6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R09-OAR-2020-0425; FRL-8723-02-R9]

Approval of Air Quality Implementation Plans; California; Sacramento Metro Area; 2008 8-Hour Ozone Nonattainment Area Requirements

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA) is taking final action to approve portions of two state implementation plan (SIP) revisions submitted by the State of California to meet Clean Air Act (CAA or "Act") requirements for the 2008 8-hour ozone national ambient air quality standards (NAAQS or "standards") in the Sacramento Metro ozone nonattainment area ("Sacramento Metro Area"). These SIP revisions address the CAA nonattainment area requirements for the 2008 ozone NAAQS, such as the requirements for an emissions inventory, an attainment demonstration, reasonable further progress, reasonably available control measures, and contingency measures, and it establishes motor vehicle emissions budgets. The EPA is taking final action to approve these revisions as meeting all the applicable ozone nonattainment area requirements, except for the State's contingency measures revision. The EPA is deferring action on this revision related to contingency measures.

DATES: This rule will be effective on **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA-R09-OAR-2020-0425. All documents in the docket are listed on the *https://www.regulations.gov* website. Although listed in the index, some information is not publicly available, e.g., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will

be publicly available only in hard copy form. Publicly available docket materials are available through *https://www.regulations.gov*, or please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section for additional availability information. If you need assistance in a language other than English or if you are a person with disabilities who needs a reasonable accommodation at no cost to you, please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section.

FOR FURTHER INFORMATION CONTACT: Jerry Wamsley, Air Planning Office (AIR-2), EPA Region IX, 75 Hawthorne Street, San Francisco, CA 94105, (415) 947-4111 or *Wamsley.Jerry@epa.gov*.

SUPPLEMENTARY INFORMATION:

Table of Contents

I. Summary of the Proposed Action

On October 29, 2020, the EPA proposed to approve, under CAA section 110(k)(3), and to conditionally approve, under CAA section 110(k)(4), portions of submittals from the State of California as revisions to the California SIP for the Sacramento Metro ozone nonattainment area.[1] The principal submittals are as follows: "Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment Plan and Reasonable Further Progress Plan," ("2017 Sacramento Regional Ozone Plan"); and the Sacramento Metro portion of the California Air Resource Board's (CARB) "2018 Updates to the California State Implementation Plan" ("2018 SIP Update").[2] In

[1] 85 FR 68509 (October 29, 2020).
[2] The State submitted the 2017 Sacramento Regional Ozone Plan and the 2018 SIP Update on December 18, 2017, and December 5, 2018, respectively. Our proposed rule provides our detailed review of CAA procedural requirements related to these submissions.

this notice, we refer to these submittals collectively as the "Sacramento Metro Area Ozone SIP" or the "Plan," and we refer to our October 29, 2020 proposed action as the "proposed rule."

The Sacramento Metro Area consists of Sacramento and Yolo counties and portions of El Dorado, Placer, Solano, and Sutter counties.[3] Several local air agencies have their jurisdictions within this area. Sacramento County is under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). Yolo County and the eastern portion of Solano County are under the jurisdiction of the Yolo-Solano AQMD (YSAQMD). The southern portion of Sutter County is under the jurisdiction of the Feather River AQMD (FRAQMD). The western portion of Placer County is under the jurisdiction of the Placer County Air Pollution Control District (PCAPCD). Last, the western portion of El Dorado County is under the jurisdiction of the El Dorado County AQMD (EDCAQMD). In this action, we refer to these five districts collectively as the "Districts." Under California law, each air district is responsible for adopting and implementing stationary source rules, while CARB adopts and implements consumer products and mobile source rules. The Districts' and State's rules are submitted to the EPA by CARB.

In our proposed rule, we provided background information on the ozone standards,[4] area designations, related SIP revision requirements under the CAA, and the EPA's implementing regulations for the 2008 ozone standards, referred to as the 2008 Ozone SIP Requirements Rule ("2008 Ozone SRR"). To summarize, the Sacramento Metro Area is classified as Severe nonattainment for the 2008 ozone standards; consequently, the Sacramento Metro Area Ozone

[3] For a precise description of the geographic boundaries of the Sacramento Metro Area for the 2008 ozone standards, refer to 40 CFR 81.305. Specifically included portions are the eastern portion of Solano County, the western portions of Placer and El Dorado counties outside of the Lake Tahoe Basin, and the southern portion of Sutter County.

[4] Ground-level ozone pollution is formed from the reaction of volatile organic compounds (VOC) and oxides of nitrogen (NO_X) in the presence of sunlight. The 1-hour ozone NAAQS is 0.12 parts per million (ppm) (one-hour average), the 1997 ozone NAAQS is 0.08 ppm (eight-hour average), and the 2008 ozone NAAQS is 0.075 ppm (eight-hour average). CARB refers to reactive organic gases (ROG) in some of its ozone-related submittals. The CAA and the EPA's regulations refer to VOC, rather than ROG, but both terms cover essentially the same set of gases. In this final rule, we use the term VOC to refer to this set of gases.

SIP was developed to address the CAA requirements for this Severe nonattainment area in meeting the 2008 ozone NAAQS.

