result from emissions from individual western states, such as California. Accordingly, the EPA considers prong 1 and 2 submissions for states outside the geographic area analyzed to develop CSAPR and the 2012 $PM_{2.5}$ NAAQS Transport Memo to be appropriately evaluated using a weight of evidence analysis of the best available information, such as the information that EPA has recommended in the 2006 $PM_{2.5}$ NAAQS Transport Guidance and 2012 $PM_{2.5}$ NAAQS Transport Memo. For this proposed rule, we conducted weight of evidence analyses to determine whether the emissions from California significantly contribute to nonattainment, or interfere with maintenance, of the NAAQS at each of the identified receptors (for the 2012 $PM_{2.5}$ NAAQS) or identified areas (for the 2006 $PM_{2.5}$ NAAQS and 2010 SO_2 NAAQS).[21] For the 2012 annual $PM_{2.5}$ NAAQS, we consider both annual and 24-hour $PM_{2.5}$ data because, in many cases, the annual average $PM_{2.5}$ levels in the western U.S. are driven by an abundance of high 24-hour average $PM_{2.5}$ levels in winter.

At this point of our analysis, if we conclude that the SIP contains adequate provisions to prohibit sources from emitting air pollutants that significantly contribute to nonattainment, or interfere with maintenance, of a given NAAQS in any other state, the EPA may approve a submission that concludes that the state has sufficient measures to prohibit significant contribution to nonattainment, or interference with maintenance, of the NAAQS in any other state.

If the EPA concludes that that the SIP does not meet the CAA requirements, then the EPA must disapprove the state's submission with respect to that NAAQS, and the disapproval action triggers the obligation for the EPA to promulgate a FIP to address that deficiency. Following such a disapproval, the state has an opportunity to resolve any underlying

[16] For purposes of this proposed rule, ''western states'' refers to the states of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[17] The methodology for the EPA's transport modeling for the 2008 ozone and 2012 $PM_{2.5}$ NAAQS is described in the CSAPR Update Rule (81 FR 74504, October 26, 2016) and the EPA's 2012 $PM_{2.5}$ NAAQS Transport Memo, respectively. For the 2008 ozone NAAQS, 2017 is the attainment year for Moderate ozone nonattainment areas. For the 2012 $PM_{2.5}$ NAAQS, 2021 is the attainment year for Moderate $PM_{2.5}$ nonattainment areas. While the EPA's 2016 Transport Modeling projected 24-hour $PM_{2.5}$ concentrations for 2017 and 2025, such data can be used to inform analyses of interstate transport in 2021. The California Transport Plan (pp. 16–17) also discusses the EPA's regulatory framework with respect to ozone transport.

[18] The transport of SO_2 is more analogous to the transport of lead rather than regional pollutants like ozone and $PM_{2.5}$ because its physical properties result in localized pollutant impacts very near the emissions source. For this reason, we have evaluated SO_2 interstate transport for the three, large states that border California, rather than a larger geographic area. For further discussion of the physical properties of SO_2 transport, please see the EPA's proposal on Connecticut's SO_2 transport SIP. 82 FR 21351 at 21352 and 21354 (May 8, 2017).

[19] For discussion of the effectiveness of control strategies for NO_X and volatile organic compounds (VOCs), which are precursors to ozone, to reduce ozone levels in regional versus densely urbanized scales, respectively, please see the EPA's proposal for the Cross-State Air Pollution Rule (CSAPR). 75 FR 45210, 45235–45236 (August 2, 2010).

[20] For background on the EPA's regulatory approach to interstate transport of ozone, beginning with the 1998 NO_X SIP Call and the 2005 Clean Air Interstate Rule, please see the EPA's CSAPR proposal. 75 FR 45210 at 45230–45232 (August 2, 2010).

[21] The California Transport Plan also includes such weight of evidence analyses, though not necessarily to the same set of receptors or areas identified in the EPA's analyses.

deficiency in the SIP. If the state does not address the deficiency, then the CAA requires the EPA to issue a FIP to adequately prohibit such emissions. The EPA has promulgated FIPs via regional interstate transport rules across much of the eastern U.S. for the 1997 ozone, 1997 $PM_{2.5}$, and 2006 $PM_{2.5}$ NAAQS (CSAPR) [22] and for the 2008 ozone NAAQS (CSAPR Update).[23] To date, no such FIP has been promulgated with respect to CAA transport prongs 1 and 2 in the western U.S., and we are not proposing any such FIP in this proposed rule.

B. Evaluation for the 2008 8-Hour Ozone NAAQS

1. State's Submission

The California Transport Plan presents a weight of evidence analysis to assess whether emissions within the State contribute significantly to nonattainment or interfere with maintenance of the 2008 ozone NAAQS in any other state. This analysis includes a review of the EPA's photochemical modeling data that were available at the time CARB developed its Plan (*i.e.,* in the Ozone Transport Memo),[24] air quality data, downwind receptor sites, and the science of interstate transport of air pollution in the western U.S. It focuses on potential contributions to receptors in the Denver, Colorado area (four receptors) and in Phoenix, Arizona (one receptor) based on the air pollution linkages identified in the EPA's modeling.[25]

CARB states that the EPA's Ozone Transport Memo considered an upwind state to be linked to a downwind state if the upwind state's projected contribution was over one percent of the NAAQS (*i.e.,* one percent is a 0.75 ppb contribution to an 8-hour average ozone concentration).[26] CARB also highlights a statement in the EPA's Ozone Transport Memo that ozone transport in western states should be evaluated on a case-by-case basis.[27] The California Transport Plan contrasts ozone levels and emission sources in the eastern versus the western U.S. For states subject to CSAPR in the East, the Plan asserts that emissions from upwind states overwhelm downwind local emission contributions (*i.e.,* local contributions are smaller than transported contributions by an average ratio of 1:2) and multiple upwind states affect a given downwind receptor. The Plan states that ozone levels in the West are primarily driven by local emissions (*i.e.,* by an average ratio of 8:1), with a much smaller portion being attributed to interstate transport, and that western states have widespread complex terrain and are relatively larger on average than eastern states. The Plan describes this contrast in further detail by discussing modeling uncertainties.

While acknowledging the possibility of some limited transport of ozone or its precursor pollutants, CARB believes that there are significant uncertainties in photochemical modeling of ozone transport in the western U.S.[28] CARB summarizes certain comments it made in response to the EPA's August 2015 notice of data availability (NODA) regarding ozone transport modeling.[29] Those comments discuss the challenge of modeling interstate transport of ozone in the western U.S. due to complex terrain, wildfire effects, and the limited monitoring data available to validate the modeling. CARB states that complex terrain can enhance vertical mixing of air, serve as a barrier to transported air pollution, enhance accumulation of local emissions in basins and valleys, and influence air flows up, down, and across valleys.[30] Regarding wildfires, the Plan states that the size and number of wildfires in the western U.S. have significantly increased in recent decades and that wildfires can significantly increase ozone levels in adjacent and downwind areas. CARB asserts that the EPA's treatment of wildfire emissions in the Ozone Transport Memo modeling has the potential to overestimate ozone concentrations in 2017 and to underestimate the benefit of controlling anthropogenic emission sources.[31] CARB states that further analysis would be required to quantify California's contribution with confidence.[32]

Aside from the asserted modeling uncertainties, the Plan provides analyses of California's potential impacts and information regarding the Denver area and Phoenix receptors. For the Denver area nonattainment and maintenance receptors identified in the EPA's Ozone Transport Memo, CARB found it extremely unlikely that California emission sources would affect such receptors on high ozone days.[33] CARB describes distance (more than 600 miles, or 1,000 kilometers (km), from California to Denver), topography (Denver is bounded by mountains to the west and south) and meteorology (local wind flow patterns driven by terrain and heat differentials) that would favor local ozone formation and includes trajectory analyses of ozone concentrations at the applicable receptors.[34] This includes a description of the location and topography at each nonattainment monitor (Air Quality System (AQS) monitor ID 08–059–0006, Rocky Flats North; and 08–035–0004, Chatfield State Park) and maintenance monitor (08–059–0011, National Renewable Energy Laboratory (NREL); and 08–005–0002, Highland Reservoir). CARB notes that the Chatfield nonattainment receptor and the NREL maintenance receptor are 300–800 feet higher than the elevation of Denver, away from sources whose emissions might scavenge ozone,[35] and west-southwest of Denver—an area to which winds push emissions on days when meteorology is conducive to ozone formation.[36]

Regarding its trajectory analysis, CARB examined the potential for ozone or ozone precursor pollutants to travel from California to Colorado using the Hybrid Single Particle Lagrangian Integrated Trajectory model.[37] CARB input ozone data from June and July in 2011 and 2012 as the months with the most high-ozone days and identified only 11 of 447 back trajectories where pollution in the mixed layer of air in Colorado went back to the mixed layer in California. CARB then conducted forward trajectories for these 11 cases and found only one where pollution in California's mixed layer reached the mixed layer at a Colorado receptor. CARB concluded that the complex physical environment between California and Colorado limits the reproducibility of modeled transport of

[22] 76 FR 48208 (August 8, 2011).

[23] 81 FR 74504 (October 26, 2016).

[24] 80 FR 46271 (August 4, 2015). This notice of data availability (NODA) for the EPA's updated ozone transport modeling data included the projected 2017 ozone design values at each regulatory ozone monitor in the 48 continental U.S. states and Washington, DC and the modeled linkages between upwind and downwind states. Based on input received in response to the NODA and through the EPA's CSAPR Update rulemaking, which was completed after the California Transport Plan submission of January 19, 2016, the EPA further updated the ozone transport modeling data. 81 FR 74504 (October 26, 2016).

[25] California Transport Plan, pp. 15, 18–19.

[26] *Id.,* p. 18 and App. D, pp. D–3 to D–7.

[27] *See* Ozone Transport Memo, p. 4.

[28] California Transport Plan, p. 15.

[29] *Id.,* pp. 15–16. *See also,* comment letter from K. Magliano, Chief, Air Quality Planning and Science Division, CARB to the docket of the EPA's NODA. 80 FR 46271 (August 4, 2015).

[30] California Transport Plan, App. D, pp. D–1 to D–2.

[31] California Transport Plan, p. 24.

[32] *Id.*

[33] *Id.,* pp. 23–24 and App. D, p. D–25.

[34] *Id.,* App. D, pp. D–19 to D–31.

[35] Ozone scavenging refers to a process where a molecule such as nitric oxide strips an oxygen atom from ozone, thereby reducing the amount of ozone in the atmosphere. For example, ozone concentrations typically fall at night in urban areas due to scavenging of ozone by NO_X and other compounds. 73 FR 16436, 16490 (March 27, 2008).

[36] *Id.,* p. D–23.

[37] *Id.,* pp. D–23 to D–25.

air pollution. The Plan also describes a vertical cross-section profile from the back trajectories and states that the air at the surface (in California and/or Colorado) was almost always decoupled from the air higher in the atmosphere, thus limiting the effect of transported air pollution.

With respect to wildfires, CARB found an overall downward trend in ozone concentrations at the four Colorado receptors from 2003 to 2010 followed by increases in 2011–2013, which coincide with large increases in the acreage of wildland burned per year in Colorado (*e.g.,* about 75,000 acres burned/year in 2009–2010 and about 190,000–255,000 acres burned/year in 2011–2013).[38] CARB states that the EPA's Ozone Transport Memo modeling estimated 0.32–0.74 ppb of ozone was due to wildfire at the four Colorado receptors, but that this estimate was attributed only to ozone formed from the interaction of NO_X and volatile organic compounds (VOCs) emitted by such wildfires, and not additional interactions of NO_X and VOCs from wildfires with NO_X and VOCs from anthropogenic sources. CARB asserts that this would underestimate the effect of wildfires on ozone levels in 2011–2013, which in turn meant that the EPA's modeling overestimated the predicted ozone concentrations at the Denver area receptors in 2017.[39] CARB states that this would affect both the weighted design values (of 2009–2013) used to identify 2017 nonattainment receptors and contributions thereto and the highest design value (*e.g.,* 2011–2013) used to identify 2017 maintenance receptors and contributions thereto.[40] CARB suggests that a case-by-case approach may be needed to adjust the weighting of years for base-year design values.

CARB concludes that physical and chemical processes occurring over the complex terrain and the long distance from California to these receptors would significantly affect any air pollution traveling between the two states.[41] Based on its analysis, CARB concludes that California does not significantly contribute to nonattainment, or interfere with maintenance, of the 2008 ozone NAAQS at the Denver area receptors.

For the Phoenix, Arizona receptor, CARB states that, while the relatively shorter distance makes transport a possibility from southern California, high ozone days in Phoenix are predominantly driven by local contributions. CARB describes topography (*e.g.,* Phoenix is in a large bowl), meteorology (*e.g.,* monsoon rains in July and August reduce ozone levels, and highest ozone levels are observed in June), and a low correspondence between modeled and measured high ozone concentrations to support its assertion that high ozone days are driven by local contributions.[42] CARB asserts that California does not interfere with maintenance of the 2008 ozone NAAQS at this maintenance receptor and that CARB's on-going control programs will ensure that California does not interfere with Phoenix maintaining the 2008 ozone NAAQS.

In addition, the California Transport Plan states that California has responded to each successive ozone NAAQS with increasingly stringent control measures and that CARB and other agencies' aggressive emission control programs will continue to benefit air quality in California and other states.[43] The Plan states that CARB and local air districts implement comprehensive rules to address emissions from all source sectors.[44] These programs and rules include measures on mobile sources, the State's largest emission source sector, local air district measures on stationary and area sources, and CARB regulations on consumer products. CARB states that the EPA's Ozone Transport Memo modeling takes into account many of California's existing measures and shows that California emission reductions from 2011 to 2017 are 445 tons per day (tpd) of NO_X and 277 tpd of reactive organic gases (ROG).[45]

CARB highlights how its mobile source measures have often served as models for federal mobile source control elements and that California's legacy programs continue to provide current and future emission reductions from vehicles within California and elsewhere. Where California and federal rules have been harmonized, CARB has implemented rules to accelerate deployment of the cleanest available control technologies for heavy-duty trucks, buses, and construction equipment to achieve emission reductions more quickly. Appendix G of the California Transport Plan presents a list of regulatory actions taken since 1985 to reduce mobile source emissions. CARB also describes efforts underway to transition to near-zero vehicle emissions technologies and to review the state's goods movement (*e.g.,* via the State's Sustainable Freight Action Plan, issued in July 2016). With respect to stationary and area emission sources, the California Transport Plan includes a table of 29 measures adopted by local air districts and approved into the California SIP by the EPA.[46] CARB claims that these measures were not taken into account in the EPA's Ozone Transport Memo modeling.

The Plan concludes that neither the EPA's modeling, given CARB's concerns about wildfire and model performance, nor CARB's weight of evidence analysis indicates that California significantly contributes to nonattainment, or interferes with maintenance, of the 2008 ozone NAAQS in any other state. Therefore, CARB concludes that California meets the requirements of CAA section 110(a)(2)(D)(i)(I) for the 2008 ozone NAAQS.

2. Introduction to the EPA's Ozone Evaluation

The EPA agrees with the conclusion that California meets the CAA requirements for interstate transport prongs 1 and 2 for the 2008 ozone NAAQS. However, our rationale differs from that presented in the California Transport Plan, as discussed below. First, we address CARB's assertions regarding ozone transport modeling uncertainties for identifying nonattainment and maintenance receptors in 2017 and linkages to California. We then discuss the EPA's CSAPR Update Modeling,[47] which both decreased the number of receptors to which California is linked relative to the EPA's Ozone Transport Memo modeling and adjusted the estimates of California's contribution to each projected 2017 receptor. We also discuss the contrast that CARB draws between ozone transport in the eastern versus western U.S. These components are important to the first two steps of our evaluation: (1) To identify potential

[38] *Id.,* pp. D–26 to D–30.

[39] *Id.,* pp. D–30 to D–31.

[40] For the primary and secondary ozone NAAQS, the design value at each site is the 3-year average annual fourth-highest daily maximum 8-hour average ozone concentration. 40 CFR part 50 App. I, section 3.

[41] California Transport Plan, pp. D–31 to D–32.

[42] *Id.,* pp. D–13 to D–19.

[43] *Id.,* pp. 15, 24–25.

[44] *Id.,* pp. D–7 to D–9.

[45] CARB typically refers to reactive organic gases in its ozone-related submissions since VOCs in general can include both reactive and unreactive gases. However, since ROG and VOC inventories pertain to common chemical species (*e.g.,* benzene, xylene, *etc.*) we refer to this set of gases as VOCs in this proposed rule.

[46] California Transport Plan App. D, Table D–2, pp. D–9 to D–12.

[47] As noted previously, the EPA updated its ozone transport modeling through the CSAPR Update rulemaking. 81 FR 74504 (October 26, 2016). The modeling results are found in the ''Ozone Transport Policy Analysis Final Rule TSD,'' EPA, August 2016, and an update to the affiliated final CSAPR Update ozone design value and contributions spreadsheet that includes additional analysis by EPA Region IX (''CSAPR Update Modeling Results and EPA Region 9 Analysis'').

nonattainment and maintenance receptors, and (2) to estimate interstate contributions to those receptors. Based on that analysis, we propose to find that California is not linked to any receptor in Arizona and linked only to maintenance receptors in the Denver area in Colorado.

With respect to California's linkage to those maintenance receptors in Denver, we then present a general assessment of the emission sources in California, including mobile and stationary emission sources. We propose to find that control measures in the California SIP for mobile sources, large EGUs, and large non-EGU sources (*e.g.,* cement plants and oil refineries), adequately prohibit the emission of air pollution in amounts that will interfere with maintenance of the 2008 ozone NAAQS at the identified receptors in the Denver area.