In our proposed rule, we also discussed a decision issued by the D.C. Circuit Court of Appeals in *South Coast Air Quality Management Dist. v. EPA* ("*South Coast II*")[5] that vacated certain portions of the EPA's 2008 Ozone SRR. The only aspect of the *South Coast II* decision that affects this action is the vacatur of the provision in the 2008 Ozone SRR that allowed states to use an alternative baseline year for demonstrating reasonable further progress (RFP). To address this decision, CARB, in the 2018 SIP Update, submitted an updated RFP demonstration that relied on a 2011 baseline year, as required, along with updated motor vehicle emissions budgets (MVEBs or "budgets") associated with the new RFP milestone years.[6]

Within our proposed rule, we reviewed the various SIP elements contained in the Sacramento Metro Area Ozone SIP, evaluated them for compliance with CAA statutory and regulatory requirements, and concluded that they met all applicable requirements, with the exception of the contingency measures element, for which the EPA proposed conditional approval. Below, we provide a summary review of our proposed rule, by SIP element.

- We found that CARB and the Districts met all applicable procedural requirements for public notice and hearing prior to the adoption and submittal of the components of the Sacramento Metro Area Ozone SIP, i.e., the 2017 Sacramento Regional Ozone Plan and the Sacramento Metro portion of CARB's 2018 SIP Update.[7]
- We proposed to approve the base year emissions inventory element in the 2017 Sacramento Regional Ozone Plan as meeting the requirements of CAA sections 172(c)(3)

[5] *South Coast Air Quality Management Dist. v. EPA*, 882 F.3d 1138 (D.C. Cir. 2018). The term "*South Coast II*" is used in reference to the 2018 court decision to distinguish it from a decision published in 2006 also referred to as "*South Coast*." The earlier decision involved a challenge to the EPA's Phase 1 implementation rule for the 1997 ozone NAAQS. *South Coast Air Quality Management Dist. v. EPA*, 472 F.3d 882 (D.C. Cir. 2006).
[6] In a letter dated December 18, 2019, from Richard W. Corey, Executive Officer, CARB, to Michael Stoker, Regional Administrator, EPA Region 9, CARB requested withdrawal of the RFP demonstration included in the 2017 Sacramento Regional Ozone Plan submitted previously. The RFP demonstration in the 2018 SIP Update replaced the demonstration in the 2017 Plan.
[7] 85 FR 68509, 68511–68512.

and 182(a)(1) and 40 CFR 51.1115 for the 2008 ozone NAAQS. Based on our review, we proposed to find that the future year baseline projections in the 2017 Sacramento Regional Ozone Plan are properly supported by SIP-approved stationary and mobile source measures.[8]

- We proposed to approve the reasonably available control measures (RACM) demonstration element in the 2017 Sacramento Regional Ozone Plan as meeting the requirements of CAA section 172(c)(1) and 40 CFR 51.1112(c) for the 2008 ozone NAAQS. Based on our review of the State and Districts' RACM analyses and the Districts' and CARB's adopted rules, we proposed to find that there are, at this time, no additional RACM that would further advance attainment of the 2008 ozone NAAQS in the Sacramento Metro Area.[9]
- We proposed to approve the attainment demonstration element for the 2008 ozone NAAQS in the 2017 Sacramento Regional Ozone Plan as meeting the requirements of CAA section 182(c)(2)(A) and 40 CFR 51.1108. In our review provided in the proposed rule, we observed that the Plan followed the modeling procedures recommended in the EPA's Modeling Guidance and showed excellent performance in simulating observed ozone concentrations in the 2012 base year. Given the extensive discussion of modeling procedures, tests, and performance analyses called for in the modeling protocol, the good model performance, and the model response to emissions changes consistent with observations, we proposed to find that the modeling is adequate for purposes of supporting the attainment demonstration.[10]
- We proposed to approve the rate of progress (ROP) demonstration element in the 2017 Sacramento Regional Ozone Plan as meeting the requirements of CAA 182(b)(1) and 40

[8] Id. at 68513–68515.
[9] Id. at 68516–68518.
[10] Id. at 68518–68523.

CFR 51.1110(a)(2) for the 2008 ozone NAAQS.[11] As noted in the proposed rule, in 2015, the EPA approved a 15 percent ROP plan for the Sacramento Metro Area for the 1-hour ozone NAAQS and 1997 8-hour ozone NAAQS.[12]

- We proposed to approve the RFP demonstration element in Section V – SIP Elements for the Sacramento Metropolitan Area of the 2018 SIP Update (as clarified) as meeting the requirements of CAA sections 172(c)(2), 182(b)(1), and 182(c)(2)(B), and 40 CFR 51.1110(a)(2)(ii) for the 2008 ozone NAAQS. We proposed to find that CARB and the Districts used the most recent planning and activity assumptions, emissions models, and methodologies in developing the RFP baseline and milestone year emissions inventories. Also, we proposed to find that the Districts and CARB used an appropriate calculation method to demonstrate RFP. Lastly, we proposed to find that the Districts' use of oxides of nitrogen ($NO_{X)NAAQS}$ substitution is warranted and appropriately implemented based on the NO_X-limited conditions in the Sacramento Metro Area, and the area's greater responsiveness to NO_X emissions reductions relative to VOC emissions reductions.[13]
- We proposed to approve the vehicle miles traveled (VMT) emissions offset demonstration element in the 2017 Sacramento Regional Ozone Plan as meeting the requirements of CAA section 182(d)(1)(A) and 40 CFR 51.1102 for the 2008 ozone NAAQS. Based on our review of revised Sacramento Metro Area VMT emissions offset demonstration in the 2017 Sacramento Regional Ozone Plan, we proposed to find that CARB's analysis is consistent with the August 2012 Guidance and with the emissions and vehicle activity estimates found elsewhere in the 2017 Sacramento Regional Ozone Plan. Also, we proposed to find that CARB and the Sacramento Area Council of Governments (SACOG) have adopted sufficient transportation control strategies (TCSs) and transportation control measures (TCMs) to offset the growth in emissions from

[11] Id. at 68523–68525
[12] 80 FR 4795 (January 29, 2015).
[13] 85 FR 68509, 68523–68525.

growth in VMT and vehicle trips in the Sacramento Metro Area for the purposes of the 2008 ozone NAAQS.[14]

- We proposed to approve the MVEBs in Section V – SIP Elements for the Sacramento Metropolitan Area of the 2018 SIP Update for the RFP milestone year of 2023, and the attainment year of 2024 and find that these budgets are consistent with the RFP and attainment demonstrations for the 2008 ozone NAAQS proposed for approval and the budgets meet the other criteria in 40 CFR 93.118(e).[15] We reviewed the budgets in the Sacramento Metro Area Ozone SIP and proposed to find that they are consistent with the attainment and RFP demonstrations for which we proposed approval, are based on control measures that have already been adopted and implemented, and meet all other applicable statutory and regulatory requirements including the adequacy criteria in 40 CFR 93.1118(e)(4) and (5).[16]

We also proposed to make the following findings related to other CAA requirements:

- The emissions statement element of the 2017 Sacramento Regional Ozone Plan satisfies the requirements under CAA section 182(a)(3)(B) based on our prior approvals of the Districts' emission statement rules;[17]
- The enhanced vehicle inspection and maintenance program in the Sacramento Metro Area meets the requirements of CAA section 182(c)(3) and 40 CFR 51.1102 for the 2008 ozone NAAQS;[18]
- The California SIP revision to opt out of the Federal Clean Fuels Fleet Program meets the requirements of CAA sections 182(c)(4)(A) and 246 and 40 CFR 51.1102 for the 2008 ozone NAAQS with respect to the Sacramento Metro Area;[19] and,

---

[14] Id. at 68525–68527.
[15] Table 9 in our proposed rule provides the VOC and NO_X emissions budgets that we proposed for approval.
[16] 85 FR 68509, 68529–68531.
[17] Id. at 68515–68516.
[18] Id. at 68531.
[19] Id.

- The enhanced air quality monitoring in the Sacramento Metro Area meets the requirements of CAA section 182(c)(1) and 40 CFR 51.1102 for the 2008 ozone NAAQS.[20]

Finally, under CAA section 110(k)(4), we proposed to approve conditionally the contingency measures element of the Sacramento Metro Area Ozone SIP as meeting the requirements of CAA sections 172(c)(9) and 182(c)(9) for RFP and attainment contingency measures. Our proposed approval was based on commitments by the Districts and CARB to supplement the element through submission, as a SIP revision within one year of our final conditional approval action, of new or revised rules with more stringent requirements sufficient to produce near to one year's RFP if an RFP milestone is not met, as well as continuing emission reductions from State mobile source control measures.[21]

Please see our proposed rule and the docket for more information concerning the background of this final action and for a detailed discussion of the rationale for approval or conditional approval of the above-listed elements of the Sacramento Metro Area Ozone SIP.

II. Public Comments and EPA Responses

The public comment period on the proposed rule opened on October 29, 2020, the date of its publication in the *Federal Register*, and closed on November 30, 2020. During this period, the EPA received one comment letter submitted by Air Law for All on behalf of the Center for Biological Diversity and the Center for Environmental Health (collectively referred to as "CBD" herein). Before we provide a detailed summary of and response to each of these comments in Section II.B, we provide a brief review of ozone chemistry and terminology as it relates to our responses to comments concerning the Plan's use of NO_X substitution and the NO_X-limited conditions in the Sacramento Metro Area.

A. Review of Ozone Chemistry and NO_X Substitution Effects

[20] Id. at 68531–68532.
[21] Id. at 68527–68529.

As explained in the proposed rule, ground-level ozone pollution is formed from the reaction of volatile organic compounds (VOCs) and NO_X in the presence of sunlight. When VOC is abundant compared to NO_X, i.e., when there is a high ratio of VOCs relative to NO_X ("VOC:NO_X ratio"), NO_X is a limiting ingredient for ozone formation, and reducing NO_X emissions causes ozone to decrease. An area with these conditions may be described as "NO_X-limited," which is the terminology used in this notice. Elsewhere, "NO_X-limited" is sometimes used in a stronger, relative sense to mean that NO_X emissions reductions are *more* effective than VOC reductions at reducing ozone, and an area may be described as "NO_X-limited" or "VOC-limited" as a shorthand for whether NO_X or VOC emissions reductions are more effective at reducing the area's ozone design value.[22] In contrast, in a "NO_X-saturated" area where NO_X is abundant compared to VOC, i.e., when there is a low VOC:NO_X ratio, ozone concentrations typically *increase* with NO_X emission reductions, that is, there is a "NO_X disbenefit."[23] Between the NO_X-limited and NO_X-saturated ozone chemistry regimes, there is an intermediate "transitional" regime where ozone responds weakly to NO_X emissions reductions. Which one of these three chemical regimes exists for an area can depend on the season, time of day, and the area's location relative to a source of NO_X emissions. As one moves farther downwind from an urban center, ozone formation tends to become more NO_X-limited, as the VOC:NO_X ratio increases. While there are continued VOC emissions in rural areas, there are fewer new NO_X emissions from combustion sources, and some NO_X deposits out of the atmosphere (in the form of HNO_3); as a result, peak ozone hours and downwind locations are more NO_X-limited than

[22] For example, the Plan generally uses the term "NO_X-limited" to mean that NO_X emission reductions in the Sacramento Metro Area are more effective than VOC at decreasing ozone; e.g., 2017 Sacramento Regional Ozone Plan, Appendix B-4, page B-146, Figure 13 (labeling as "NO_X-limited" the region of a typical ozone isopleth plot where NO_X reductions are more effective than VOC reductions).