Given the role of regulatory monitoring data in the EPA's analysis of interstate transport, the regulatory monitoring performed by the Morongo Band of Mission Indians (Morongo) and the Pechanga Band of Luiseño Indians (Pechanga), as well as comments from Morongo and Pechanga during the EPA's rulemaking on California's interstate transport SIP for the 1997 ozone and 1997 $PM_{2.5}$ NAAQS,[48] we have also considered transport to Morongo and Pechanga reservations. Based on our review of the ambient air quality data of Morongo and Pechanga and the emission control regimes of California's South Coast Air Quality Management District (AQMD) for stationary sources and of CARB for mobile sources, as described in the EPA's memo to the docket,[49] the EPA proposes to find that California adequately prohibits the emission of air pollutants in amounts that will significantly contribute to nonattainment, or interfere with maintenance, of the 2008 ozone NAAQS in the Morongo or Pechanga reservations.

3. Evaluation of CARB's Modeling Concerns

The California Transport Plan asserts that uncertainty in the EPA's Ozone Transport Memo modeling derives from issues of complex terrain, wildfires, and model performance, and presents trajectory analyses to supplement these uncertainties. We consider each of these factors because they are important to the adequacy of the EPA's modeling data with respect to ozone transport in the western U.S.

We agree with CARB that the terrain in the western U.S. is complex and can enhance vertical mixing of air, serve as a barrier to transported air pollution, enhance accumulation of local emissions in basins and valleys, and influence air flows up, down, and across valleys. It is also true that California is a long distance (about 1,000 km) from the receptors identified in Colorado. The EPA used the CSAPR Update Modeling in a relative sense to project measured design values to 2017 and to quantify contributions from statewide 2017 anthropogenic emissions of NO_X and VOC on a broad regional basis.[50] As such, it was important to use a large regional scale modeling domain to adequately capture multi-day regional transport of ozone and precursor pollutants over long distances. The EPA selected the Comprehensive Air Quality Model with Extensions to perform such modeling given its utility in regional photochemical dispersion modeling and in developing quantitative contributions for evaluation of the magnitude of ozone transport from upwind states. We believe the EPA's CSAPR Update Modeling adequately accounts for the complex terrain and distance.

The EPA responded to CARB's comments regarding potential wildfire influences on modeling in our response to comments document for the CSAPR Update final rule (''CSAPR Update RTC'').[51] We acknowledge that wildfires could influence downwind pollutant concentrations and that it is likely that wildfires would occur in 2017 and future years. However, there is no way to accurately forecast the timing, location, and extent of fires across a future three-year period that would be used to calculate ozone design values. In the EPA's CSAPR Update Modeling, the EPA held the meteorological data and the fire and biogenic emissions constant at base year levels in the future year modeling, as those emissions are highly-correlated with the meteorological conditions in the base year.

Regarding model performance, CARB states that there are limited monitoring data available to validate the EPA's ozone transport modeling. We discuss our ozone transport modeling platform in section V.A of the CSAPR Update, including our model performance assessment using measured ozone concentrations.[52] We compared the 8-hour daily maximum ozone concentrations during the May through September ''ozone season'' to the corresponding measured concentrations, generally following the approach described in the EPA's draft modeling guidance for ozone attainment.[53] We found that the predicted 8-hour daily maximum ozone concentrations reflect the corresponding measured concentrations in the modeling domain in terms of magnitude, temporal fluctuations, and spatial differences. The ozone model performance results were within the range found in other recent peer-reviewed and regulatory applications. We note that any problem posed by imperfect model performance on individual days is expected to be reduced when using a relative approach (*i.e.,* using base year data to project relative changes in a future year ozone design value), as was the case in the EPA's CSAPR Update Modeling. In brief, we disagree with CARB's perspective with respect to model performance.

CARB states that the complex physical environment between California and Colorado limits the reproducibility of modeled transport of air pollution and that further analysis would be required to quantify California's contribution with confidence. We agree that such research could prove valuable, particularly with respect to implementing the more stringent 2015 ozone NAAQS.[54] However, the prospect of future research does not itself undermine the technical adequacy of the EPA's current modeling for the 2008 ozone NAAQS.

Having considered the effects of complex terrain, wildfires, and any model performance in the EPA's ozone transport modeling for ozone levels throughout the continental U.S. (*i.e.,* not just the Denver area receptors), we assert the EPA's approach to forecasting interstate transport for the 2008 ozone NAAQS to be a reasonable means for identifying nonattainment and maintenance receptors and for estimating the state contributions to

[48] 76 FR 34872 (June 15, 2011). In their comments, Morongo and Pechanga called for an analysis of any potential ozone or $PM_{2.5}$ transport to their reservations and for consultation with the EPA.

[49] Memorandum from Rory Mays, Air Planning Office, Air Division, Region IX, EPA, ''Interstate Transport for the 2008 ozone, 2006 $PM_{2.5}$, 2012 $PM_{2.5}$, and 2010 SO_2 NAAQS and the Morongo Band of Mission Indians and the Pechanga Band of Luiseño Indians,'' January 2018.

[50] ''Cross State Air Pollution Update Rule—Response to Comments'' (CSAPR Update RTC), EPA, October 2016, p. 66.

[51] CSAPR Update RTC, pp. 25 and 27.

[52] 81 FR 74504, 74526–74527 (October 26, 2016).

[53] ''Draft Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, $PM_{2.5}$, and Regional Haze,'' EPA, December 3, 2014.

[54] The EPA recently issued a NODA with our preliminary interstate transport data for the 2015 ozone NAAQS, which projects that California will have several nonattainment receptors, and California and Colorado will have several maintenance receptors, in 2023. 82 FR 1733 (January 6, 2017).

those receptors. Thus, we turn to summarizing changes between the EPA's Ozone Transport Memo modeling and CSAPR Update Modeling results as they pertain to California's contribution to nonattainment and maintenance receptors in other states.

4. Identification of Receptors and Estimation of California Contribution

The EPA noted in the CSAPR Update that there may be specific geographic factors in western states to consider in evaluating interstate transport and, given the near-term 2017 implementation timeframe, the EPA focused the CSAPR Update on eastern states.[55] Consistent with our statements in the CSAPR Update and other transport actions in western states,[56] the EPA intends to address western states on a case-by-case basis.

As described in the California Transport Plan, the EPA's Ozone Transport Memo identified two nonattainment and two maintenance receptors in the Denver area and one maintenance receptor in Phoenix. Based on input received in response to our Ozone Transport Memo NODA and the CSAPR Update proposal, the EPA updated the ozone transport modeling to reflect the latest data and analysis (*e.g.,* emission reductions from additional NO_X control measures). In each modeling exercise, we used the same definition for nonattainment receptors: Regulatory ozone monitors where 2017 ozone design values are projected to exceed the 2008 ozone NAAQS based on the average design value of three overlapping periods (2009–2011, 2010–2012, and 2011–2013) and where the monitor indicated nonattainment at the time of the analysis for the CSAPR Update. Similarly, we used the same CSAPR Update definition for maintenance receptors: Regulatory ozone monitors where 2017 ozone design values do not exceed the NAAQS based on the projected average design values, but exceed the 2008 ozone NAAQS based on the projected maximum design value of any period within the three overlapping periods. In addition, monitoring sites that are projected to have average design values above the NAAQS but currently have measured design values below the NAAQS are also considered maintenance receptors.

The EPA's CSAPR Update Modeling projects that for the western U.S. in 2017 (outside of California), there are no nonattainment receptors and only three maintenance receptors located in the Denver, Colorado area. Notably, that modeling projects that Phoenix, Arizona will not have any receptors.[57] California emissions are projected to contribute above one percent of the 2008 ozone NAAQS at each of the three Denver area maintenance receptors, as shown in Table 1.

TABLE 1—2017 OZONE MAINTENANCE RECEPTORS IN COLORADO BASED ON THE EPA'S CSAPR UPDATE MODELING

AQS monitor ID	County	2017 base case maximum design value (ppb)	California contribution (ppb)	California % of 2008 ozone NAAQS	Contribution by other states (ppb) [a]	Other states % of 2017 base case maximum design value	Colorado contribution (ppb)	All remaining sources (ppb)	Number of states contributing over 1% of NAAQS
08–035–0004	Douglas	77.6	1.18	1.6	7.29	9.4	26.10	41.90	3
08–059–0006	Jefferson	78.2	1.96	2.6	7.16	9.2	21.16	47.17	2
08–059–0011	Jefferson	78.0	0.79	1.1	7.29	9.3	29.32	38.13	4

[a] Contribution by other States includes contribution from states and tribes in the continental U.S., including California, that are outside of Colorado.

The modeling shows that other states also contribute above one percent of the NAAQS to these maintenance receptors. The EPA found that the average interstate contribution to ozone concentrations from all states upwind of these receptors ranged from 9.2 to 9.4 percent of the projected ozone design values.[58] Thus, the collective contribution of emissions from upwind states represent a considerable portion of the ozone concentrations at the maintenance receptors in the Denver area.

The EPA has historically found that the one percent threshold is appropriate for identifying interstate transport linkages for states collectively contributing to downwind ozone nonattainment or maintenance problems because that threshold captures a high percentage of the total pollution transport affecting downwind receptors.[59] The EPA believes a contribution from an individual state equal to or above one percent of the NAAQS could be considered significant where the collective contribution of emissions from one or more upwind states is responsible for a considerable portion of the downwind air quality problem regardless of where the receptor is geographically located. In this case, combinations of two, three, or four states contribute greater than or equal to one percent of the 2008 ozone NAAQS at each of these three maintenance receptors, as shown in Table 1.

Regarding CARB's comparison of the average ratio of local to transported emissions in the East (1:2) versus the average ratio in the West (8:1), while we did not quantitatively evaluate the ratios presented in the California Transport Plan, we generally agree that there could be substantial differences in such *average* ratios. However, the value of comparing average ratios is somewhat limited given that states within a particular region could have a wide variation of contributions to other states. For example, the EPA's CSAPR Update Modeling indicates that, excluding Texas, states collectively contribute 9.4 percent to 16.2 percent of the projected 2017 base case maximum ozone design values at each of three maintenance receptors in Denton County (Dallas-Fort Worth area) and Harris County

[55] 81 FR 74504, 74523 (October 26, 2016).

[56] *See, e.g.,* the EPA's proposed rule on Arizona's interstate transport for the 2008 ozone NAAQS. 81 FR 15200 (March 22, 2016).

[57] The EPA's 2016 Ozone Transport Modeling projects that the 2017 maximum base case design value in Maricopa County, Arizona (AQS ID 40–013–1004) will be 75.7 ppb (*i.e.,* 0.0757 ppm), which is attaining the 2008 ozone NAAQS, per the data handling convention for computing 8-hour ozone averages (*i.e.,* truncating digits to the right of the third decimal place of values presented in ppm). 40 CFR part 50, Appendix P, section 2.1.

[58] CSAPR Update Modeling Results and EPA Region 9 Analysis.

[59] *See, e.g.,* 75 FR 45210, 45237 (August 2, 2010) and 76 FR 48208, 48238 (August 8, 2011) (CSAPR proposed and final rules); and 80 FR 75706, 75714 (December 3, 2015) and 81 FR 74504, 74518–74519 (October 26, 2016) (CSAPR Update proposed and final rules). *See also, e.g.,* 81 FR 15200, 15202–15203 (March 22, 2016) (proposed rule on Arizona transport SIP, including prongs 1 and 2 for the 2008 ozone NAAQS); 81 FR 71991, 71992 (October 19, 2016) (final rule on Utah transport SIPs, including prong 2 for the 2008 ozone NAAQS); and 82 FR 9142, 9143 (February 3, 2017) (final rule on Wyoming transport SIPs, including prongs 1 and 2 for the 2008 ozone NAAQS).

(Houston), Texas.[60] For each Texas receptor, two or three states each contribute over one percent of the NAAQS. In comparison, we find that two to four states each contribute over one percent of the NAAQS to each of the Colorado maintenance receptors, which is similar to the Texas scenario.

Given these data and comparisons, the EPA is proposing that the one percent threshold is also appropriate as an air quality threshold to determine whether California is ''linked'' to the three maintenance receptors in the Denver area for the 2008 ozone NAAQS.

The EPA is not necessarily determining that one percent of the NAAQS is always an appropriate threshold for identifying interstate transport linkages for all states in the West. For example, the EPA recently evaluated the impact of emissions from Arizona on two projected nonattainment receptors identified in California and concluded that, even though Arizona's modeled contribution was greater than one percent of the 2008 ozone NAAQS, Arizona did not significantly contribute to nonattainment, or interfere with maintenance, at those receptors.[61] Accordingly, where the facts and circumstances support a different conclusion, the EPA has not always applied the one percent threshold to identify states that may significantly contribute to nonattainment, or interfere with maintenance, of the 2008 ozone NAAQS in other states.

Likewise, the EPA is not determining that because California contributes above the one percent threshold, it is necessarily making a significant contribution that warrants further reductions in emissions. As noted above, the one percent threshold identifies a state as ''linked,'' prompting further inquiry into whether the contributions are significant and whether there are cost-effective controls that can be employed to reduce emissions (*i.e.,* the third step in our evaluation).

The EPA also notes that recent modeling shows that by the 2023 ozone season the receptors identified in Denver are projected to be ''clean,'' *i.e.,* both the average and maximum design values are projected to be below the level of the 2008 ozone NAAQS.[62]

5. Evaluation of California Control Measures

Based on the 2011 National Emissions Inventory (NEI) and the EPA's CSAPR Update Modeling, California's anthropogenic NO_X emissions in 2011 were 1,944 tpd and its VOC emissions were 2,274 tpd. These emissions came from mobile sources (*i.e.,* on-road motor vehicles, such as passenger cars, trucks, buses, and nonroad vehicles, such as construction equipment, locomotives, ships, and aircraft), stationary sources (*e.g.,* EGU, non-EGU point, and oil and gas point and non-point sources), and area sources (*e.g.,* residential wood combustion). Based on the EPA's CSAPR Update Modeling, California's anthropogenic NO_X emissions in 2017 were projected to be 1,409 tpd (a decrease of 535 tpd, or 28 percent, from 2011), and its VOC emissions were projected to be 1,972 tpd (a decrease of 302 tpd, or 13 percent, from 2011). Table 2 shows the percentage of California NO_X and VOC emissions that came from mobile, stationary, and area sources, based on the 2011 NEI and the 2017 emission projections.[63]

TABLE 2—CALIFORNIA EMISSIONS FROM THE 2011 NEI AND 2017 PROJECTED EMISSIONS FROM THE EPA'S CSAPR UPDATE MODELING

	NO_X			VOCs		
	Mobile (%)	Stationary (%)	Area (%)	Mobile (%)	Stationary (%)	Area (%)
2011 NEI Emissions (% of annual emissions)	78.4	11.2	10.4	34.8	6.5	58.7
2017 Projected Emissions (% of annual emissions)	69.8	15.1	15.1	25.7	7.4	67.0

Both NO_X and VOCs are precursors to ozone but, as noted above, given that assessments of ozone control approaches concluded that a NO_X control strategy would be most effective for reducing regional scale ozone transport, and consistent with the CSAPR Update and prior interstate transport rulemakings, we have focused our control measure review on sources of NO_X.

CARB identified numerous State mobile source measures and examples of local air district stationary measures that control NO_X and VOCs emissions and have been approved into the California SIP, and CARB stated that these measures are part of how California addresses the CAA interstate transport requirements for the 2008 ozone NAAQS.[64] Below, we discuss our evaluation of California's mobile source measures, for which CARB has unique authority under State law, and stationary source measures, which are adopted and implemented by California's 35 local air districts. For the latter, beyond the measures described in the California Transport Plan, we have also considered stationary source control measures for EGUs, consistent with the controls analysis for CSAPR, and examples of stationary source control measures for the largest non-EGU sources in the State.

As noted above, the mobile source sector is the largest source of NO_X in California and accounts for approximately 70 percent of the projected 2017 NO_X emissions. As a general matter, the CAA assigns mobile source regulation to the EPA through

[60] CSAPR Update Modeling Results and EPA Region IX Analysis.

[61] Final rule, 81 FR 31513 (May 19, 2016). *See also* proposed rule, 81 FR 15200, 15203 (March 22, 2016). The EPA evaluated the nature of the ozone nonattainment problem at the California receptors and determined that, unlike the receptors identified in the eastern U.S. and unlike the maintenance receptors in Colorado, only one state (Arizona) contributed above the one percent threshold to the California receptors and that the total contribution from all states linked to the receptors (2.5 to 4.4%) was negligible. Considering this information, along with emissions inventories and emissions projections showing Arizona emissions decreasing over time, the EPA determined that Arizona had satisfied the requirements of CAA section 110(a)(2)(D)(i)(I) with respect to the 2008 ozone NAAQS.

[62] Supplemental Ozone Transport Memo, Attachment A, pp. A–7 to A–8.

[63] Summary of 2017 projected California NO_X and VOC emissions workbooks, EPA, included in the docket to this proposed rule as ''California—2017ek_cb6v2_v6_11g_state_sector_totals.xlsx.'' We note that the EPA estimated that California's NO_X and VOC emission reductions from 2011 to 2017 would be larger than the 445 tpd of NO_X and 227 tpd of VOC emission reductions that the State projected in the California Transport Plan.

[64] California Transport Plan, App. G (state measures) and App. D, pp. D–7 to D–12 (discussion of California emission control programs, including recent local measures).

title II of the Act and, in so doing, preempts various types of state regulation of mobile sources.[65] However, for certain types of mobile source emission standards, the State of California may request a waiver (for new motor vehicles and new motor vehicle engines) or authorization (for new and in-use nonroad engines and vehicles) for standards relating to the control of emissions and accompanying enforcement procedures, under CAA sections 209(b) and 209(e)(2), respectively.