[23] A NO_X disbenefit can occur under NO_X-saturated conditions because enough NO_X is present to interfere with ozone formation via VOC. VOC radicals require the hydroxyl radical (OH) to form, but OH is made unavailable when NO_X combines with it to form nitric acid (HNO_3), which then deposits out of the atmosphere. A reduction in NO_X emissions reduces this OH sink reaction, increasing the OH available to form VOC radicals and ozone.

non-peak hours and upwind or central locations.[24] When an area reduces NO_X emissions more than VOC emissions, the VOC:NO_X ratio increases and the area can transition from NO_X-saturated to NO_X-limited conditions. In general, areas in the United States have become more NO_X-limited over time, though NO_X-saturated areas and seasons remain.[25]

NO_X is emitted primarily in the form of nitric oxide (NO), which becomes nitrogen dioxide (NO_2) as it converts or "titrates" ozone (O_3) to regular oxygen (O_2). Therefore, the initial effect of a NO_X emissions increase can be to decrease ozone immediately downwind of a NO_X source, such as downtown metropolitan areas or a large fossil fuel burning power plant.[26] Farther downwind from the NO_X source, however, the NO_X can increase ozone, via reactions with VOC. Conversely, the initial effect of a NO_X emissions reduction, which is mainly a NO reduction, can be to increase ozone immediately downwind from the NO_X source because there is less remaining NO to titrate ozone to oxygen. Because of this phenomenon, it may be impossible for an area to be "NO_X-limited" at all locations, at least with respect to a given change in NO_X emissions occurring just upwind of a given location or monitor. Titration can occur under any ozone chemistry regime whether NO_X-saturation, NO_X-transitional, or NO_X-limited.

To summarize, under certain conditions, NO_X emissions can reduce existing ozone concentrations in nearby downwind areas through titration and can interfere with the formation of ozone in NO_X-saturated areas. Reducing NO_X emissions can lessen these effects and lead to ozone increases. Reducing NO_X by a larger amount can, however, change the ozone chemistry from NO_X-saturated to NO_X-limited, meaning that NO_X emission reductions can again result in

---

[24] Barbara J. Finlayson-Pitts and James N. Pitts Jr., "Tropospheric Air Pollution: Ozone, Airborne Toxics, Polycyclic Aromatic Hydrocarbons, and Particles," *Science,* Vol. 276, May 16, 1997; EPA, U. S., Health Risk and Exposure Assessment for Ozone Final Report. Office of Air Quality Planning and Standards: RTP, NC, 2014; EPA-452/R-14−004a, *https://www.epa.gov/naaqs/ozone-o3-standards-risk-and-exposure-assessments-review-completed-2015*.

[25] Wolff, G. T., Kahlbaum, D. F., & Heuss, J. M., 2013. "The vanishing ozone weekday/weekend effect," *Journal of the Air & Waste Management Association*), 63(3), 292–299, *https://doi.org/10.1080/10962247.2012.749312*
Jin et al., 2017, "Evaluating a space-based indicator of surface ozone NO_X VOC sensitivity over midlatitude source regions and application to decadal trends," *Journal of Geophysical Research: Atmospheres*, 122,10,439 10,461. *https://doi.org/10.1002/2017JD026720*; Sicard et al, 2020, "Ozone weekend effect in cities: Deep insights for urban air pollution control," *Environmental Research*, 191, 110193. *https://doi.org/10.1016/j.envres.2020.110193*.

[26] EPA, Health Risk and Exposure Assessment for Ozone Final Report, 2-5.

reduced ozone. The overall effect of NO_X emissions on an area's ozone chemistry depends on the location's existing mix of ozone and VOCs, as well as the location relative to the source of NO_X emissions.

B. Response to Comments

Comment #1: CBD notes that CAA section 182(c)(2)(C) allows a state to substitute NO_X emissions reductions for the VOC reductions otherwise required by CAA section 182(c)(2)(B) ("NO_X substitution") if it demonstrates that the combined VOC and NO_X reductions "would result in a reduction in ozone concentrations at least equivalent" to the reduction in ozone concentrations achieved through VOC emissions reductions alone. CBD argues that CAA section 182(c)(2)(C)'s use of the plural "ozone concentrations" means that an equivalency demonstration at a single monitoring site would be insufficient, and therefore asserts that Congress intended the equivalence requirement to apply throughout the nonattainment area. CBD interprets statements in the proposal that the Sacramento Metro Area is NO_X-limited to indicate that the EPA agrees that equivalence must be demonstrated throughout the nonattainment area and says that the EPA must confirm this understanding in a final rule.