Pursuant to CAA section 209(b) and (e)(2), CARB has requested, and the EPA has approved, numerous waivers and authorizations over the years, allowing CARB to establish a comprehensive program to control and reduce mobile source emissions within the state. Once the underlying regulations establishing the mobile source emissions standards are waived or authorized by the EPA, CARB submits the regulations to the EPA as revisions to the California SIP. In recent years, the EPA has approved many such mobile source regulations as part of the California SIP, including regulations establishing standards and other requirements relating to emissions from cars, light- and medium-duty trucks, heavy-duty trucks, commercial harbor craft, mobile cargo handling equipment, marine engines and boats, and off-highway recreational vehicles.[66] To support and enhance these emissions standards, CARB has also established specific gasoline and diesel fuel requirements, and the California Bureau of Automotive Repair has established a vehicle emissions and inspection (*i.e.,* ''smog check'') program.[67]

Originally, CARB's mobile source control program focused on new engines and vehicles. The emissions reductions from increasingly stringent emissions standards for new engines and vehicles occur over time as new, cleaner vehicles replace old, more polluting models in a foreseeable process referred to as ''fleet turnover.'' In more recent years, CARB has recognized that emissions reductions from the mobile source sector due to fleet turnover would not occur quickly enough to meet attainment deadlines established under the CAA. As a result, CARB has expanded its program to address the emissions from in-use vehicles (referred to as the ''legacy'' fleet) by establishing, for example, retrofit or replacement requirements for certain types of heavy-duty trucks and certain fleets of nonroad equipment.[68]

With respect to stationary and area emission sources, the California Transport Plan states that local air districts implement comprehensive rules to address emissions from all sectors.[69] The California SIP has hundreds of prohibitory rules that limit the emission of NO_X and VOCs.[70] Many of these rules were developed by local air districts to reduce ozone concentrations in the numerous areas that were designated nonattainment for the 1979 1-hour ozone and 1997 8-hour ozone NAAQS, including Severe (*i.e.,* Coachella Valley, Sacramento Metro, and Western Mojave Desert for both NAAQS, and Ventura County for the 1-hour ozone NAAQS) and Extreme (*i.e.,* Los Angeles-South Coast and San Joaquin Valley) nonattainment areas.[71] Generally, the planning requirements associated with the numerous California ozone nonattainment areas, coupled with the increased control requirement stringency for areas classified Severe and above (*e.g.,* lower major source thresholds and increasing permit offset ratios), have served to limit emissions of NO_X and VOCs from California that might affect other states.

The California Transport Plan includes a table of 29 measures recently adopted by local air districts and approved into the California SIP by the EPA. These measures are representative of the wide array of NO_X and VOC control measures employed by the local air districts. For example, Ventura County Air Pollution Control District (APCD) adopted rules limiting NO_X emissions from boilers, water heaters, and process heaters, and Santa Barbara County APCD and South Coast AQMD adopted rules limiting NO_X emissions from certain types of central furnaces and water heaters. San Joaquin Valley APCD adopted a rule to limit VOC emissions from composting operations, and Sacramento Metropolitan AQMD adopted a rule to limit VOC emissions from automotive and related equipment coatings and solvents.

In addition to the numerous SIP-approved state and local regulations cited in the California Transport Plan, we also considered California's control measures for NO_X emissions from EGUs, consistent with our approach for evaluating control measures in the CSAPR Update and other interstate transport rulemakings, and other large stationary sources in the state. For EGUs producing greater than 25 megawatts of electricity, including non-fossil fuel EGUs, the state-wide NO_X emissions rate in California is projected to be 0.0097 pounds of NO_X per million British thermal units (lb/MMBtu) in 2018.[72] Thus, California ranks as the 47th lowest out of the 48 contiguous states and Washington, DC, for which the EPA performed power sector modeling in the context of the CSAPR Update.

Furthermore, considering facility-level emissions and operations, 2016 emissions monitoring data indicate that 242 of the 244 EGUs in California that reported ozone season NO_X emissions to EPA emitted NO_X at rates less than or equal to 0.061 lb/MMBtu.[73] Two EGUs, Greenleaf One unit 1 and Redondo Beach unit 7, emitted at rates higher than 0.061 lb/MMBtu. Greenleaf One unit 1 emitted less than 11 tons of NO_X in the 2016 ozone season and is therefore unlikely to have significant cost-effective emission reduction opportunities. Applied Energy Services (AES) plans to retire its Redondo Beach units, including unit 7, no later than December 31, 2019, to comply with California regulations on the use of cooling water in certain power plant operations.[74] In aggregate, these

[65] For further background on CAA title II authorities, including the waiver and authorization process, particularly as they apply to approval of CARB mobile source measures into the California SIP, please see the EPA's proposed and final rules approving numerous such measures. 80 FR 69915 (November 12, 2015) and 81 FR 39424 (June 16, 2016).

[66] 81 FR 39424 (June 16, 2016) and 82 FR 1446 (March 21, 2017).

[67] 75 FR 26653 (May 12, 2010) (revisions to California on-road reformulated gasoline and diesel fuel regulations), and 75 FR 38023 (July 1, 2010) (revisions to California motor vehicle inspection and maintenance program).

[68] 77 FR 20308 (April 4, 2012) (EPA approval of in-use truck and bus regulation) and 81 FR 39424 (June 16, 2016) (EPA approval of in-use off-road diesel-fueled fleets regulation).

[69] California Transport Plan, App. D, p. D–7.

[70] For VOCs, these include rules limiting emissions from the largest area, mobile, and stationary source categories such as consumer products, farming operations, architectural coatings/solvents, off-road equipment, light-duty passenger vehicles, recreational boats, petroleum marketing, and coatings/process solvents.

[71] Based on 2010 U.S. Census data, the total population in the nonattainment areas for the 1997 ozone NAAQS was 34.7 million people, including 23.1 million people in areas classified severe or extreme. *See https://www3.epa.gov/airquality/urbanair/sipstatus/reports/ca_areabypoll.html#ozone-8hr_1997_.*

[72] Ranking of NO_X emission rate by state and related spreadsheets, EPA, included in the docket to this proposed rule as ''5.15_OS_NO_X_AQM_Base_Case RPE File CA analysis (2018 data).xlsx.''

[73] 2016 ozone season NO_X emissions and heat rate data for California EGUs, EPA Air Markets Program Data, included in the docket to this rulemaking and entitled ''2016 AMPD Ozone Season NO_X Emissions Heat Rate from California EGUs.xlsx.''

[74] ''Once-Through Cooling Phase-Out,'' California Energy Commission, last updated March 8, 2017, Table 3, p. 6. Available at *http://www.energy.ca.gov/renewables/tracking_progress/documents/once_through_cooling.pdf.* AES plans to retire Redondo Beach unit 7 by December 31, 2019, and units 5, 6, and 8 by December 31, 2020.

assessments indicate that California produces electricity very efficiently in terms of NO_X emissions and is therefore unlikely to have significant, further NO_X reductions available from the EGU sector at reasonable cost.

The largest collection of EGU facilities emitting over 100 tons per year (tpy) of NO_X, per the 2011 NEI, are found in the San Joaquin Valley, Bay Area, and South Coast air districts.[75] These sources are subject to district rules limiting NO_X emissions that have been approved into the California SIP.[76] At least two of these facilities in the San Joaquin Valley APCD have shut down since 2011.[77] Otherwise, the largest NO_X-emitting EGU facility in 2011 was the ACE Cogeneration coal-fired power plant in Trona (Mojave Desert AQMD). It emitted 620 tpy of NO_X and was the only EGU facility in California that emitted more than 250 tpy of NO_X. However, as discussed in the ACE Cogeneration Company's 2014 petition to the California Energy Commission to decommission this facility, the company had signed an agreement with Southern California Edison (the regional utility) to terminate operation of the facility in December 2014 and, in fact, ceased operation on October 2, 2014.[78]

To investigate the potential for further NO_X emission reductions from EGUs, the EPA assessed the cost effectiveness of reducing NO_X emissions from fossil fuel-fired EGUs in each of the 48 contiguous states by estimating the amount of NO_X that would be emitted at certain levels of NO_X control stringency, represented by uniform regional cost thresholds from $800 per ton of NO_X removed up to $6,400 per ton.[79] The CSAPR Update finalized EGU emission budgets for 22 eastern states based on a cost threshold of $1,400 per ton since that level of cost-effective control would achieve sufficient reductions to partially address ozone transport in the eastern U.S. The NO_X emission level for California is flat at 1,905 tons across the cost threshold scenarios until the $5,000 per ton scenario, where the California ozone season NO_X emission level would be reduced to 1,810 tons. In other words, additional NO_X reductions from EGUs in California would cost more than three times the amount that the EPA determined to be cost-effective to partially address ozone transport obligations in the eastern U.S. under the CSAPR Update.

Non-EGU stationary sources emitted 6.7 times more NO_X (61,074 tpy) than EGUs (9,159 tpy) in California, per the 2011 NEI, and largely fall under the regulatory authority of California's local air districts. Of these non-EGU stationary sources, 19 sources emitted over 500 tpy of NO_X, per the 2011 NEI.[80] These sources (and the associated air districts) include: Six Portland cement plants (Kern County, Mojave Desert, and Bay Area),[81] nine petroleum refineries (Bay Area and South Coast),[82] and several other source types, including a mineral processing plant (Mojave Desert), a natural gas compressor station (Mojave Desert), a glass plant (San Joaquin Valley),[83] and a calcined pet coke plant (Bay Area).[84] These 19 sources represent 67 percent of the NO_X emissions from California stationary sources that emitted over 100 tpy in 2011 and represent 5.2 percent of the total 2011 NO_X inventory for California. Overall, these sources are subject to rules that limit NO_X emissions and have been approved into the California SIP, as cited in the various footnotes of this paragraph. In light of the overall control of such sources, for the small number of large non-EGU sources that are either subject to NO_X control measures that have not been submitted for approval into the California SIP, or fall outside the geographic jurisdiction of the applicable district rules, our analysis finds that further emission controls would be unlikely to reduce any potential impact on downwind states' air quality because such sources comprise no more than 0.8 percent of the total NO_X emitted in California in 2011.[85]

On the strength of CARB and the local air districts' emission control programs, especially for mobile and stationary sources of NO_X, we propose that the California SIP, as explained in the California Transport Plan and our evaluation above, adequately prohibits the emission of air pollutants in amounts that will significantly contribute to nonattainment, or interfere with maintenance, of the 2008 ozone NAAQS in any other state. We agree with CARB that California meets the requirements of CAA section

[75] 2011 NEI California emission inventory spreadsheet of stationary sources emitting over 100 tpy NO_X (''2011 NEI CA NO_X Spreadsheet''), included in the docket to this rulemaking and entitled ''AIR17025—2011 NEI NO_X sources by CA air district—RIX Analysis.xlsx.'' The total emissions from such sources in 2011 were 686 tpd in San Joaquin Valley APCD (five facilities in Kern County), 474 tpd in Bay Area AQMD (four facilities in Contra Costa County), and 394 tpd in South Coast AQMD (one facility in each of Los Angeles, Riverside, and San Bernardino Counties).

[76] For San Joaquin Valley APCD, *see, e.g.,* Rule 4301 (''Fuel Burning Equipment,'' amended December 17, 1992), 64 FR 26876 (May 18, 1999); Rule 4352 (''Solid Fuel Fired Boilers,'' amended December 15, 2011), 77 FR 66548 (November 6, 2012); Rule 4702 (''Internal Combustion Engines,'' amended November 14, 2013), 81 FR 24029 (April 25, 2016); and Rule 4703 (''Stationary Gas Turbines,'' amended September 20, 2007) 74 FR 53888 (October 21, 2009). For Bay Area AQMD, *see e.g.,* Regulation 9, Rule 11 (''Nitrogen Oxides and Carbon Monoxide from Electric Power Generating Steam Boilers,'' amended May 17, 2000), 67 FR 35435 (May 20, 2002). For South Coast AQMD, *see e.g.,* Regulation 20 series rules for the Regional Clean Air Incentives Market (RECLAIM) program. RECLAIM information is available at: *http://www.aqmd.gov/home/programs/business/business-detail?title=reclaim.*

[77] The Rio Bravo Jasmin and Rio Bravo Poso biomass plants in Bakersfield have closed and the San Joaquin Valley APCD has issued emission reduction credit certificates for doing so on January 19, 2016. *See http://www.valleyair.org/notices/Docs/2016/01-19-16_(S-1153637)/S-1153637.pdf* and *http://www.valleyair.org/notices/Docs/2016/01-19-16_(S-1154416)/S-1154416.pdf,* respectively.

[78] ''ACE Decommissioning Plan,'' ACE Cogeneration Company, November 25, 2014, p. 1–1.

[79] ''Ozone Transport Policy Analysis Final Rule TSD,'' U.S. EPA, August 2016, Table C–1, p. 15.

[80] 2011 NEI CA NO_X Spreadsheet. Other sources in California emitting over 500 tpy of NO_X include the Los Angeles, San Francisco, San Diego, and other airports and the U.S. Army National Training Center (Fort Irwin) and U.S. Marine Corps Twentynine Palms military bases, whose NO_X emissions from aircraft are outside the regulatory authority of the State of California. Separately, we do not count two Southern California Edison substations in Antelope Valley AQMD among the sources listed as emitting more than 500 tpy NO_X., as we believe their NO_X emissions were recorded in error. They subsequently do not appear in the 2014 NEI California emission inventory spreadsheet of stationary sources emitting over 100 tpy NO_X (''2014 NEI CA NO_X Spreadsheet''), which is included in the docket to this rulemaking and entitled ''AIR17025—2014 NEI NO_X sources by CA air district—RIX Analysis.xlsx.''

[81] Kern County APCD Rule 425.3 (''Portland Cement Kilns (Oxides of Nitrogen),'' amended October 13, 1994), 64 FR 38832 (July 20, 1999); Mojave Desert AQMD Rule 1161 (''Portland Cement Kilns,'' amended March 25, 2002), 68 FR 9015 (February 27, 2003); and Bay Area AQMD Regulation 9, Rule 13 (''Nitrogen Oxides, Particulate Matter, and Toxic Air Contaminants from Portland Cement Manufacturing,'' amended October 19, 2016). The latter has not been submitted by the Bay Area AQMD and CARB as a revision to the California SIP.

[82] Bay Area AQMD Regulation 9, Rule 10 (''Nitrogen oxides and Carbon Monoxide from Boilers, Steam Generators and Process Heaters in Petroleum Refineries,'' amended July 17, 2002), 73 FR 17897 (April 2, 2008); and South Coast AQMD RECLAIM program, whose rules have been approved into the California SIP, as noted above.

[83] San Joaquin Valley Rule 4354 (''Glass Melting Furnaces,'' amended May 19, 2011). Notably, the parent company of the Pilkington North America, Inc. glass plant in Lathrop announced that the plant was to be closed by January 1, 2014. *http://www.recordnet.com/article/20131113/A_BIZ/311130312.* Consistent with closure, it does not appear in the 2014 NEI CA NO_X Spreadsheet.

[84] Bay Area AQMD Regulation 9, Rule 10 (''Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators, and Process Heaters in Petroleum Refineries'', amended July 17, 2002), 73 FR 17897 (April 2, 2008). This rule applies to some (*e.g.,* process heaters), but not all (*e.g.,* the plant's coker unit), of the applicable calcined petroleum coke plant's equipment.

[85] 2011 NEI CA NO_X Spreadsheet.

110(a)(2)(D)(i)(I) for the 2008 ozone NAAQS, but we differ as to the rationale for that conclusion. California's analysis relies primarily on its conclusion that the ozone transport linkages are uncertain and therefore no significant contribution of interference with maintenance has been demonstrated. The EPA's evaluation finds that the transport linkages are adequately quantified (and uncertainties sufficiently addressed) and that California's emission control programs adequately address the transport requirements.

C. Evaluation for the 2006 $PM_{2.5}$ and 2012 $PM_{2.5}$ NAAQS

1. State's Submission

The California Transport Plan presents a weight of evidence analysis to assess whether the state contributes significantly to nonattainment or interferes with maintenance of the 2006 24-hour $PM_{2.5}$ and 2012 annual $PM_{2.5}$ NAAQS in any other state. This analysis includes a review of air quality data for California and other states, including daily 24-hour $PM_{2.5}$ concentrations at potential downwind receptors and $PM_{2.5}$ design value concentrations at IMPROVE monitoring sites; local emissions near, distance to, and changes in population and vehicle miles traveled (VMT) in areas near downwind receptors; California emissions and rules and regulations to reduce such emissions; and other information available from the EPA and other states' technical support documents (TSDs) for various CAA requirements.[86]

Regarding air quality data, CARB reviewed $PM_{2.5}$ design values in western states from the EPA's air trends website for three overlapping periods between 2010–2014.[87] For the purpose of identifying potential receptors, CARB defined nonattainment receptors as monitors violating the 2006 24-hour $PM_{2.5}$ NAAQS (35 μg/m³) or the 2012 annual $PM_{2.5}$ NAAQS (12.0 μg/m³) in 2012–2014 and maintenance receptors as those that attained the NAAQS in that period, but violated the NAAQS in either of the two preceding periods (2010–2012 or 2011–2013).

For the 24-hour $PM_{2.5}$ standard, CARB identified 17 nonattainment receptors, with design values ranging from 36–61 μg/m³, across the following five states listed by the receptors' counties: Arizona (Pinal), Idaho (Lemhi and Shoshone), Montana (Ravalli and Silver Bow), Oregon (Crook, Jackson, Lake, and Lane), and Utah (Box Elder, Cache, Davis, Salt Lake, and Utah).[88] CARB also identified four maintenance receptors, with design values ranging from 36–39 μg/m³ in either the 2010–2012 or 2011–2013 periods, across three states listed by the receptors' counties: Montana (Lewis and Clark, and Missoula), Oregon (Klamath), and Utah (Weber).

For the annual $PM_{2.5}$ standard, CARB identified two nonattainment receptors (*i.e.,* having design values over 12.0 μg/m³), with design values of 12.1 and 13.1 μg/m³, respectively, and no maintenance receptors, in just one state listed by the receptors' counties: Idaho (Lemhi and Shoshone).

The California Transport Plan discusses California emissions from mobile, stationary, and area sources and applicable regulatory programs. CARB highlights the authority granted by Congress in the 1970 CAA for California to adopt mobile source emission control standards in certain situations. Within the California Health and Safety Code, CARB highlights the authority granted to CARB to adopt and implement controls on mobile sources and their fuels, as well as consumer products, and to the state's 35 local air districts to adopt and implement stationary and area source controls.[89] For mobile sources, CARB states that it has adopted and implemented: ''fleet rules'' for heavy-duty trucks, buses, and construction equipment; light-duty vehicle and fuel regulations, such as the LEV III program and the 2012 Advanced Clean Car regulation; and inspection and maintenance programs for light duty (*i.e.,* smog check) and heavy-duty vehicles; among other measures. For stationary and area sources, CARB states that local air district rules, in combination, are among the most stringent in the U.S. and cover a wide range of sources such as refineries, manufacturing facilities, cement plants, refinishing operations, electricity generation and biomass facilities, boilers, and generators.

The California Transport Plan includes a sample list of State and local air district rules that have been approved into the California SIP and a graph of how California state-wide emissions of $PM_{2.5}$, and $PM_{2.5}$ precursor pollutants, such as NO_X, VOC, and sulfur oxides (SO_X), have decreased significantly from 2001 (~7,000 tpd) to 2011 (~4,300 tpd) and are expected to continue to decrease to 2021 (projected to be ~3,100 tpd).[90] For example, the list includes CARB regulations for heavy-duty trucks and buses and light- and medium-duty vehicles, and air district regulations for open burning, agricultural burning, and fugitive dust as example of regulations that limit the emission of particulate matter. CARB states that these state and local programs have reduced and will continue to reduce the potential for California emissions to contribute to violations, or interfere with maintenance, of the federal standards.

We have further summarized the California Transport Plan in terms of California's emissions and the State and local regulatory programs in sections II.B and II.D of this proposed rule. These sections describe CARB's statements with respect to NO_X and VOC emissions (for the 2008 ozone NAAQS) and SO_X emissions (for the 2010 SO_2 NAAQS) and are relevant, as precursors to $PM_{2.5}$, to interstate transport for the 2006 $PM_{2.5}$ and 2012 $PM_{2.5}$ NAAQS. For example, CARB states that NO_X and VOC emissions have been reduced by 445 tpd and 277 tpd, respectively, from 2011 to 2017 due to California's regulatory programs.[91] Similarly, from 2000 to 2015, CARB estimates that CARB and the air districts achieved the following SO_X emission reductions: Stationary sources (59 percent), mobile sources (88 percent), and area sources (33 percent).[92]

Regarding assessment of the causes of the $PM_{2.5}$ concentrations at each receptor, CARB presents its analysis for each county or $PM_{2.5}$ nonattainment area (*e.g.,* the Salt Lake City nonattainment area for the 2006 $PM_{2.5}$ NAAQS, which includes the receptors in Box Elder, Davis, and Salt Lake Counties). CARB's receptor analyses focus on local emission sources, the distance between California and each receptor, long-term $PM_{2.5}$ trends and daily $PM_{2.5}$ data (as opposed to design values), population, and VMT. These analyses appear in Appendix A of the California Transport Plan for the 2006 24-hour $PM_{2.5}$ NAAQS and in Appendix B for the 2012 annual $PM_{2.5}$ NAAQS. CARB includes additional analyses of air quality data at IMPROVE sites that are located between California and the receptor counties in Appendix E and uses these data as an indicator of whether elevated $PM_{2.5}$ levels are observed regionally. We discuss the

[86] California Transport Plan, pp. 11–12.

[87] *Id.,* p. 10. The EPA's air trends website is available at: *https://www.epa.gov/air-trends.*

[88] *Id.,* p. 11, Tables III.1 and III.2.

[89] *Id.,* pp. 5–6. As noted in section II.B.1 of this proposed rule, Appendix G of the California Transport Plan presents a list of CARB regulatory actions taken since 1985 to reduction mobile source emissions.

[90] *Id.,* pp. 7–9, Table II.1 and Figure II.1. CARB's analysis of California SO_2 emissions in based on SO_X because CARB estimates that SO_2 comprises 97% of the state-wide SO_X inventory. California Transport Plan, App. C, p. C–10.

[91] *Id.,* App. D, p. D–8.

[92] *Id.,* App. C, p. C–3.

State's analysis of each receptor area in greater detail as part of our evaluation for each $PM_{2.5}$ NAAQS, below.

For the 2006 24-hour $PM_{2.5}$ NAAQS, CARB relies in part on technical documents from applicable states and the EPA (*e.g.,* TSDs for the 2006 $PM_{2.5}$ NAAQS nonattainment area designations) in concluding that most exceedances at each nonattainment or maintenance receptor are due to emissions from local sources, especially during winter-time inversions.[93] CARB further concludes that California emissions from stationary sources are subject to stringent limits for $PM_{2.5}$ and its precursors, such as those for NO_X and SO_X, and that California has a long history of reducing emissions through motor vehicle and fuel standards. CARB also finds that monitors in western states generally have valid design values well below 35 $\mu g/m^3$, except for the 17 receptors identified in CARB's analysis. Based on these analyses, CARB states that California does not contribute to, or interfere with maintenance of, the 2006 $PM_{2.5}$ NAAQS in neighboring or nearby states.

For the 2012 annual $PM_{2.5}$ NAAQS, CARB draws similar conclusions as those for its 24-hour $PM_{2.5}$ analyses: That most of the high, annual $PM_{2.5}$ concentrations are due to local emissions, especially during winter-time inversions; that California's stationary and mobile sources are well regulated; and that monitors in western states generally have valid design values well below 12.0 $\mu g/m^3$, except for the two receptors identified in CARB's analysis.[94] CARB concludes that California does not contribute to, or interfere with maintenance of, the 2012 $PM_{2.5}$ NAAQS in neighboring or nearby states.

2. Introduction to the EPA's $PM_{2.5}$ Evaluation

The EPA agrees with CARB's conclusions that California meets the CAA requirements for interstate transport prongs 1 and 2 for the 2006 $PM_{2.5}$ and 2012 $PM_{2.5}$ NAAQS, as discussed below. First, we discuss our evaluation of CARB's identification of nonattainment and maintenance receptors in western states based on data presented in the California Transport Plan as well as the EPA's analysis of 2009–2013 24-hour and annual $PM_{2.5}$ design values. Based on this analysis, we present modified lists of such receptors (*i.e.,* step one) that largely follow the lists of receptors in the California Transport Plan, as presented in Table 3 (for the 2006 $PM_{2.5}$ NAAQS) and Table 4 (for the 2012 $PM_{2.5}$ NAAQS) of this proposed rule. We include data on the most recent, valid design values (*e.g.,* 2014–2016) for each receptor. We then discuss California emissions of $PM_{2.5}$ and its precursors, California's regulations to limit such emissions, and the emission trends resulting from such regulations.

Building on the identification of potential nonattainment and maintenance receptors and our discussion of California emissions, we present our own weight of evidence analysis for addressing the CAA requirements. This analysis affirms CARB's weight of evidence analysis for the 2006 24-hour $PM_{2.5}$ and 2012 annual $PM_{2.5}$ NAAQS. Like the analytical approach used in the California Transport Plan, for each potential receptor area we summarize our analyses of air quality data at the applicable receptors, daily 24-hour $PM_{2.5}$ concentrations at the receptors, $PM_{2.5}$ design value concentrations at IMPROVE monitoring sites,[95] local emissions and other local factors, and California's emission control programs. We prepared a TSD containing our more detailed analysis of interstate transport for the 2006 24-hour $PM_{2.5}$ NAAQS (''EPA's $PM_{2.5}$ Transport TSD''), which is also relevant for our evaluation of the 2012 annual $PM_{2.5}$ NAAQS, and it is included in the docket of this proposed rule.[96]

Given the role of regulatory monitoring data in the EPA's analysis of interstate transport, the $PM_{2.5}$ regulatory monitoring performed by Pechanga, as well as comments from the Morongo and Pechanga during the EPA's rulemaking on California's interstate transport SIP for the 1997 ozone and 1997 $PM_{2.5}$ NAAQS,[97] we have also considered transport to the Morongo and Pechanga reservations. Based on our review of such ambient air quality data, as described in the EPA's memo to the docket referenced here,[98] the EPA proposes to find that the 24-hour and annual $PM_{2.5}$ design value concentrations at the Pechanga monitor and at monitors nearest to the Morongo reservation fall below the levels of the 2006 24-hour $PM_{2.5}$ NAAQS and the 2012 annual $PM_{2.5}$ NAAQS, and thus do not warrant further analysis with respect to interstate transport under CAA section 110(a)(2)(D)(i)(I) for any potential $PM_{2.5}$ air quality impacts in the Morongo or Pechanga reservations.

3. Identification of Receptors

The EPA's 2012 $PM_{2.5}$ NAAQS Transport Memo was released on March 17, 2016, and presented air quality modeling that identified potential nonattainment and maintenance receptors.[99] The EPA's analysis used ambient $PM_{2.5}$ data from 2009–2013, emissions inventory data from the 2011 NEI, photochemical modeling for a 2011 base year and 2017 and 2025 future years, and other information to project annual $PM_{2.5}$ design values for 2017 and 2025. As identified in the 2012 $PM_{2.5}$ NAAQS Transport Memo, it may be appropriate to use this information to help evaluate projected air quality in 2021, which is the attainment deadline for 2012 $PM_{2.5}$ NAAQS nonattainment areas classified as Moderate. Because modeling results are only available for 2017 and 2025, one way to assess potential receptors for 2021 is to assume that receptors projected to have average and/or maximum design values above the NAAQS in both 2017 and 2025 are also likely to be either nonattainment or maintenance receptors in 2021. Similarly, it may be reasonable to assume that receptors that are projected to attain the NAAQS in both 2017 and 2025 are not likely to have nonattainment or maintenance problems in 2021.

Where available, we rely on this kind of modeling for interstate transport because it accounts for the effect of emission reductions from planned federal, state, and local measures, as well as input from state, local, industry, and community entities, to project where violations, or potential violations, of the NAAQS will occur. By aligning the overlapping design value periods (2009–2013) with the 2011 NEI, we can establish an improved understanding of the relationship between emissions of $PM_{2.5}$ and its precursors to ambient $PM_{2.5}$ concentrations. We have also considered the recent 2014–2016 design values at the potential nonattainment

[93] *Id.,* p. 22.

[94] *Id.,* p. 22–23.

[95] Air quality data from IMPROVE monitoring sites may provide an indication of rural background $PM_{2.5}$ concentrations. Low $PM_{2.5}$ concentrations at IMPROVE sites that coincide temporally with high $PM_{2.5}$ concentrations at nearby $PM_{2.5}$ receptors may indicate a relatively localized pollution impact, whereas high $PM_{2.5}$ concentrations at IMPROVE sites may indicate a more regional pollution impact.

[96] ''EPA Evaluation of the California Interstate Transport Plan (2006 $PM_{2.5}$ NAAQS), Technical Support Document,'' EPA, Region 9, January 2018.

[97] 76 FR 34872 (June 15, 2011). In their comments, Morongo and Pechanga called for an analysis of any potential ozone or $PM_{2.5}$ transport to their reservations and for consultation with the EPA.

[98] Memorandum from Rory Mays, Air Planning Office, Air Division, Region XI, EPA, ''Interstate Transport for the 2008 ozone, 2006 $PM_{2.5}$, 2012 $PM_{2.5}$, and 2010 SO_2 NAAQS and the Morongo Band of Mission Indians and the Pechanga Band of Luiseño Indians,'' January 2018.

[99] 2012 $PM_{2.5}$ NAAQS Transport Memo, Table 1, p. 5.

and maintenance receptors identified in the EPA's 2012 $PM_{2.5}$ NAAQS Transport Memo.

We note that CARB's adoption of the California Transport Plan on December 17, 2015, preceded the release of the EPA's 2012 $PM_{2.5}$ NAAQS Transport Memo. CARB analyzed the overlapping design value periods of 2010–2014, albeit without projecting those values forward. Given the utility of the EPA's modeling for the reasons described above, we have used the list of receptors from the EPA's 2012 $PM_{2.5}$ NAAQS Transport Memo as the primary basis for our evaluation, while also considering the differences in CARB's list of receptors. In addition, we present the 2014–2016 design value data at each identified receptor to indicate current air quality. The EPA's list of receptors for the 2012 $PM_{2.5}$ NAAQS appears in Table 4.

For the 2006 $PM_{2.5}$ NAAQS we have derived a list of receptors using 2009–2013 design values as the primary basis for our evaluation, while considering the differences in CARB's list of receptors, as well as the most recent, valid design values (2014–2016, where available). We selected this approach to provide a common base of ambient air quality and emissions information for $PM_{2.5}$ for both the 24-hour and annual standards. Because neither the EPA nor CARB modeled future 24-hour $PM_{2.5}$ design values, we use the same conceptual definition for 24-hour $PM_{2.5}$ receptors from the California Transport Plan—nonattainment receptors are those that violate the 2006 24-hour $PM_{2.5}$ NAAQS in the last of three overlapping design value periods (2011–2013); and maintenance receptors are those that attain the 2006 24-hour $PM_{2.5}$ NAAQS in the latest period, but violate the standard in either of the preceding two design value periods (2009–2011 or 2010–2012). As with the annual standard, we also present the 2014–2016 24-hour $PM_{2.5}$ design values at each identified receptor. The EPA's list of receptors for the 2006 $PM_{2.5}$ NAAQS appears in Table 3.[100]

TABLE 3—EPA LIST OF POTENTIAL NONATTAINMENT AND MAINTENANCE RECEPTORS FOR THE 2006 24-HOUR $PM_{2.5}$ NAAQS

State	County	Nonattainment area for 2006 $PM_{2.5}$ NAAQS [a]	AQS ID	CARB receptor type (2010–2014 data)	EPA receptor type (2009–2013 data)	Most recent valid design value ($\mu g/m^3$) (2014–2016, except as noted)
Arizona	Pinal	West Central Pinal.	04–021–3013	Nonattainment	(Nonattainment) [b]	30
Idaho	Ada		16–001–0010	Not discussed	Nonattainment	19 (2008–2010)
Idaho	Franklin	Logan	16–041–0001	Discussed with Cache County, Utah.	Nonattainment	46 (2008–2010)
Idaho	Lemhi		16–059–0004	Nonattainment	Nonattainment	41
Idaho	Shoshone	West Silver Valley (2012 $PM_{2.5}$ NAAQS).	16–079–0017	Nonattainment	Nonattainment	39
Montana	Silver Bow		30–093–0005	Nonattainment	Nonattainment	33
Oregon	Crook		41–013–0100	Nonattainment	Nonattainment	38
Oregon	Lake		41–037–0001	Nonattainment	Nonattainment	56 (2013–2015)
Oregon	Lane	Oakridge	41–039–2013	Nonattainment	Nonattainment	31
Oregon	Klamath	Klamath Falls	41–035–0004	Maintenance	Nonattainment	27
Utah	Box Elder	Salt Lake City	49–003–0003	Nonattainment	Nonattainment	31
Utah	Cache	Logan	49–005–0004	Nonattainment	Nonattainment	45 (2013–2015)
Utah	Salt Lake	Salt Lake City	49–035–3006	Nonattainment	Nonattainment	38
Utah	Salt Lake	Salt Lake City	49–035–3010	Nonattainment	Nonattainment	42
Utah	Utah	Provo	49–049–0002	Nonattainment	Nonattainment	29
Utah	Utah	Provo	49–049–4001	Nonattainment	Nonattainment	43 (2013–2015)
Utah	Utah	Provo	49–049–5010	Nonattainment	Nonattainment	27
Utah	Weber	Salt Lake City	49–057–0002	Maintenance	Nonattainment	37 (2013–2015)
Montana	Lewis and Clark		30–049–0026	Maintenance	Maintenance	37
Utah	Davis	Salt Lake City	49–011–0004	Nonattainment	Maintenance	34
Utah	Weber	Salt Lake City	49–057–1003	Not discussed	Maintenance	35 (2011–2013)

[a] A blank cell in the column for nonattainment area indicates that the monitor is not located in an area currently designated nonattainment for the 2006 $PM_{2.5}$ NAAQS.

[b] Although EPA's 2012 $PM_{2.5}$ Transport Memo did not identify the Pinal County, Arizona monitor as either a nonattainment or maintenance receptor in the 2009–2013 data, we are evaluating it here as a nonattainment receptor because it was identified as such in the California Transport Plan.

TABLE 4—EPA LIST OF POTENTIAL MAINTENANCE RECEPTORS FOR THE 2012 ANNUAL $PM_{2.5}$ NAAQS

State	County	AQS site ID	CARB receptor type (2012–2014 data)	EPA receptor type (2017 projection)	EPA receptor type (2025 projection)	2014–2016 design value ($\mu g/m^3$)
Idaho [a]	Shoshone	16–079–0017	Nonattainment (13.1 $\mu g/m^3$).	Maintenance (Avg. 12.43 $\mu g/m^3$).	Maintenance (Max. 12.22 $\mu g/m^3$).	11.9

[100] Consistent with prior western interstate transport actions, we have excluded from this list the receptors in Ravalli, Montana (AQS ID 30–081–0007), Missoula, Montana (AQS ID 30–063–0024), and Jackson, Oregon (AQS ID 41–029–0133) with design values that may have been affected by wildfires. *See, e.g.,* 80 FR 9423 (February 23, 2015), ''Technical Support Document—Idaho [SIP] and Interstate Transport Requirements for the 2006 24-hour [$PM_{2.5}$ NAAQS],'' EPA, Region X, January 22, 2015, p. 12.