Response to Comment #1: The EPA disagrees that CAA section 182(c)(2)(C)'s use of the term "ozone concentrations" warrants the commenter's narrow interpretation that equivalence must be specifically demonstrated throughout a nonattainment area. As an initial matter, we note that the Act commonly uses the term "concentrations" to refer generally to ambient pollution levels at one or more (but not necessarily multiple) monitors or locations.[27] Moreover, CAA section 182(c)(2)(C) grants the EPA discretion to define the conditions under which NO_X reductions may be substituted for or combined with VOC reductions "in order to maximize the reduction in ozone air pollution" and does not further specify the conditions that represent an "equivalent" reduction in ozone; for instance, it does not require a specific concentration test at every monitor or at specific locations within an area. No such requirement

[27] E.g., CAA section 107(e)(2); CAA section 110(a)(5)(D).

appears in the Act's other provisions governing the RFP demonstration, which define specific percentage reductions aimed at ensuring timely attainment of the NAAQS,[28] or in the EPA's 1993 NO_X Substitution Guidance, which describes a recommended procedure for states to utilize NO_X substitution.[29] We interpret CAA 182(c)(2)(C) and these supporting authorities as properly reflecting Congress' intent to allow NO_X reductions to be considered within an RFP demonstration so long as these reductions are at least as effective in reducing ozone consistent with the area's demonstration of timely attainment.[30]

Also, we disagree with the commenter's assertion that statements from the proposed rule describing the Sacramento Metro Area as NO_X-limited convey the EPA's position that NO_X substitution requires a specific demonstration of equivalence throughout all portions or monitors within a nonattainment area. As described in our proposed rule and discussed further in our responses below, NO_X-limited conditions likely persist throughout the Sacramento Metro Area, suggesting that NO_X reductions will generally be effective in reducing ozone concentrations; with these statements, we intended no other suggestion regarding the demonstration necessary to support NO_X substitution. The EPA evaluates the appropriateness of NO_X substitution on a case-by-case basis,[31] considering the balance of available evidence to support the efficacy of NO_X reductions in reducing ambient ozone concentrations as necessary for timely attainment, and consistent with the requirements of CAA section 182(c)(2)(C).

In some areas, NO_X emissions reductions may be needed for attainment, even though it may not be possible to decrease ozone concentrations simultaneously at all locations in the short

---

[28] E.g., CAA 182(b)(1) and (c)(2)(B); see also CAA 171(1) (defining RFP as "such annual incremental reductions in emissions of the relevant air pollutant as are required by this part or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date").

[29] NO_X Substitution Guidance, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, December 1993, available at *https://archive.epa.gov/ttn/ozone/web/html/index-13.html*.

[30] See id. at 8, (quoting H. Rept. No. 490, 101st Cong., 2d Sess. 239 (1990)), ("NO_X reductions may not be substituted for VOC reductions in a manner that delays attainment of the ozone standard or that results in lesser annual reductions in ozone concentration than provided for in the attainment demonstration.").

[31] NO_X Substitution Guidance at 3 ("The EPA will approve substitution proposals on a case-by-case basis. Generally speaking, any reasonable substitution proposal will be approved."); also, id. at 1 (explaining that the Guidance's purpose is "to provide a procedure that can be applied to meet the post-1996 Section 182(c)(2)(B) RFP requirement as well as the Section 182(c)(2)(C) equivalency demonstration requirements" (emphasis in original).

term. For example, in some NO_X-limited areas, reducing NO_X emissions may represent the most effective or only approach to timely attainment, but may nonetheless generate temporary ozone increases in some locations due to NO_X titration or local NO_X-saturated conditions. In these areas, we believe it is reasonable to implement NO_X reductions in lieu of some portion of the VOC emissions reductions otherwise required for RFP as part of an area's strategy for timely NAAQS attainment and notwithstanding limited short-term increases, as an alternative to pursuing relatively ineffective VOC controls. We discuss conditions for the Sacramento Metro Area in detail below, including the relative importance and efficacy of NO_X reductions for attainment.

Comment #2: CBD comments that the Plan's evidence is equivocal and insufficient to show that NO_X substitution will result in equivalent reductions in ozone concentrations throughout the nonattainment area. According to the commenter, the Plan's analysis of the "weekend effect" in the years 2000–2014 shows a shift to more NO_X-saturated conditions in the Western and Central subregions of the Sacramento Metro Area and more transitional conditions in the Eastern region, and this is not inconsistent with the independent study of conditions in the years 2001–2007 cited by the EPA. CBD says that this evidence is insufficient for the EPA to rationally conclude that the entire nonattainment area is currently NO_X-limited, and that, at most, it can only be concluded that the Eastern region is still NO_X-limited. Furthermore, CBD says that the EPA must consider changes in NO_X emissions occuring by 2024, such as the replacement of natural gas power plants by less NO_X-emitting sources, to determine whether the entire Sacramento Metro Area will be NO_X-limited through 2024.