TABLE 4—EPA LIST OF POTENTIAL MAINTENANCE RECEPTORS FOR THE 2012 ANNUAL $PM_{2.5}$ NAAQS—Continued

State	County	AQS site ID	CARB receptor type (2012–2014 data)	EPA receptor type (2017 projection)	EPA receptor type (2025 projection)	2014–2016 design value (μg/m³)
Pennsylvania	Allegheny	42–003–0064	Not discussed	Maintenance (Max. 12.16 μg/m³).	Attainment (Max. 11.65 μg/m³).	12.8

[a] CARB identified the monitor in Lemhi County, Idaho (AQS ID 16–059–0004) as a nonattainment receptor based on a 2012–2014 design value of 12.1 μg/m³. The EPA's modeling for the 2012 $PM_{2.5}$ NAAQS Transport Memo projects this monitor to be attaining and maintaining the NAAQS in both 2017 (maximum design value of 11.79 μg/m³) and 2025 (maximum design value of 11.65 μg/m³). Its 2014–2016 design value is 12.4 μg/m³.

4. Evaluation of California Control Measures

We discuss California's control measures before presenting our analysis for transport prongs 1 and 2 for each NAAQS because such discussion provides a common basis for evaluating the California emissions component of CARB's weight of evidence analysis. Also, for three precursors, we incorporate our evaluation of California's emissions and regulatory programs in sections II.B and II.D of this proposed rule for NO_X and VOC (for the 2008 ozone NAAQS) and SO_X (for the 2010 SO_2 NAAQS), respectively, given their roles as precursors to ambient $PM_{2.5}$.

We agree with CARB's general conclusions: That California emissions from stationary sources are subject to stringent limits for $PM_{2.5}$ and its precursors, such as those for NO_X and SO_X; that California has a long history of reducing emissions through motor vehicle and fuel standards; and that California's State and local measures will continue to reduce the potential for California emissions to contribute significantly to nonattainment, or interfere with maintenance, of the 2006 24-hour $PM_{2.5}$ or 2012 annual $PM_{2.5}$ NAAQS in any other state. This is based on our review of the state and local measures cited in the California Transport Plan that limit the emissions of $PM_{2.5}$ and its precursor pollutants and of the applicable California emission trends, which are generally decreasing.

For direct $PM_{2.5}$ emissions, the California Transport Plan cites examples of State and local rules that limit the emission of particulate matter (PM), which includes direct $PM_{2.5}$, and cites to the EPA actions approving such measures into the SIP.[101] These include emission standards and test procedures for heavy-duty engines and vehicles, passenger cars, light duty trucks, and medium duty vehicles; in-use diesel standards for heavy-duty trucks, buses, drayage trucks, and off-road vehicles; and inspection and maintenance programs. We affirm that these measures limit the emission of PM and have been approved into the California SIP.[102]

The California Transport Plan also includes examples of air district measures for area sources such as those for open burning in South Coast and Imperial County, agricultural burning in Sacramento Metro and Imperial County, fugitive dust in Mojave Desert, and agricultural sources in San Joaquin Valley. We similarly affirm that these measures limit the emission of PM and have been approved into the California SIP.[103] More broadly, the California Transport Plan refers to control measures that apply to a range of pollutants emitted by refineries, manufacturing facilities, cement plants, refinishing operations, electricity generation and biomass facilities, boilers, and generators.[104] As a general matter, we affirm that there are many SIP-approved rules for such sources that limit the emission of PM and its precursors.

Per our review of the EPA's emissions trends data, from 2000 to 2016, total statewide $PM_{2.5}$ emissions, excluding wildfires and prescribed fires, decreased by 75 percent, resulting in 2016 emissions of 99,016 tpy.[105] As discussed in section II.B.5 of this proposed rule, we estimate that California emissions will be reduced from 2011 to 2017 by 535 tpd of NO_X (28 percent decrease from 2011) and 302 tpd of VOC (13 percent decrease from 2011). On a longer timeline, from 2000 to 2016, California NO_X and VOC emissions have decreased by 66 percent and 54 percent, respectively. For SO_2, total statewide emissions have decreased by 75 percent from 2000 to 2016. Thus, emissions of each of these pollutants has decreased substantially in response to California State and local control measures, as well as federal measures for sources outside California's regulatory authority.

5. Evaluation for the 2006 24-Hour $PM_{2.5}$ NAAQS

We summarize our evaluation of the areas encompassing the 18 nonattainment receptors identified in Table 3 and group them into three geographic bins (*i.e.,* Arizona, the Northern Rocky Mountains, and Utah) based on the nature of the emission sources affecting the receptors. We then summarize our evaluation of the areas encompassing the three maintenance receptors identified in Table 3 and group them by the two relevant states. The EPA's $PM_{2.5}$ Transport TSD in the docket for this proposed rule contains our more detailed analyses for interstate transport prongs 1 and 2.

i. Evaluation for Significant Contribution to Nonattainment (Prong 1)

CARB discussed the Pinal County, Arizona receptor, which is known as the Cowtown monitor. This receptor is in the West Central Pinal $PM_{2.5}$ nonattainment area, approximately 240 km east of the California border. The Cowtown area is surrounded by mountain ranges with open-ended valleys that could allow transport of air pollution from the west. The area's population has grown by 40 percent from 2005 to 2014 and the VMT has grown by 10 percent between 2005 and 2011. Most of the exceedances of the 2006 24-hour $PM_{2.5}$ NAAQS at the Cowtown monitor did not occur during high wind conditions, indicating that they were likely due to local rather than transported sources, particularly local feedlots and geologic soil, based on speciated ambient $PM_{2.5}$ data. The 24-hour $PM_{2.5}$ concentrations at this receptor were the highest in Arizona, yet the $PM_{2.5}$ monitor in Yuma, Arizona, along the California border, recorded

[101] California Transport Plan, p. 8.

[102] *See,* for example, 77 FR 20308 (April 4, 2012), approving Title 13 of the California Code of Regulations (CCR) section 2025, commonly referred to as CARB's Truck and Bus Rule, into the California SIP.

[103] *See,* for example, 66 FR 36170 (July 11, 2001), approving Imperial County APCD Rule 421 (''Open Burning,'' amended September 14, 1999) into the California SIP.

[104] California Transport Plan, p. 6.

[105] 1990–2016 emission inventory spreadsheets of statewide emission trends, included in the docket to this rulemaking and entitled ''1990–2016 State Tier 1 Annual Average Emission Trends—RIX Analysis.xls.'' Additional emissions trends data are available at: *https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data.*

lower concentrations of 15–19 μg/m^3—well below 35 μg/m^3.

For the Northern Rocky Mountains, which herein includes nonattainment receptors in Idaho, Montana, Oregon, and the Cache County portion of Utah, we evaluated nine nonattainment receptors. The receptors in Idaho and Montana are 360–740 km from California while those in Oregon are 25–255 km from California. All nine are separated from California by various mountain ranges. Locally, the receptors are surrounded by mountains that in some cases rise several thousand feet above the mountain basins, forming a topographical barrier to $PM_{2.5}$ transport and often trapping $PM_{2.5}$ pollution near the surface during wintertime temperature inversions. For example, the receptors in Franklin County, Idaho and Cache County, Utah are surrounded by the Wasatch-Cache, Bear River, Monte Cristo, and Wellsville mountain ranges that rise 3,000 to 5,000 feet above the valley floor. These areas tend to have small populations with VMT increases or decreases of 20 percent or less from 2005 to 2011.

The highest 24-hour $PM_{2.5}$ concentrations in each area are generally observed in winter, with certain receptors, representing counties in Idaho (Lemhi and Shoshone), Montana (Silver Bow), and Oregon (Lake and Lane), that appear to have been affected by wildfire in summer or fall. The $PM_{2.5}$ concentrations at IMPROVE monitors nearest each of these receptors, including IMPROVE monitors between California and the receptors, were generally low when elevated $PM_{2.5}$ concentrations were recorded at the receptors, in winter. Where available, limited chemical speciation and meteorological data during cold $PM_{2.5}$ episodes indicate that transport of air pollution from the periphery of such areas is limited and that $PM_{2.5}$ is formed from local emission sources through secondary formation of $PM_{2.5}$. Residential wood burning, especially during winter inversions, is considered the primary contributor to 24-hour $PM_{2.5}$ exceedances. Additional sources contributing to such exceedances vary by area and may include mobile sources and agricultural activities (*e.g.,* open burning).

For Utah, we evaluated seven nonattainment receptors that are either in the Salt Lake City or Provo nonattainment area for the 2006 $PM_{2.5}$ NAAQS. Both areas are valleys bordered to the east by the Wasatch Mountains, to the west by the Stansbury and Promontory Mountains and the Great Salt Lake for Salt Lake City, and by the Oquirrh Mountains and Utah Lake for Provo. While they are designated separately, the EPA has determined that the two areas share an airshed. These areas are about 700 km from the California border and separated from California by the Sierra Nevada mountain range and the Great Basin, a large area comprised of depressions and flats scattered between smaller mountain ranges in Nevada and Utah. Approximately 80 percent of the population of Utah resides in the counties with nonattainment receptors identified in CARB's and the EPA's analyses, with county population increases ranging from 11–26 percent from 2005 to 2014 and county VMT changes ranging from a 62 percent decrease in Weber County to a 116 percent increase in Box Elder County from 2005 to 2011.

The highest 24-hour $PM_{2.5}$ concentrations in these two nonattainment areas primarily occur during winter, with occasional spikes in other seasons. IMPROVE monitors between California and the Salt Lake City and Provo nonattainment areas, including Bryce Canyon and Zion National Parks in Utah and Jarbidge Wilderness Area in Nevada, recorded their highest 24-hour $PM_{2.5}$ concentrations in summer, and their concentrations were generally low when elevated $PM_{2.5}$ concentrations were recorded at the Salt Lake City and Provo receptors, in winter.[106] Most of the ambient $PM_{2.5}$ in the urban portions of these nonattainment areas is generated locally and trapped during winter inversions. Transport between the Salt Lake City and Provo areas can occur during these inversions, as there is a gap in the mountains separating these areas below their average inversion heights.

We have reviewed the information compiled and presented in the California Transport Plan, including distance of relevant receptors from California; intervening terrain; potential wildfire effects; chemical speciation data; local topography; the effect of local emission sources, particularly residential wood burning and, in certain cases, other sources (*e.g.,* mobile sources, agricultural activities), on wintertime exceedances; and regional background levels represented by IMPROVE data. We have reviewed California's emissions and emission control programs for $PM_{2.5}$ and its precursors, especially for NO_X and SO_X, and conclude that California has an extensive and effective program for limiting emissions of such pollutants. Thus, we propose that California will not significantly contribute to nonattainment of the 2006 24-hour $PM_{2.5}$ NAAQS in any western state.

The California Transport Plan did not evaluate $PM_{2.5}$ transport to states farther east than Montana, Wyoming, Colorado, and New Mexico. To evaluate the potential for transport of $PM_{2.5}$ and its precursors to states farther east, we have reviewed modeling data from the CSAPR and recent air quality data to identify the westernmost area in the East[107] with a potential nonattainment receptor. We then compared California's likely contributions to those of states in the East that may significantly contribute to nonattainment at that receptor, considering several pieces of evidence.

CSAPR identified nonattainment receptors for the 2006 $PM_{2.5}$ NAAQS in numerous eastern states using a 2012 base case and projected forward to 2014.[108] The westernmost of these was in Madison County, Illinois (AQS ID 171191007), which is across the Mississippi River from St. Louis, Missouri. We looked at the westernmost of these states because its relative position with respect to California might help to determine whether the EPA should evaluate $PM_{2.5}$ transport to any state farther east. In reviewing recent air quality data, including 2014–2016 24-hour $PM_{2.5}$ design values, very few of those receptors recorded ambient 24-hour $PM_{2.5}$ concentrations above 35 μg/m^3 (*e.g.,* Allegheny County (Pittsburgh), Pennsylvania).[109] Notwithstanding, we further examined the Madison receptor as the westernmost potential nonattainment receptor in the East.

The westernmost states that were linked (*i.e.,* contributing over one

[106] States' contributions to the best and worst visibility days at IMPROVE monitors were modeled to address requirements of the EPA's regional haze rule. 64 FR 35714 (July 1, 1999), and later revised at 82 FR 3078 (January 10, 2017). The California Transport Plan notes that while the percentage of contributions from California are highest for the worst visibility days at these IMPROVE monitors, these days occurred during summer months and would not, therefore, affect winter exceedances at the receptors in Utah. California Transport Plan, p. A–54 and Appendix E.1. The modeling data are available at: *http://vista.cira.colostate.edu/TSS/Results/HazePlanning.aspx.*

[107] For purposes of the $PM_{2.5}$ evaluation in this notice, ''the East'' refers to the 37 states and Washington, DC that lie east of the states of Montana, Wyoming, Colorado, and New Mexico. The EPA modeled the contribution of states within the East to each receptor for CSAPR, but did not model the contribution of any state further west, such as California.

[108] 76 FR 48208 at 48242–48243 (August 8, 2011), Table V.D–5.

[109] EPA 2016 Design Value Reports, spreadsheet entitled ''Table 6, Site DV History,'' July 14, 2017, available at: *https://www.epa.gov/air-trends/air-quality-design-values#report.* We note that data quality issues in Illinois and four counties in Florida prevent the calculation of valid design values for recent years.

percent (0.35 μg/m^3) of the 2006 24-hour $PM_{2.5}$ NAAQS) to the Madison receptor in CSAPR were Kansas and Texas, which were each projected to contribute 0.37 μg/m^3 to this receptor and are about 385 km and 680 km, respectively, from this receptor.[110] The other states situated along a similar western longitude, including North Dakota, South Dakota, Nebraska, and Oklahoma, were not linked to the receptor. Because Kansas and Texas were among the westernmost states analyzed within CSAPR, we compared their emissions with those of California. In the CSAPR 2014 base case, Kansas was projected to emit 248,692 tpy of NO_X and 117,050 tpy of SO_2, and Texas was projected to emit 1,372,735 tpy of NO_X and 704,311 tpy of SO_2.[111]

By comparison, California is about 2,215 km from the Madison receptor and is separated from Illinois by the Rocky Mountains and the Great Plains. California's projected 2014 base case emissions were 942,254 tpy of NO_X and 119,268 tpy of SO_2. Thus, California's NO_X emissions were between those of Kansas (26 percent of California's) and Texas (146 percent of California's) and its SO_2 emissions were comparable to those of Kansas (98 percent of California's) and much less than those of Texas (591 percent of California's). California is also much farther away (5.7 times the distance from Kansas to the receptor and 3.3 times the distance from Texas to the receptor).

As summarized in section II.C.5 of this proposed rule, in response to California State and local control measures, as well as federal measures for sources outside California's regulatory authority, from 2000 to 2016 California's total statewide emissions, excluding wildfires and prescribed fires, decreased by 75 percent for $PM_{2.5}$, 66 percent for NO_X, 54 percent for VOCs, and 75 percent for SO_2. For NO_X and VOCs, these reductions are consistent with the EPA's projection that California emissions will be reduced by 28 percent for NO_X and 13 percent for VOCs from 2011 to 2017. We reviewed the 24-hour $PM_{2.5}$ design value history over the last decade for the Madison receptor and found that it has decreased from 39 μg/m^3 for 2005–2007 to 29 μg/m^3 for 2008–2010, with subsequent design values being invalid due to data quality issues.[112]

We conclude that California emission sources will not significantly contribute to nonattainment of the 2006 $PM_{2.5}$ NAAQS at this site. This is based on the generally improved air quality in the East since the EPA's analysis in 2011 for CSAPR, which reduced the number of potential nonattainment receptors; the distance of the Madison County, Illinois receptor from California; intervening terrain; our analysis of the westernmost states linked to the Madison receptor and comparison of California emissions; the large reductions in emissions of $PM_{2.5}$ and its precursors in California; and the trend of decreasing 24-hour $PM_{2.5}$ concentrations at the Madison receptor. As the distance from California to the other potential eastern nonattainment receptors is even greater, the expected contribution from California to 24-hour $PM_{2.5}$ concentrations at such receptors would be even smaller.

ii. Evaluation for Interference With Maintenance (Prong 2)

The Lewis and Clark County maintenance receptor is in the Helena Valley of Montana and is surrounded by mountain ranges, including the Lewis Range to the north, the Absaroka Range to the south, and the Bitterroot Mountains to the west. It is about 800 km from the northeast corner of California, is separated from California by the Sierra Nevada, Blue, and Bitterroot mountain ranges, and its population has increased by 13 percent from 2005 to 2014 while its VMT has decreased by almost 60 percent. The highest 24-hour $PM_{2.5}$ concentrations generally occur in winter, consistent with the area's wintertime cold pool inversions, with lower concentrations in summer. The site has generally recorded 24-hour $PM_{2.5}$ concentrations well below 35 μg/m^3, except for 2011 and 2012, which appear to have been affected by wildfire and whose corresponding design values (*e.g.,* for 2009–2011, 2010–2012, and 2011–2013) exceeded the 2006 $PM_{2.5}$ NAAQS. During the months when exceedances were recorded at the Helena receptor, $PM_{2.5}$ concentrations recorded at the IMPROVE monitor at the nearby Gate of the Mountains Wilderness Area were generally low. The EPA has concluded that emissions from residential wood burning were the largest source of $PM_{2.5}$ emissions in the area.

The Davis and Weber Counties maintenance receptors are in the northern part of the Salt Lake City nonattainment area for the 2006 $PM_{2.5}$ NAAQS. As noted above, this area is bordered to the east by the Wasatch Mountains and to the west by the Stansbury and Promontory Mountains and the Great Salt Lake. These receptors are about 700 km from the California border and are separated from California by the Sierra Nevada mountain range and the Great Basin. The populations for Davis and Weber Counties, which are largely concentrated in the urban areas of the Wasatch Front, have increased by 23 percent and 14 percent, respectively, from 2005 to 2014, while VMT has decreased by 23 percent and 62 percent, respectively, from 2005 to 2011. Over the last decade, 24-hour $PM_{2.5}$ concentrations have generally remained above the 2006 $PM_{2.5}$ NAAQS and the highest concentrations primarily occur during winter, with occasional spikes in other seasons. Most of the ambient $PM_{2.5}$ in the urban area is generated locally and trapped during winter inversions, with some transport to and from the adjacent Provo, Utah nonattainment area. IMPROVE monitors between California and Davis and Weber Counties, Utah, including Bryce Canyon and Zion National Parks in Utah and Jarbidge Wilderness Area in Nevada, recorded their highest 24-hour $PM_{2.5}$ concentrations in summer, and were generally low when elevated $PM_{2.5}$ concentrations were recorded at the Davis and Weber Counties' receptors, in winter.

We have reviewed the information compiled and presented in the California Transport Plan, including distance of these receptors from California; intervening terrain; potential wildfire effects; local topography; the effect of local emission sources on wintertime exceedances; and rural background levels represented by IMPROVE data. We have reviewed California's emissions and emission control programs for $PM_{2.5}$, and its precursors, especially for NO_X and SO_X, and conclude that California has an extensive and effective program for limiting emissions of such pollutants. Thus, we propose that California will not interfere with maintenance of the 2006 $PM_{2.5}$ NAAQS in any western state.

The California Transport Plan did not evaluate $PM_{2.5}$ transport to states farther east than Montana, Wyoming, Colorado, and New Mexico. As with our evaluation for prong 1, above, to evaluate the potential for transport of $PM_{2.5}$ and its precursors to eastern states, we have reviewed modeling data from CSAPR and recent air quality data to identify the westernmost area in the east with a potential maintenance

[110] ''Air Quality Modeling Final Rule [TSD]'' for the CSAPR final rule, EPA, June 2011, pp. D–11 to D–12.

[111] ''Emissions Inventory Final Rule [TSD]'' for the CSAPR final rule, EPA, June 28, 2011, Tables 7–1 and 7–2.

[112] EPA 2016 Design Value Reports, spreadsheet entitled ''Table 6, Site DV History,'' July 14, 2017, available at: *https://www.epa.gov/air-trends/air-quality-design-values#report.*

receptor.[113] We then compared California's likely contributions to those of states in the east that may interfere with maintenance at that receptor, considering several pieces of evidence.

CSAPR identified maintenance receptors for the 2006 $PM_{2.5}$ NAAQS in numerous eastern states using a 2012 base case and projected forward to 2014.[114] The westernmost of these was in Madison County, Illinois (AQS ID 171190023).[115] As with our analysis for prong 1, we looked at the westernmost of these states because its relative position with respect to California might help to determine whether the EPA should evaluate $PM_{2.5}$ transport to any state farther east. In reviewing recent air quality data, including 2014–2016 24-hour $PM_{2.5}$ design values, many of those receptors recorded ambient 24-hour $PM_{2.5}$ concentrations consistently below 35 $\mu g/m^3$.[116] Notwithstanding, we further examined this Madison receptor as the westernmost potential maintenance receptor in the East.

The westernmost states that were linked to this Madison receptor (*i.e.,* contributing over one percent (0.35 $\mu g/m^3$) of the 2006 24-hour $PM_{2.5}$ NAAQS) were Iowa and Missouri, which each share a border with Illinois. Iowa was projected to contribute 0.40 $\mu g/m^3$ and is about 220 km from this receptor, while Missouri was projected to contribute 3.71 $\mu g/m^3$ and is about 5 km from this receptor.[117] The six states that were analyzed within CSAPR and are situated west of Iowa and Missouri, including North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas, were not linked to the Madison receptor. As discussed in our evaluation for prong 1, above, we compared the 2014 base case NO_X and SO_2 emissions of Kansas and Texas to those of California. Because these states are not linked to the potential Madison maintenance receptor, and because California is even farther (about 2,215 km) from the receptor and is separated from this receptor by the Rocky Mountains and Great Plains, it would be even less likely for California to interfere with maintenance at this site than Kansas and Texas.

Furthermore, as summarized in the section II.C.5 of this proposed rule, in response to California and local control measures, as well as federal measures for sources outside California's regulatory authority, from 2000 to 2016 California's total statewide emissions, excluding wildfires and prescribed fires, decreased by 75 percent for $PM_{2.5,}$ 66 percent for NO_X, 54 percent for VOCs, and 75 percent for SO_2. For NO_X and VOCs, these reductions are consistent with the EPA's projection that California emissions will be reduced by 28 percent for NO_X and 13% for VOCs from 2011 to 2017.

We conclude that California emission sources will not interfere with maintenance of the 2006 $PM_{2.5}$ NAAQS at this site. This is based on the generally improved air quality in the East since the EPA's analysis in 2011 for CSAPR, which identified fewer potential maintenance receptors; the distance of the potential Madison County, Illinois maintenance receptor from California; intervening terrain; our analysis of the westernmost states linked, and not linked, to the Madison receptor and comparison of California emissions; and the large reductions in emissions of $PM_{2.5}$ and its precursors in California. As the distance from California to the other potential eastern maintenance receptors is even greater, the expected contribution from California to 24-hour $PM_{2.5}$ concentrations at such receptors would be even smaller. Thus, we propose that California will not interfere with maintenance of the 2006 $PM_{2.5}$ NAAQS in any state farther east than Montana, Wyoming, Colorado, and New Mexico.

6. Evaluation for the 2012 Annual $PM_{2.5}$ NAAQS

We agree with CARB that California does not significantly contribute to nonattainment, or interfere with maintenance, of the 2012 annual $PM_{2.5}$ NAAQS in any other state. However, there were some differences between the receptors identified by CARB and those identified by the EPA that affects which areas we evaluated for interstate transport. CARB identified two monitors in Idaho (Lemhi and Shoshone Counties) as nonattainment receptors, *i.e.,* they exceeded the 2012 $PM_{2.5}$ NAAQS (12.0 $\mu g/m^3$) in the most recent period available at the time the SIP was developed (2012–2014). CARB looked to identify maintenance receptors as monitors that exceeded the standard in either the 2010–2012 or 2011–2013 design value periods, but not in 2012–2014, and found none.[118] This method is consistent with past EPA practice for the 2006 $PM_{2.5}$ NAAQS in the western U.S. because CARB adopted the California Transport Plan before the EPA released the 2012 $PM_{2.5}$ NAAQS Transport Memo.

As discussed above, the EPA's modeling used ambient $PM_{2.5}$ data from 2009–2013, emissions inventory data from the 2011 NEI, and other information to project annual $PM_{2.5}$ design values for 2017 and 2025. We rely on this modeling for the 2012 $PM_{2.5}$ NAAQS because it accounts for the effect of emission reductions from planned federal, state, and local measures, as well as input from state, local, industry, and community entities, to project where violations, or potential violations, of the NAAQS will occur. In other words, the modeling provides a more accurate accounting of the areas that warrant further analysis for interstate transport. In addition, where projected design values for 2017 and 2025 differ with respect to identification of receptors, we have evaluated what the projected air quality may be in 2021, as noted in section II.C.3 of this proposed rule.

The EPA's 2012 $PM_{2.5}$ NAAQS Transport Memo did not identify any potential nonattainment receptors outside of California for the 2012 annual $PM_{2.5}$ NAAQS, but did identify a potential maintenance receptor in Shoshone County, Idaho and a potential maintenance receptor in Allegheny County, Pennsylvania. Accordingly, we have evaluated CARB's weight of evidence for Shoshone County as a maintenance receptor rather than a nonattainment receptor.

For Lemhi County, the receptor was not identified in the EPA's modeling but was identified as a nonattainment receptor by CARB. Thus, while we have not included the Lemhi County monitor as either a nonattainment or maintenance receptor for the 2012 $PM_{2.5}$ NAAQS, we include discussion of Lemhi County alongside our discussion of Shoshone County, given their similar characteristics with respect to $PM_{2.5}$ air pollution and its similar location relative to California. While we have not prepared a separate TSD for our evaluation of interstate transport for the 2012 $PM_{2.5}$ NAAQS, we do rely, in part, on the information presented in the EPA's $PM_{2.5}$ Transport TSD (for the 2006 24-hour $PM_{2.5}$ NAAQS) given the importance of generally higher winter $PM_{2.5}$ concentrations to the annual

[113] The EPA modeled the contribution of states within the East to each receptor for CSAPR, but did not model the contribution of any state further west, such as California.

[114] 76 FR 48208 at 48243–48244 (August 8, 2011), Table V.D–6.

[115] Note that this monitor is distinct from the monitor discussed for prong 1 (AQS ID 171191007), although both are in Madison County, Illinois.

[116] EPA 2016 Design Value Reports, spreadsheet entitled ''Table 6, Site DV History,'' July 14, 2017, available at: *https://www.epa.gov/air-trends/air-quality-design-values#report.* We note that data quality issues in Illinois and four counties in Florida prevent the calculation of valid design values for recent years.

[117] ''Air Quality Modeling Final Rule [TSD]'' for the CSAPR final rule, EPA, June 2011, pp. D–13 to D–14.

[118] California Transport Plan, App. B, p. B–2.

concentrations, particularly at the Idaho receptors.

In addition, we include our own weight of evidence analysis with respect to Allegheny County because the California Transport Plan did not evaluate $PM_{2.5}$ transport to states farther east than Montana, Wyoming, Colorado, and New Mexico.

i. Evaluation for Interference With Maintenance (Prong 2)

For Lemhi and Shoshone Counties, as described in our analysis for the 2006 24-hour $PM_{2.5}$ NAAQS above, CARB notes that both counties are largely mountainous and the monitors are located in valleys that lie approximately 3,000 feet below surrounding mountain peaks, which limit the transport of air pollution.[119] The receptors are about 610 and 685 km, respectively, from the northeast corner of California and are separated from California by the Sierra Nevada, Cascade, and Bitterroot mountain ranges. Both areas are rural with small, decreasing populations and decreasing VMT. The receptor in Shoshone County is within the West Silver Valley nonattainment area for the 2006 $PM_{2.5}$ NAAQS.

CARB states that the IMPROVE monitors at the Craters of the Moon National Park and Sawtooth National Forest in Idaho recorded single-year annual $PM_{2.5}$ concentrations that are well below the annual standard (*i.e.,* in the range of 2–7 $\mu g/m^3$), that the highest 24-hour $PM_{2.5}$ concentrations at these monitors are directly linked to western wildfires, and that weighted emission potential (WEP) analyses indicate that the worst visibility days are the result of more localized regional influences.[120] CARB asserts that the IMPROVE data and WEP analyses indicate that even on the worst days, there are only minor impacts from California and that California's contributions occur most often during the days with the best visibility.

CARB notes that highest 24-hour $PM_{2.5}$ concentrations are observed in winter, that the lowest concentrations are generally observed in summer, and that wildfire impacts occurred in August–September 2012 when such concentrations exceeded 200 $\mu g/m^3$.[121] CARB states that residential wood burning, especially during winter inversions, is the primary contributor to exceedances of both the 24-hour and annual $PM_{2.5}$ NAAQS at the Lemhi and Shoshone Counties monitors, aside from the 2012 wildfire effects. For the Shoshone receptor, motor vehicles were also identified as a primary contributor, as well as open burning and slash burning.

We have reviewed the information compiled and presented in the California Transport Plan, including distance of these monitors from California; intervening terrain; wildfire effects; local topography; the effect of local emission sources on wintertime exceedances of the 24-hour NAAQS and the effect of those exceedances on annual $PM_{2.5}$ concentrations; and rural background levels represented by IMPROVE data. We have reviewed California's emissions and emission control programs for $PM_{2.5}$, and its precursors, especially for NO_X and SO_X, and conclude that California has an extensive and effective program for limiting emissions of such pollutants. Thus, we propose that California will not interfere with maintenance of the 2012 $PM_{2.5}$ NAAQS in Idaho or any other western state.

To evaluate the potential for transport of $PM_{2.5}$ and its precursors to Allegheny County, Pennsylvania, we first examined whether this monitor should in fact be a maintenance receptor given that the EPA's 2012 $PM_{2.5}$ NAAQS Transport Memo indicates that the monitor is projected to exceed the annual $PM_{2.5}$ standard of 12.0 $\mu g/m^3$ in 2017, but be below it in 2025.[122] Areas initially designated as Moderate nonattainment areas for the 2012 $PM_{2.5}$ NAAQS, such as Allegheny County, must attain the NAAQS by December 31, 2021. A simple linear interpolation between the 2017 and 2025 projected design values leads to a projected 2021 average design value of 11.42 $\mu g/m^3$ and a 2021 maximum design value of 11.91 $\mu g/m^3$, which are both below the 2012 $PM_{2.5}$ NAAQS.

The Allegheny receptor is about 3,100 km from the California border and is separated from California by the Rocky Mountains, the Great Plains, and the Ohio Valley. Even with the generally westerly wind direction from California, this large distance and the intervening mountainous terrain serve as barriers to $PM_{2.5}$ transport to Allegheny County. In EPA modeling for the 2006 $PM_{2.5}$ NAAQS in the CSAPR final rule, the receptor in Allegheny County was linked to interference with maintenance from other states.[123] While California was not analyzed in that modeling, some conclusions can be drawn from the results. First, Illinois was the most westward and distant state linked to the Allegheny receptor and it is about 650 km from the receptor, or about one-fifth of the distance from California to the receptor. Second, states farther west than Illinois, such as Arkansas, Iowa, Kansas, Missouri, Nebraska, Oklahoma, and Texas, were all included in the modeling and were not linked to Allegheny County, *i.e.,* the contribution of these states to the Allegheny County receptor was below the one percent contribution threshold used in CSAPR for the 2006 24-hour $PM_{2.5}$ NAAQS. These states are each closer to Allegheny County than California and, in the case of Texas, emitted larger amounts of NO_X and SO_2.[124]

Consistent with our guidance, we have also considered additional information about emissions and air quality trends. As summarized in section II.C.5 of this proposed rule, in response to California State and local control measures, as well as federal measures for sources outside California's regulatory authority, from 2000 to 2016 California's total statewide emissions, excluding wildfires and prescribed fires, decreased by 75 percent for $PM_{2.5}$, 66 percent for NO_X, 54 percent for VOCs, and 75 percent for SO_2. For NO_X and VOCs, these reductions are consistent with the EPA's projection that California emissions will be reduced by 28 percent for NO_X and 13 percent for VOCs from 2011 to 2017. We reviewed the annual $PM_{2.5}$ design value history over the last decade for the Allegheny receptor and found that it has decreased steadily from 19.8 $\mu g/m^3$ for 2005–2007 to 12.6 $\mu g/m^3$ for 2013–2015, with a slight increase to 12.8 $\mu g/m^3$ for 2016.[125]

We conclude that California emission sources will not interfere with maintenance of the 2012 $PM_{2.5}$ NAAQS at this site. This is based on our interpolated projection that the Allegheny monitor will likely be attaining the annual $PM_{2.5}$ NAAQS in 2021; the distance of this receptor from California; intervening terrain; the contribution modeling performed for

[119] California Transport Plan, App. B.

[120] *Id.,* App. B, pp. B–4 to B–5.

[121] *Id.,* App. B, pp. B–7 to B–8 for Lemhi County and pp. B–10 to B–11 for Shoshone County.

[122] 2012 $PM_{2.5}$ NAAQS Transport Memo, Table A–3, p. 7. Average design values, which represent nonattainment receptors, are projected to be 11.67 $\mu g/m^3$ in 2017 and 11.18 $\mu g/m^3$ in 2025 at the Allegheny County receptor. Maximum design values, which represent maintenance receptors, are projected to be 12.15 $\mu g/m^3$ in 2017 and 11.65 $\mu g/m^3$ in 2025.

[123] 76 FR 48207, 48241 (August 8, 2011), Table V.D–3.

[124] ''Emissions Inventory Final Rule [TSD]'' for the CSAPR final rule, EPA, June 28, 2011, Tables 7–1 and 7–2. The 2014 (base case) total annual emissions for California and Texas were as follows: California (942,254 tpy NO_X and 199,268 tpy SO_2); Texas (1,372,735 tpy NO_X and 704,311 tpy SO_2).

[125] EPA 2016 Design Value Reports, spreadsheet entitled ''Table 6, Site DV History,'' July 14, 2017, available at: *https://www.epa.gov/air-trends/air-quality-design-values#report.*

CSAPR; the large reductions in emissions of $PM_{2.5}$ and its precursors in California; and the general trend of decreasing annual $PM_{2.5}$ concentrations at the Allegheny receptor.

Based on our analysis that there are no nonattainment receptors outside of California for the 2012 $PM_{2.5}$ NAAQS, and our analysis presented above for the sole maintenance receptors in Idaho and Pennsylvania, we propose that California will not significantly contribute to nonattainment, or interfere with maintenance, of the 2012 $PM_{2.5}$ NAAQS in any other state.

D. Evaluation for the 2010 1-Hour SO_2 NAAQS

1. The EPA's SO_2 Evaluation Approach

As noted in section II.A of this proposed rule, the EPA first reviewed the California Transport Plan to assess how the State evaluated the transport of SO_2 to other states, the types of information California used in its analysis, how that analysis compares with prior EPA rulemaking, modeling, and guidance, and the conclusions drawn by California. The EPA then conducted a weight of evidence analysis, including review of the State's submission and other available information, including air quality, emission sources, and emission trends in the states bordering California, and California's air quality, emissions sources, control measures, and emission trends.

Although SO_2 is emitted from a similar universe of point and nonpoint sources, interstate transport of SO_2 is unlike the transport of $PM_{2.5}$ or ozone because SO_2 is not a regional pollutant and does not commonly contribute to widespread nonattainment over a large (and often multi-state) area. The transport of SO_2 is more analogous to the transport of lead (Pb) because its physical properties result in localized pollutant impacts very near the emissions source. However, ambient concentrations of SO_2 do not decrease as quickly with distance from the source as Pb because of the physical properties and release height of SO_2. Emissions of SO_2 travel farther and have wider ranging impacts than emissions of Pb but do not travel far enough to be treated in a manner similar to ozone or $PM_{2.5}$. The approaches that the EPA has adopted for ozone or $PM_{2.5}$ transport are too regionally focused and the approach for Pb transport is too tightly circumscribed to the source. SO_2 transport is therefore a unique case and requires a different approach. The EPA's evaluation of whether California has met its transport obligations was accomplished in several discrete steps, as described in section II.D.3 of this proposed rule.