The commenter characterizes the Plan's evidence as qualitative, rather than quantitative. The commenter states that a qualitative analysis does not address the possibility that NO_X reductions could change the characteristics of the area and argues that the definition of the word "equivalent" as used in CAA section 182(c)(2)(C) requires a quantitative analysis, such as photochemical grid modeling. The commenter notes that the Plan uses photochemical grid

modeling to analyze ozone sensitivity to NO_X reductions in the context of the attainment demonstration. CBD then states that this modeling analysis is insufficient to support the Plan's conclusion that the entire area is NO_X-limited or to show equivalence throughout the nonattainment area because the Plan includes one isopleth diagram only for the Folsom monitoring site in the Eastern subregion.[32]

According to the commenter, approving NO_X substitution based on a demonstration of equivalence at only one monitor or subregion is arbitrary for two reasons, even if it does not cause other monitors to exceed the 2008 ozone NAAQS. First, it may cause, or interfere with resolving, violations of the more protective 2015 ozone NAAQS in NO_X-saturated areas (which the commenter says would violate CAA section 110(l)). Second, increased ozone levels, even below the NAAQS, may still result in injury to public health and welfare.

Response to Comment #2: The EPA disagrees that the Plan's evidence is insufficient to support the use of NO_X substitution under CAA section 182(c)(2)(C). As discussed in our response to Comment 1, use of NO_X substitution within an RFP demonstration does not require establishing equivalent reductions in ozone concentrations throughout the nonattainment area. As discussed in detail below, the Plan shows that, overall, the area has transitioned from NO_X-saturated to NO_X-limited as NO_X emissions have declined, and that NO_X reductions are more effective than VOC reductions on a percentage basis. Consistent with these conditions, the Sacramento Metro Area has relied on, and continues to rely on, NO_X reductions to demonstrate attainment. While decreases in ozone concentrations may have been delayed initially at some locations because of the location-specific and complex behavior of NO_X in ozone formation, Sacramento Metro Area ozone design values have shown a general downward trend at all monitors from 1990 to the present, demonstrating that these locations have not experienced the increased ozone design values of concern to the commenter, and that the Plan demonstrates

[32] An "isopleth" is a line connecting points having the same value of a quantity, such as ozone concentration. Ozone isopleth diagrams typically have a series of such lines to show the ozone concentration for any combination of NO_X and VOC emissions, just as contour lines on a map show the elevation for any combination of latitude and longitude.

timely attainment of the NAAQS at all locations. For these reasons and as addressed below, we find that the Plan provides adequate evidence and justification for its use of NO_X substitution.

As we discussed in the proposed rule and our accompanying technical support document, the State concludes that NO_X reductions are more effective than VOC reductions throughout the Sacramento Metro Area.[33] The State supports this conclusion with modeling and monitoring of weekday-weekend differences in ozone formation and citations to published research papers that study these differences and the response to NO_X reductions in detail, as described below. The State estimates weekday-weekend differences in ozone concentrations using the Community Multiscale Air Quality (CMAQ) photochemical model as part of the air quality model's performance evaluation for the 2012 base year, in conjunction with the attainment demonstration. As described in the Plan, in the early 2000's the western region of the Sacramento Metro Area exhibited a "weekend effect," in which weekend ozone concentrations were higher despite having lower NO_X emissions, suggesting a NO_X disbenefit at that time.[34] The modeling results in the Plan show that the average daily maximum ozone concentrations at all monitoring sites are higher on weekdays, indicating that maximum ozone concentrations are lower when NO_X emissions are lower, and that peak ozone formation is NO_X-limited, at all monitoring sites. This is illustrated in Figure 14 from Appendix B-4 of the 2017 Sacramento Regional Ozone Plan, which shows average modeled 2012 weekday-weekend ozone concentrations above a 1:1 line, i.e., higher weekday concentrations, for all monitoring sites in each subregion in the nonattainment area (Western, Central, and Eastern).

In addition, the modeled differences in ozone concentrations are generally consistent with the monitored ambient concentrations.[35] Monitored ozone concentrations included in the Plan for each year from 2000 to 2014 generally progressed from a NO_X disbenefit, i.e., higher weekend

---

[33] 85 FR 68509, 68520 (October 29, 2020); "Modeling TSD – 2017 Sacramento Regional Ozone Plan," September 14, 2020, Air and Radiation Division, EPA Region IX, 25–26.
[34] 2017 Sacramento Regional Ozone Plan, Appendix B-4, B-148; CARB Staff Report B-33.
[35] 2017 Sacramento Regional Ozone Plan, Appendix B-4, B-149, Figure 14. For sites appearing just above the 1:1 line, modeled weekday ozone is higher by only a small amount.

concentrations, to a NO_X-limited or transitional regime, i.e., weekend concentrations lower than or about the same as weekday concentrations.[36] The Eastern subregion has shown higher concentration on weekdays than on weekends for the entire period, i.e., no "weekend effect"; this is evidence that ozone formation is NO_X-limited there. By 2014, the Western and Central subregions of the Sacramento Metro Area show nearly identical weekday and weekend concentrations, suggesting these areas had shifted to a transitional regime by that time.[37] For the Western subregion, the Plan notes that the shift toward transitional conditions occurred at ozone levels under 50 parts per billion (ppb), well below the 2008 ozone NAAQS of 75 ppb, meaning that these changes are not leading to NAAQS exceedances. Indeed, monitoring sites in the Western subregion have met the 75 ppb NAAQS from 2011 to the present day. Within the Central subregion, ambient ozone data recorded for 2011–2014 show ozone levels under 70 ppb.[38]

The Plan suggests that the shift to a transitional regime could be explained by natural year-to-year variability in biogenic VOC emissions and in local meteorology.[39] This is consistent with the relatively low level of biogenic VOC emissions during 2011–2014,[40] which would decrease the VOC:NO_X ratio and shift the atmosphere toward a transitional ozone formation regime (though not necessarily all the way to NO_X saturation). VOC emissions have also decreased steadily from 2000 to the present day,[41] and biogenic VOC emissions in the Sacramento Metro Area, while variable, are about ten times higher than those from anthropogenic sources.[42] Accordingly, the shift to smaller differences in weekday-weekend ozone concentrations seen in 2014 could be the result of natural variability in biogenic VOC emissions that causes some locations to be transitional or NO_X-saturated on some days.