2. State's Submission

The California Transport Plan presents a weight of evidence analysis to examine whether SO_2 emissions from California adversely affect attainment or maintenance of the 2010 SO_2 NAAQS in other states. In contrast to its ozone and $PM_{2.5}$ analyses, CARB states that ambient SO_2 is mainly derived from a single source or group of sources, that the highest concentrations are localized, and that the EPA has identified SO_2 as a near-source pollutant.[126] CARB finds that ambient SO_2 monitoring in neighboring states (Arizona, Nevada, and Oregon) is limited and that, except for sites adjacent to large copper smelters in Arizona, 1-hour SO_2 concentrations measured in these three states and California are well below the level of the 2010 SO_2 NAAQS, *i.e.,* 75 ppb. Therefore, CARB's weight of evidence analysis focused on the location and emissions of facilities in California, Arizona, Nevada, and Oregon; the ambient SO_2 levels measured in each of these states; ambient SO_2 trends in California; and the distance between facilities in California and the nearest state border.[127] CARB concludes that California does not contribute to nonattainment, or interfere with maintenance, of the 2010 SO_2 NAAQS in neighboring states.[128]

The California Transport Plan identified 31 facilities in California that emit more than 100 tpy of SO_X, based on CARB's 2013 Facility Emissions Inventory.[129] Of these, CARB explains that those emitting over 300 tpy of SO_X are located more than 160 miles (257 km) from the nearest state border—well beyond the one- to two-mile radius within which CARB expects maximum SO_2 concentrations to occur.[130] These facilities include petroleum refineries in the Bay Area and South Coast air districts, and cement plants in the Bay Area and Kern County air districts. Of these, only two emitted more than 1,000 tpy: Shell Martinez Refinery (1,230 tpy) and Phillips 66 Carbon Plant (1,242 tpy), a calcined petroleum coke plant, which are both located in Contra Costa County in the San Francisco Bay Area. CARB also notes that no facility in California emits more than the 2,000 tpy threshold required for characterization per the EPA's Data Requirements Rule for the 2010 SO_2 NAAQS (''SO_2 Data Requirements Rule'').[131]

More broadly, CARB contrasts the larger SO_2 emissions in the eastern U.S., which include electric generation facilities that emit in the tens to hundreds of thousands of tons of SO_2, with the smaller SO_2 emissions from California, where the largest facility emitted 1,242 tpy in 2013.[132] CARB further explains that the latter source (the Phillips 66 Carbon Plant) is 587 miles (945 km), 177 miles (285 km), and 361 miles (581 km) from the borders with Arizona, Nevada, and Oregon, respectively.[133]

Regarding ambient SO_2 measurements, CARB found the 1-hour SO_2 design value concentrations in Arizona, Nevada, and Oregon to be well below 75 ppb, with two exceptions: Monitoring sites around two copper smelters in eastern Arizona (Gila and Pinal Counties). Overall, CARB states that Arizona operated nine SO_2 monitors for the 2012–2014 period and those with complete data had 1-hour SO_2 design values ranging from 6 to 282 ppb, with violations of the 75 ppb standard occurring in the nonattainment areas surrounding the two copper smelters.[134] CARB references Arizona's designations recommendation letter to the EPA, which noted that these smelters were the primary emission sources likely to contribute to the violations of the 2010 SO_2 NAAQS.[135]

[126] California Transport Plan, pp. 1, 12–13. CARB further explains that SO_2 is a highly reactive gas and is deposited locally through wet and dry deposition processes. California Transport Plan, App. C, p. C–10.

[127] California Transport Plan, pp. 12–14.

[128] *Id.,* p. 23.

[129] *Id.,* App. C, p. C–6. CARB's Facility Emission Inventory is available at: *http://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php.*

[130] *Id.,* App. C, p. C–10. As noted previously in this proposed rule, CARB's analysis of California SO_2 emissions in based on SO_X because CARB estimates that SO_2 comprises 97% of the state-wide SO_X inventory. California Transport Plan, App. C, p. C–1. The EPA notes that the presence of maximum SO_2 concentrations within a narrow radius of a source does not automatically preclude the possibility of the source contributing to SO_2 concentrations further afield.

[131] 80 FR 51052 (August 21, 2015). The EPA's SO_2 Data Requirements Rule required states to characterize air quality in areas around sources emitting over 2,000 tpy SO_2 since the existing nationwide monitoring network had certain limitations and approximately two-thirds of the monitors were not located to characterize maximum 1-hour SO_2 concentration impacts from emission sources. We also note that, while CARB found that no facility in California emitting more than 2,000 tpy SO_2, there is a cluster of three sources in Contra Costa County that cumulatively emitted over this threshold and was subsequently characterized using monitoring. We have evaluated this cluster of sources as part of our SO_2 interstate transport analysis.

[132] California Transport Plan, App. C, pp. C–1 to C–2.

[133] *Id.,* App. C, p. C–4.

[134] *Id.,* App. C, p. C–7.

[135] *Id.,* App. C, p. C–6.

CARB included 2014 design values of 6 ppb and 8 ppb at the two Nevada monitors [136] and included the 2014 design value of 5 ppb for the Oregon SO_2 monitoring site.

The California Transport Plan states that the 1-hour SO_2 design values for 2012–2014 at 34 regulatory monitors in California ranged from 1 to 39 ppb—well below the 2010 SO_2 NAAQS.[137] Based on data from these monitors and an additional 21 special purpose monitors operated by facilities in the Bay Area AQMD and South Coast AQMD, CARB recommended that California be designated attainment.[138] Fifteen of the special purpose monitors are operated by refineries, as required by Bay Area AQMD operating permit regulations, and they recorded 2014 design values of 5 to 50 ppb. The remaining six special purpose monitors are operated by the Ports of Long Beach and Los Angeles, as part of the San Pedro Bay Clean Air Action Plan, and they recorded 2014 design values of 12 to 74 ppb.

CARB studied the trend of SO_2 design values at regulatory SO_2 monitors in California with a data record spanning 15 years, which included six sites each in the Bay Area and South Coast air districts.[139] In 1990, 1-hour SO_2 concentrations ranged from 20 to 47 ppb and 13 to 47 ppb, respectively, for the Bay Area and South Coast air districts. By 2014, 1-hour SO_2 concentrations ranged from 3 to 12 ppb and 5 to 14 ppb, respectively, and the design value at each district's highest concentration site had decreased by more than 1 ppb per year.

CARB asserts that the decline in SO_2 concentrations at the highest sites in the State were the result of emission reductions achieved by California's control programs.[140] From 2000 to 2015, CARB estimates that the following emission reductions were achieved: Stationary sources (59 percent), mobile sources (88 percent), and area sources (33 percent). CARB states that these reductions were achieved by improving emission controls and applying increasingly stringent permit requirements for stationary sources; lowering sulfur content requirements for diesel fuel for mobile sources, including on- and off-road vehicles, railroad locomotives, and marine vessels; and reducing area source emissions through rules for residential fuel combustion and managed burning and disposal.[141] CARB projected that in 2015, SO_2 will be emitted in the following amounts: Stationary sources (54 tpd: 68 percent of statewide total), mobile sources (19 tpd: 24 percent of total), and area sources (6 tpd: 8 percent of total). CARB states that California SO_X emissions continue to decline and SO_2 concentrations measured at regulatory monitoring site remain well below the 2010 SO_2 NAAQS.[142]

3. The EPA's SO_2 Evaluation

The EPA proposes to find that California meets the interstate transport requirements of CAA section 110(a)(2)(D)(i)(I) for the 2010 SO_2 NAAQS, as discussed below. First, we address the air quality, emission sources, and emission trends in the states bordering California, *i.e.,* Arizona, Nevada, and Oregon. Then we discuss California's air quality, emissions sources, control measures, and emission trends with respect to interstate transport prong 1, followed by discussion of additional California air quality trends and emission trends with respect to interstate transport prong 2. Based on that analysis, we propose to find that California will not significantly contribute to nonattainment, or interfere with maintenance, of the 2010 SO_2 NAAQS in any other state.

For the first step of our SO_2 transport evaluation, we assessed the areas of Arizona, Nevada, and Oregon that may exceed or have the potential to exceed the 2010 SO_2 NAAQS. Consistent with CARB's approach in the California Transport Plan, we focused on these three states given that the physical properties of SO_2 result in relatively localized pollutant impacts very near the emissions source. We selected the ''urban scale''—a spatial scale with dimensions from 4 to 50 kilometers (km) from point 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 at such point sources.[143] We reviewed the location of sources emitting more than 2,000 tpy (*i.e.,* SO_2 Data Requirements Rule sources) in these states and assessed whether there is any source in these states emitting more than 100 tpy of SO_2 and located within 50 km of the California state border, because elevated levels of SO_2, to which SO_2 emitted in California may have a downwind impact, are most likely to be found near such sources.

We reviewed the 2014 design value concentrations for Arizona, Nevada, and Oregon that were presented in the California Transport Plan and find them to be accurate. In addition, to assess how air quality has changed over time we also reviewed AQS data for the design value periods ending in years 2011 through 2016. We present the range of SO_2 design values in Table 5 and specific SO_2 design values at selected monitoring sites in Table 6.[144] We include California data for purposes of subsequent discussion in this proposed rule.

TABLE 5—RANGE OF SO_2 1-HOUR DESIGN VALUE CONCENTRATIONS AT REGULATORY MONITORS IN ARIZONA, NEVADA, OREGON, AND CALIFORNIA

State/area	Number of monitors with valid design values	2009–2011 Design values (ppb)	2010–2012 Design values (ppb)	2011–2013 Design values (ppb)	2012–2014 Design values (ppb)	2013–2015 Design values (ppb)	2014–2016 Design values (ppb)
Arizona (Hayden, Miami areas only)	2–4	111–259	107–285	105–266	122–282	145–246	146–280

[136] *Id.,* App. C, p. C–7.

[137] *Id.,* p. 23.

[138] *Id.,* App. C, pp. C–6 to C–7.

[139] *Id.,* App. C, p. C–9.

[140] *Id.,* App. C, p. C–3.

[141] For mobile sources, CARB gives examples of state regulations that have reduced SO_X emissions in California, including the state's regulations for reformulated gasoline (13 CCR 2250–2297) and for the sulfur content of diesel fuel (13 CCR 2281). These have been approved into the California SIP. 60 FR 43379 (August 21, 1995) and 75 FR 26653 (May 12, 2010).

[142] California Transport Plan, App. C, p. C–4.

[143] For the definition of spatial scales for SO_2, please see 40 CFR part 58, Appendix D, section 4.4 (''Sulfur Dioxide (SO_2) Design Criteria''). For further discussion on how the EPA is applying these definitions with respect to interstate transport of SO_2, *see* the EPA's proposal on Connecticut's SO_2 transport SIP. 82 FR 21351, 21352, 21354 (May 8, 2017).

[144] 2011–2016 AQS Design Value Report, AMP480, June 12, 2017. The EPA's Air Quality System (AQS) contains ambient air pollution data collected by federal, state, local, and tribal air pollution control agencies from thousands of monitors. More information is available at: *https://www.epa.gov/aqs.* For a map of SO_2 monitors and emission sources in California and its bordering states, we have included a map in the docket of this rulemaking entitled ''DRR Sources, Monitoring Sites and 2014 NEI Facilities Emitting SO_2 Within 50km of Region 9 States,'' September 11, 2017.

TABLE 5—RANGE OF SO_2 1-HOUR DESIGN VALUE CONCENTRATIONS AT REGULATORY MONITORS IN ARIZONA, NEVADA, OREGON, AND CALIFORNIA—Continued

State/area	Number of monitors with valid design values	2009–2011 Design values (ppb)	2010–2012 Design values (ppb)	2011–2013 Design values (ppb)	2012–2014 Design values (ppb)	2013–2015 Design values (ppb)	2014–2016 Design values (ppb)
Arizona (excluding Hayden, Miami areas)	1–4	9	9	6–9	6–9	5–9	4–8
Nevada	0–2	[a] (Invalid)	[a] (Invalid)	6–8	6–8	6–7	5–7
Oregon	1	9	7	6	5	4	3
California	19–28	2–17	2–25	2–36	1–39	1–20	1–18

[a] SO_2 design values are valid only when they meet the data completeness and/or data substitution test criteria codified at 40 CFR part 50, Appendix T, section 3.

TABLE 6—SO_2 1-HOUR DESIGN VALUE CONCENTRATIONS AT SELECTED REGULATORY MONITORS IN ARIZONA, NEVADA, AND CALIFORNIA [a]

State/area	AQS ID	2009–2011 Design values (ppb)	2010–2012 Design values (ppb)	2011–2013 Design values (ppb)	2012–2014 Design values (ppb)	2013–2015 Design values (ppb)	2014–2016 Design values (ppb)
Arizona/Phoenix	04–013–9812			9	9	9	8
Nevada/Reno	32–031–0016			6	6	6	5
Nevada/Las Vegas	32–003–0540			8	8	7	7
California/Sacramento	06–067–0006	2	2	2	3	5	7
California/Fresno	06–019–0011				6	5	6
California/Trona (San Bernardino Co.)	06–071–1234	9				8	6
California/Victorville (San Bernardino Co.).	06–071–0306	8	8	5	4	15	18
California/Rubidoux (Riverside Co.)	06–065–8001	7	5	3	3	3	2
California/Calexico (Imperial Co.)	06–025–0005	8	7				8

[a] These monitors were selected as being the westernmost monitors in Arizona and Nevada (*i.e.,* nearest to California), and easternmost monitors in northern, central, and southern California (*i.e.,* nearest to Arizona or Nevada), with at least three valid 1-hour design values in the last six years. A blank cell in this table indicates that the data were invalid for the applicable design value period.

These data were consistent with the assertion in the California Transport Plan that, except for Arizona's Hayden and Miami nonattainment areas, the 1-hour SO_2 levels measured in Arizona, Nevada, and Oregon are 89–96 percent below 75 ppb. Thus, at the areas represented by these monitors, there were no violations of the 2010 SO_2 NAAQS that indicate potential concern for interstate transport. Indeed, there have been slight decreases in 1-hour SO_2 levels at these monitors from already low concentrations.

To date, the only areas that have been designated nonattainment in the states bordering California are the Hayden and Miami nonattainment areas in Arizona, respectively, based on 2009–2011 monitoring data.[145] These nonattainment areas are approximately 325 km and 320 km, respectively, from the California border, which is a large distance relative to the localized range of potential 1-hour SO_2 impacts from SO_2 sources in California.

Additional sources that were evaluated under the SO_2 Data Requirements Rule include six sources across Arizona (including the portion of the Navajo Nation geographically located in Arizona), Nevada, and Oregon, listed in Table 7. These sources range from 240–460 km from California—a similarly large distance relative to the localized range of potential 1-hour SO_2 impacts from SO_2 sources in California.[146]

TABLE 7—SO_2 DATA REQUIREMENTS RULE SOURCES IN STATES BORDERING CALIFORNIA

State/tribe	Facility	Approximate distance to California (km)	2014 NEI annual emissions (tpy)
Arizona	Tucson Electric Power—Springerville Generating Station	460	6,221.0
Arizona	Arizona Electric Power Cooperative—Apache Generating Station	450	4,811.9
Arizona	Arizona Public Service—Cholla Power Plant	365	3,806.6
Navajo Nation	Navajo Generating Station	360	5,665.6
Nevada	North Valmy Generating Station	240	7,429.9
Oregon	Portland General Electric Company—Boardman Power Plant	400	7,438.6

[145] 78 FR 47191 (August 5, 2013) and 83 FR 1098 (January 9, 2018).

[146] For further discussion of the localized nature of 1-hour SO_2 impacts, and the selection of air quality models to estimate SO_2 concentrations around such sources, please see the draft "SO_2 NAAQS Designations Modeling Technical Assistance Document," EPA, August 2016, pp. 5–6, available at *https://www.epa.gov/sites/production/files/2016-06/documents/so2modelingtad.pdf.* We also note that the EPA recently designated areas surrounding these sources as Attainment/Unclassifiable or, in the case of the area near Navajo Generating Station, as Unclassifiable. 83 FR 1098 (January 9, 2018).

Based on the SO_2 emissions data of the 2014 NEI, we did not find any source in Arizona, Nevada, or Oregon that emitted more than 100 tpy of SO_2 and was located within 50 km of the California border.[147] The closest source of this type is McCarran International Airport in Las Vegas, Nevada, which emitted 265.3 tpy of SO_2 in 2014 and is located just over 50 km from the California border. More broadly, the statewide SO_2 emissions from these three states have decreased substantially, per our review of the EPA's emissions trends data.[148] From 2000 to 2016, total statewide SO_2 emissions decreased by the following proportions, resulting in the total 2016 emissions listed for each state: Arizona (38 percent decrease to 8,298 tpy); Nevada (86 percent decrease to 8,729 tpy); and Oregon (90 percent decrease to 5,469 tpy).

In summary, we find that monitored 1-hour SO_2 levels are generally well below 75 ppb; that sources emitting over 2,000 tpy of SO_2 are located at a distance well beyond a 50-km buffer from California's borders where emissions from California sources might be expected to have downwind impacts on air quality; and that the downward SO_2 emission trends in each state reduce the likelihood of SO_2 nonattainment or maintenance issues appearing in the future.[149] We now turn to our analyses of California's air quality and trends, emissions sources and trends, and control measures to assess whether California significantly contributes to nonattainment, or interferes with maintenance, of the 2010 SO_2 NAAQS in other states.

i. Evaluation for Significant Contribution to Nonattainment (Prong 1)

The EPA reviewed ambient air quality data in California to see whether there were any monitoring sites, particularly near the California border, with elevated SO_2 concentrations that might warrant further investigation with respect to interstate transport of SO_2 from emission sources near any given monitor. Over the period of 2011 through 2016, CARB and local air districts operated 34–40 regulatory SO_2 monitors, of which 20–28 have data sufficient to produce valid 1-hour SO_2 design values.[150] As described in the California Transport Plan, in 2014 the monitors operating in California produced valid design values ranging from 1–39 ppb. As in our data review for Arizona, Nevada, and Oregon, we also reviewed AQS data for the design value periods ending in years 2011 through 2016 to assess how air quality has changed over time. Based on the data presented in Tables 5 and 6, above, we find that California's more extensive network of SO_2 monitors indicate that 1-hour SO_2 levels in California are 76–99 percent below 75 ppb. The high design value of 39 ppb presented in the California Transport Plan for 2014 is the highest among the series of six design value periods, and the highest 2015 and 2016 design values were lower at 20 ppb and 18 ppb, respectively. Thus, these air quality data do not, by themselves, indicate any particular location that would warrant further investigation with respect to SO_2 emission sources that might significantly contribute to nonattainment in the bordering states.

While the 21 special purpose monitors operated by facilities in the Bay Area and South Coast air districts measured 1-hour SO_2 design values up to 50 ppb and 74 ppb, respectively, for 2012–2014, these concentrations are below the 2010 SO_2 NAAQS of 75 ppb and represent air quality at locations that are over 200 km from the California border with other states. Based on SO_2 air quality in California, we have not found any area that would warrant further investigation with respect to interstate transport of SO_2. However, because the monitoring network is not necessarily designed to find all locations of high SO_2 concentrations, this observation indicates an absence of evidence of impact but is not sufficient evidence by itself of an absence of impact. We have therefore also conducted a source-oriented analysis.

Regarding the largest sources of SO_2 emissions in California, we agree with CARB that no individual facility emitted more than 2,000 tpy of SO_2 in 2014. However, a cluster of three sources in or near Martinez, California, including the Shell petroleum refinery (1,369.0 tpy), the Tesoro petroleum refinery (647.8 tpy), and the Rhodia USA, Inc. chemical plant (382.7 tpy, now operated by Eco Services Operations Corp.), collectively emitted 2,399.5 tpy of SO_2 in 2014.[151] The air quality around this cluster of sources was characterized according to the monitoring pathway, under the requirements of the SO_2 Data Requirements Rule.[152]

The regulatory SO_2 monitor near these sources is located at 521 Jones St. in Martinez (AQS ID 06–013–2001). The 1-hour SO_2 design values at this monitor were 14 ppb for 2015 and 13 ppb for 2016—below the 2010 SO_2 NAAQS. As noted in the California Transport Plan, we find that these sources are a large distance from California's borders—approximately 700 km from Arizona, 220 km from Nevada, and 440 km from Oregon, which is a large distance to these other states' borders relative to the localized range of potential 1-hour SO_2 impacts from SO_2 sources in California. Furthermore, these sources are subject to SO_2 emission limits under Bay Area AQMD Regulation 9, Rule 1, which has been approved into the California SIP.[153]

As further support of our proposal that California SO_2 emissions are

[147] For a map of SO_2 emission sources in states bordering California, and within California, please see ''DRR Sources, Monitoring Sites and 2014 NEI Facilities Emitting SO_2 Within 50 km of Region 9 States,'' September 11, 2017, in the docket for this rulemaking. The EPA also sought to assess more recent data for California sources emitting over 100 tpy of SO_2 in the EPA's Emission Inventory System Gateway, available at: *https://www.epa.gov/air-emissions-inventories/emissions-inventory-system-eis-gateway.* Since data for all such sources were not available for years after 2014, we have relied on the data of the 2014 NEI.

[148] 1990–2016 emission inventory spreadsheets of statewide emission trends, included in the docket to this rulemaking and entitled ''1990–2016 State Tier 1 Annual Average Emission Trends—RIX Analysis.xls.'' Additional emissions trends data are available at: *https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data.*

[149] This proposed approval of the California Transport Plan for the 2010 SO_2 NAAQS 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 California's air quality status. Any such future actions, such as area designations under any NAAQS, will be based on their own administrative records and the 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 the SO_2 EPAs Data Requirements Rule (80 FR 51052, August 21, 2015) and information submitted to the EPA by states, air agencies, and third party stakeholders such as citizen groups and industry representatives.

[150] 2011–2016 AQS Design Value Report, AMP480, June 12, 2017.

[151] 2014 NEI California emission inventory spreadsheet of stationary sources emitting over 100 tpy SO_2 (''2014 NEI CA SO_2 Spreadsheet''), included in the docket to this rulemaking and entitled ''AIR17025—2014 NEI SO_2 sources by CA air district—RIX analysis.xlsx.'' We note that the emissions amounts differ slightly from CARB's 2013 Facility Emissions Inventory, though both underscore a similar magnitude of emissions (*e.g.,* hundreds or thousands of tpy).

[152] Letter from Deborah Jordan, Acting Regional Administrator, Region IX, EPA to Governor Brown of California and affiliated TSD, Chapter 6 (California), section 3 (''Technical Analysis for the San Francisco Bay Area''). The SO_2 Data Requirements Rule notes that clusters of multiple smaller sources in close proximity can cause as much impact as a single larger source and should be evaluated on a case-by-case basis, as was done for the cluster of sources in or near Martinez, California. 80 FR 51052, 51060–51062 (August 21, 2015).

[153] Bay Area AQMD Regulation 9, Rule 1 (''Sulfur Dioxide,'' amended May 20, 1992), 64 FR 30396 (June 8, 1999). With respect to petroleum refineries, this rule includes limitations on ground level SO_2 concentrations and a general emissions limitation, as well as specific emission limits for certain types of equipment.

sufficiently low to avoid an ambient impact at downwind areas in violation of the good neighbor provision, California has reduced SO_2 emissions from mobile and stationary sources, as described in the California Transport Plan, by adopting and implementing rules to limit the sulfur content of fuels. CARB mobile source rules have reduced SO_2 emissions by limiting the sulfur content of Phase 2 and Phase 3 reformulated gasoline and of diesel fuel used statewide.[154] Also, SO_2 emission reductions from industrial sources in South Coast AQMD have been reduced by air district rules for fuels used at industrial sources such as power plants, refineries, landfills, and sewage digesters.[155] Such measures will continue to limit the sulfur content of fuels that are combusted in California, thereby limiting SO_2 emissions from mobile sources statewide and stationary sources in South Coast AQMD, where a large proportion of the biggest SO_2 sources operate.

We agree with CARB that sources that emit more than 300 tpy are far from the California borders with Arizona, Nevada, and Oregon. CARB identified 10 stationary sources that emitted over 300 tpy of SO_2 based on its 2013 Facility Emissions Inventory, and we identified 12 such stationary sources based on the 2014 NEI, most of which are located near the California coast in the Bay Area and South Coast air districts.[156] As with the cluster of SO_2 sources in the area of Martinez, California, most of these sources are subject to SO_2 emission limits under air district rules of the Bay Area (petroleum refineries, calcined petroleum coke plant), Kern County (cement plant), and South Coast (petroleum refineries, calcined petroleum coke plant) that have been approved into the California SIP.[157] One of these sources, the Lehigh Southwest Cement Company plant in Cupertino, is about 260 km from the nearest bordering state, Nevada, and emitted 854 tpy of SO_2 in 2014, which is about 3.5 percent of the total SO_2 emitted in California in 2014. This source is subject to a Bay Area AQMD rule that limits NO_X emissions but does not appear to be subject to rules limiting SO_2 emissions. However, the facility's distance from Nevada and other states limit the potential for interstate 1-hour SO_2 impacts from this source.

More broadly, there were no sources in 2014 that emitted over 100 tpy of SO_2 and were within 50 km of the state's border.[158] Additionally, the statewide SO_2 emissions from all sources in California have decreased substantially, as described in the California Transport Plan and per our review of the EPA's emissions trends data.[159] From 2000 to 2016, total statewide SO_2 emissions, excluding wildfires and prescribed fires, decreased by 75 percent resulting in 2016 statewide emissions of 21,422 tpy.

In conclusion, for interstate transport prong 1, we reviewed ambient SO_2 monitoring data, SO_2 emission sources and controls, including CARB measures for mobile sources and air district measures for large stationary sources, and emission trends in California. As for Arizona, Nevada, and Oregon, monitored 1-hour SO_2 levels in California are low (most often below half the level of the 2010 SO_2 NAAQS); the 29 SO_2 sources in California that emit over 100 tpy of SO_2 are located at a distance well beyond 50 km from California's borders, the distance where emissions from California sources might be expected to have downwind impacts on air quality in bordering states; and California's decreasing SO_2 emission trend each reduce the likelihood of California emitting SO_2 in amounts that would adversely affect other states in the future.

Therefore, based on our analysis of SO_2 air quality and emission sources in Arizona, Nevada, and Oregon and our analysis of SO_2 air quality and emissions in California, we propose that California will not significantly contribute to nonattainment of the 2010 SO_2 NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

ii. Evaluation for Interference With Maintenance (Prong 2)

The EPA has reviewed the analysis presented in the California Transport Plan and has considered additional information on California air quality trends and emission trends to evaluate CARB's conclusion that California does not interfere with maintenance of the 2010 SO_2 NAAQS in other states. This evaluation builds on our evaluation of air quality and SO_2 emission sources in Arizona, Nevada, and Oregon, and our evaluation for significant contribution to nonattainment (prong 1) based on the evidence that we reviewed (*i.e.,* low ambient concentrations of SO_2, large distance of SO_2 sources from the California border, decreasing SO_2 emissions, and the existence of SIP-approved California control measures).

Complementing the 75 percent reduction in California SO_2 emissions from 2000 to 2015, we reviewed regional trends in the 99th percentile of the daily maximum 1-hour average SO_2 measurements, which are used to calculate 1-hour SO_2 design values.[160] For the western U.S. region, which includes California and Nevada, the mean of the 99th percentile ambient SO_2 concentrations decreased 46 percent from 2000 to 2015. For sources emitting over 300 tpy of SO_2 based on a combination of the 2014 NEI and the facilities identified in the California Transport Plan, we have also reviewed the trend of emissions from each such source at five year increments from 2000 thru 2015, as shown in Table 8.[161] Because the total SO_2 emissions from these facilities have decreased substantially from 2000 to 2015, coupled with their distance from the California border and the generally low SO_2 concentrations in bordering states, this trend further reduces the likelihood

[154] 13 CCR 2262 (''The California Reformulated Gasoline Phase 2 and Phase 3 Standards,'' amended December 24, 2002), 13 CCR 2262.3 (''Compliance with the CaRFG Phase 2 and CaRFG Phase 3 Standards for Sulfur, Benzene, Aromatic Hydrocarbons, Olefins, T50 and T90,'' amended August 20, 2001), and 13 CCR 2281 (''Sulfur Content of Diesel,'' amended June 4, 1997), 75 FR 26653 (May 12, 2010).

[155] South Coast AQMD Regulation 4, Rule 431.1 (''Sulfur Content of Gaseous Fuels,'' amended June 12, 1998), 64 FR 67787 (December 3, 1999) and Rule 431.2 (''Sulfur Content of Liquid Fuels,'' amended May 4, 1990), 64 FR 30396 (June 8, 1999).

[156] 2014 NEI CA SO_2 Spreadsheet. Other non-stationary sources in California emitting over 300 tpy of SO_2 include the Los Angeles and San Francisco airports, whose SO_2 emissions from aircraft are outside the regulatory authority of the State of California.

[157] Bay Area AQMD Regulation 9, Rule 1 (''Sulfur Dioxide,'' amended May 20, 1992), 64 FR 30396 (June 8, 1999); Kern County APCD Rule 407 (''Sulfur Compounds,'' adopted April 18, 1972), 37 FR 19812 (September 22, 1972); and South Coast AQMD, *see e.g.,* Regulation 20 series rules for the RECLAIM program. While the Kern County rule applicable to the California Portland Cement Company plant in Mojave, California is old, the facility is about 220 km from the nearest bordering state, Nevada.

[158] Please see the map included in the docket of this rulemaking entitled ''DRR Sources, Monitoring Sites and 2014 NEI Facilities Emitting SO_2 Within 50 km of Region 9 States,'' September 11, 2017.

[159] 1990–2016 emission inventory spreadsheets of statewide emission trends, included in the docket to this rulemaking and entitled ''1990–2016 State Tier 1 Annual Average Emission Trends—RIX Analysis.xls.'' Additional emissions trends data are available at: *https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data.*

[160] 2000–2015 1-hour daily maximum SO_2 air quality trend spreadsheet for California and Nevada, included in the docket to this rulemaking and entitled ''2000–2015 SO_2 Trend in Western US (CA–NV).xlsx.'' These and other regional air quality data trends are available at: *https://www.epa.gov/air-trends/sulfur-dioxide-trends.*

[161] This table includes stationary sources that emitted more than 300 tpy of SO_2 as identified in the 2014 NEI CA SO_2 Spreadsheet plus two additional sources cited in the California Transport Plan, App. C, p. C–10 (*i.e.,* California Portland Cement Co. and Solvay USA Inc, listed as Eco Services Operations Corp in the 2015 inventory). These data are from CARB's 2013 Facility Emissions Inventory, available at: *https://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php.*

of California emitting SO_2 in amounts that would interfere with maintenance of the 2010 SO_2 NAAQS in other states.

TABLE 8—EMISSIONS TRENDS FOR CALIFORNIA SOURCES THAT EMITTED OVER 300 tpy OF SO_2 IN 2014

CARB facility ID (2015)	Facility name (2015)	Air district (county)	2000 (tpy)	2005 (tpy)	2010 (tpy)	2015 (tpy)
21360	Phillips 66 Carbon Plant (petroleum coke calciner).	Bay Area (Contra Costa)	1,728	1,212	1,151	1,519
11	Shell Martinez Refinery	Bay Area (Contra Costa)	2,556	1,670	1,208	1,093
17	Lehigh Southwest Cement Company.	Bay Area (Santa Clara)	473	310	492	1,058
14628	Tesoro Refining and Marketing Co. LLC.	Bay Area (Contra Costa)	5,423	2,646	470	962
174655	Tesoro Refining and Marketing Co. LLC.	South Coast (Los Angeles) ...	1,705	1,221	594	503
9	California Portland Cement Co.	Kern County	1,168	1,136	1,089	472
10	Chevron Products Company ..	Bay Area (Contra Costa)	1,247	1,566	367	381
21359	Phillips 66 Company—San Francisco Refinery.	Bay Area (Contra Costa)	705	407	414	365
171109	Phillips 66 Company/Los Angeles Refinery.	South Coast (Los Angeles) ...	587	245	295	340
800089	ExxonMobil Oil Corporation ...	South Coast (Los Angeles) ...	725	574	353	333
174591	Tesoro Refining & Marketing Co LLC, (petroleum coke calciner).	South Coast (Los Angeles) ...	408	178	240	329
800030	Chevron Products Co	South Coast (El Segundo)	1,006	396	425	300
22789	Eco Services Operations Corp.	Bay Area (Contra Costa)	276	240	308	186
178639	Eco Services Operations LLC	South Coast (Los Angeles) ...	242	390	390	19
Total	.....	.....	18,250	12,193	7,793	7,861

Beyond this important subset of stationary sources, as discussed in our evaluation for significant contribution to maintenance herein, California has reduced SO_2 emissions from mobile and stationary sources, as described in the California Transport Plan, by adopting and implementing rules to limit the sulfur content of fuels. These include CARB mobile source rules limiting the sulfur content of Phase 2 and Phase 3 reformulated gasoline and of diesel fuel used statewide, as well as air district rules limiting SO_2 emissions from industrial sources such as power plants, refineries, landfills, and sewage digesters.

In conclusion, for interstate transport prong 2, we reviewed additional information on California air quality trends and emission trends, as well as the evidence considered for interstate transport prong 1. We find that from 2000 to 2015 both ambient SO_2 concentrations and SO_2 emissions from California's largest stationary sources have decreased substantially; and that state and local measures to limit the sulfur content of fuels and limit SO_2 emissions will continue to limit SO_2 emissions that might adversely affect other states. Accordingly, we propose that California SO_2 emission sources will not interfere with maintenance of the 2010 SO_2 NAAQS in any other state, per the requirements of CAA section 110(a)(2)(D)(i)(I).

III. Proposed Action

We have reviewed the California Transport Plan for the 2008 ozone, 2006 $PM_{2.5}$, 2012 $PM_{2.5}$, and 2010 SO_2 NAAQS using step-wise processes. Based on this review and additional analyses conducted by the EPA to verify and supplement the California Transport Plan, and consistent with CAA section 110(a)(2)(D)(i)(I) and EPA guidance with respect to interstate transport for these NAAQS, we propose that California will not significantly contribute to nonattainment, or interfere with maintenance, of the 2008 ozone, 2006 $PM_{2.5}$, 2012 $PM_{2.5}$, and 2010 SO_2 NAAQS in any other state. Accordingly, we propose to approve California's Transport SIP as satisfying the requirements of CAA section 110(a)(2)(D)(i)(I) for these NAAQS.

We will accept comments from the public on these proposals for the next 30 days and plan to follow with a final action. The deadline and instructions for submission of comments are provided in the ''Date'' and ''Addresses'' sections at the beginning of this proposed rule.

IV. 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, the EPA's role is to approve state choices, provided that they meet the criteria of the Clean Air Act. Accordingly, this proposed action merely proposes to approve 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 Orders 12866 (58 FR 51735, October 4, 1993) and 13563 (76 FR 3821, January 21, 2011);
- Is not an Executive Order 13771 (82 FR 9339, February 2, 2017) regulatory action because SIP approvals are exempted under Executive Order 12866;
- 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 (Pub. L. 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 the EPA with the discretionary authority to address disproportionate human health or environmental effects with practical, appropriate, 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 the 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, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur dioxide, Volatile organic compounds.

Authority: 42 U.S.C. 7401 *et seq.*

Dated: January 26, 2018.

Alexis Strauss,

Acting Regional Administrator, Region IX.

[FR Doc. 2018–02462 Filed 2–6–18; 8:45 am]

BILLING CODE 6560–50–P