---

[36] Id.
[37] Id. The commenter has interpreted the presence of points below the 1:1 line as evidence of NO_X-saturated ozone formation, but that interpretation would be supported only by points much farther below the line.
[38] 2017 Sacramento Regional Ozone Plan, Appendix B-4, B-148.
[39] Id.
[40] 2017 Sacramento Regional Ozone Plan Appendix B-2, B-31 and B-34.
[41] CARB Staff Report, B-16.
[42] CARB Staff Report, B-7.

The Plan also suggests variability in meteorology as a factor in shifting ozone chemistry between NO_X-limited and NO_X-disbenefit regimes.[43] The Plan cites a research paper that examined the effect of temperature and found that "the average O_3 is higher on weekends than on weekdays only for the lowest temperature days."[44] Natural annual variability also applies to the degree of pollutant carryover from one day to the next day; day-to-day carryover can mix weekday and weekend pollutants, making weekdays and weekends appear to be more similar. In addition, the NO_X emissions reductions that have occurred from 2000 to the present day have decreased the difference between weekday and weekend NO_X emissions, which would also decrease the differences in weekday and weekend ozone concentrations.

Although these plots of weekday-weekend ozone differences provide a useful indicator, they are not a definitive description of the ozone chemistry involved. The plots show only the resulting ozone concentrations, not any ozone precursors or meteorology whose interaction results in those concentrations. Furthermore, the weekday-weekend plots show just a single point for each monitor-year combination, the average over a year's summer days of daily maximum 8-hour ozone concentrations, rather than a point for each day. Ozone concentrations vary between the days of a single year, not just between years. A data point near the 1:1 line may indicate that weekday-weekend differences are small due to transitional chemistry on every individual day. Alternatively, it could indicate that positive differences balance out negative ones, due to a mix of high-ozone NO_X-limited days and low-ozone NO_X-saturated or transitional days. This would mean that NO_X-saturated days with lower ozone concentrations and less regulatory and health significance would be masking NO_X-limited days with higher ozone concentrations and greater significance. In the context of the analyses and evidence presented in the Plan, the smaller weekday-weekend differences in ozone concentrations in 2014 do not indicate a change in ozone

[43] 2017 Sacramento Regional Ozone Plan Appendix B-4, B-148.
[44] LaFranchi, B. W., Goldstein, A. H., and Cohen, R. C., 2011, "Observations of the temperature dependent response of ozone to NO_X reductions in the Sacramento, CA urban plume," *Atmospheric Chemistry and Physics*, 11, 6945–6960, https://doi.org/10.5194/acp-11-6945-2011, 6954 ("LaFranchi et al. 2011").

chemistry that would suggest a control strategy failure or an unknown phenomenon. As the State explains, variability in biogenic VOC emissions and in meteorology provide an explanation for some locations being transitional or NO_X-saturated on some days. We agree with the State that the weekday-weekend analyses support the conclusion that ozone formation in the Sacramento Metro Area is mainly in a NO_X-limited regime, with some periods in a NO_X-transitional regime, and that there is no disbenefit from NO_X controls. Next, we review and present additional research evidence from the Plan that further supports our conclusion that the Sacramento Metro Area's ozone chemistry is NO_X-limited.

To supplement the analysis of weekday-weekend conditions, the Plan cites several research and analysis papers examining daily and hourly concentrations of ozone, NO_X, and VOC in the years prior to 2011, which support the conclusion that ozone formation in the Sacramento area is currently NO_X-limited. Two related papers by Murphy et al., from 2006 and 2007, examine monitored data from 1998–2002 for the Central and Eastern subregions of the Sacramento Metro Area.[45] As described in these papers, the "weekend effect," i.e., conditions in which ozone concentrations are higher on weekends, was observed for monitoring sites in the Sacramento Valley (corresponding to the Central subregion).[46] The researchers attributed this largely to NO_X titration from mobile source emissions in urban Sacramento.[47] For the Mountain Counties of the Eastern subregion, the researchers found that weekday ozone concentrations were higher, consistent with NO_X-limited conditions.[48] The researchers' analysis suggests that under conditions of high concentrations of ozone and precursors flowing in from other urban areas, NO_X emission reductions of 50 percent or more would be needed to guarantee lower rates

[45] Murphy, J. G., Day, D. A., Cleary, P. A., Wooldridge, P. J., Millet, D. B., Goldstein, A. H., and Cohen, R. C., 2007, "The weekend effect within and downwind of Sacramento – Part 1: Observations of ozone, nitrogen oxides, and VOC reactivity," *Atmos. Chem. Phys.*, 7, 5327–5339*, https://doi.org/10.5194/acp-7-5327-2007* ("Murphy et al. 2007"); Murphy, J. G., Day, D. A., Cleary, P. A., Wooldridge, P. J., Millet, D. B., Goldstein, A. H., and Cohen, R. C., 2006, "The weekend effect within and downwind of Sacramento: Part 2. Observational evidence for chemical and dynamical contributions," *Atmos. Chem. Phys. Discuss.*, 6, 11971–12019, *https://doi.org/10.5194/acpd-6-11971-2006* ("Murphy et al. 2006").
[46] Murphy et al., 2007 at 5332.
[47] Murphy et al., 2007 at 5336; Murphy et. al., 2006 at 11972.
[48] Murphy et al., 2007 at 5336.

of ozone production in the Sacramento Valley portions studied, corresponding to the Central and Eastern subregions.[49] In comparison to this prospective analysis, NO_X emissions in the Sacramento Metro Area have decreased by 58 percent between 2000 and 2015. Thus, the work of Murphy et. al., along with subsequent NO_X emissions reductions, suggest that the full Sacramento Metro Area should currently be NO_X-limited.

LaFranchi et al., 2011 examines monitored data from 2001–2007 for the Central and Eastern subregions.[50] These researchers found NO_X-saturated conditions in the urban core, but mainly at lower temperatures and lower ozone concentrations, and determined that NO_X emissions reductions were effective at reducing maximum ozone concentrations.[51] The researchers also found no evidence that NO_X reductions have been detrimental to air quality. For example, the researchers found that the 30 percent decrease in NO_X and other nitrogen photochemical products from 2001 to 2007 was "extremely effective in reducing the exceedance probability at all locations during the hottest days of the year" when increases in biogenic emissions result in more NO_X-limited conditions.[52] Furthermore, the researchers note that:

> It has been argued... that NO_X decreases cause O_3 increases in the center of cities and are more detrimental to health because of the larger number of people who live in the urban core as opposed to the surrounding suburbs and rural regions. ... We find that between 2001 and 2007, the average O_3 is higher on weekends than on weekdays only for the lowest temperature days... well below the exceedance limit [California 1-hour standard of 90 ppb], increases in O_3 with decreasing NO_X are not likely to lead to additional exceedances. Thus, we find no evidence that implementation of NO_X emission controls has been detrimental to air quality, by any policy-relevant metric.[53]

Since NO_X emissions examined in the Plan and today are now lower[54] than during the periods examined in these research papers, ozone formation is now expected to be within a more NO_X-limited regime. As a result, current conditions are consistent with and fit the predictions in

---

[49] Murphy et al., 2006 at 11996.
[50] LaFranchi et al., 2011 at 6945–6960.
[51] Id. at 6954.
[52] Id.
[53] Id. at 6954–6955.
[54] Anthropogenic VOC emissions have also decreased, but because biogenic emissions are so much greater, the overall effect of the NO_X and VOC reductions has been to increase the VOC/ NO_X ratio, resulting in more NO_X-limited ozone chemistry.

LaFranchi et al., that NO_X emissions reductions decrease ozone concentrations in the Eastern subregion and more recently in the Central subregion; the possible exception being when ozone levels are already low, i.e., well below the 2008 NAAQS.

Overall, the State's evidence presented in the Plan suggests that NO_X reductions are more effective than VOC reductions at decreasing ozone concentrations in the Sacramento Metro Area. For example, LaFranchi et al., observe that "the intensity of biogenic VOC emissions have made NO_X emission reductions more effective than anthropogenic VOC emission reductions in the region, at least downwind of Del Paso [i.e., within the Central and Eastern subregions]."[55] The Plan's ozone isopleth diagram for the Folsom monitor[56] also provides strong evidence that NO_X emission reductions are more effective than VOC reductions. The State generated this diagram using photochemical grid modeling to simulate various combinations of NO_X and VOC emissions reductions and plotting the resulting ozone concentrations for the Folsom monitor, the ambient ozone monitor with the highest ozone design value in the Sacramento Metro Area. The diagram shows a nearly horizontal slope of the isopleth lines, indicating that ozone formation in the Folsom area is much more responsive to NO_X emission reductions than to VOC reductions.[57] As discussed in the proposed rule for this action, the EPA estimated from the ozone isopleth diagram in the Plan that ozone formation is about 14 times as sensitive to NO_X reductions than to VOC reductions on a percentage basis, and about 24 times as sensitive on a tons-per-year basis.[58] Because the Plan demonstrates a shift to NO_X-limited conditions throughout all subregions in the area through its review of relevant research and includes additional modeling evidence at the Folsom monitor to support the Plan's reliance on NO_X emissions reductions to achieve attainment, we disagree with CBD that additional evidence is needed to support the use of NO_X substitution under CAA section 182(c)(2)(C).

---

[55] LaFranchi et al. 2011 at 6958. Id. at 6946-6947, which notes that VOC reactivity is controlled primarily by biogenic emissions, including the urban core. This suggests that reducing anthropogenic VOC emissions may be relatively ineffective for reducing ozone.
[56] 2017 Sacramento Regional Ozone Plan Appendix B-4, B-158, Figure 16.
[57] Id.
[58] 85 FR 68509, 68522 (October 29, 2020).

We also disagree with the commenter's assertion that our proposed approval does not consider emissions changes through 2024. The Folsom isopleth diagram that supports the Plan's comparison of pre-2015 monitored weekday-weekend data shows that NO_X reductions are far more effective than VOC emissions based on 2026 emissions and including changes through and after 2024.[59] Furthermore, the changes in emissions through 2024 posited by the commenter would not alter the EPA's conclusion that NO_X substitution is appropriate. Indeed, we anticipate that the replacement of NO_X combustion sources with wind and solar electricity generation, as well as continuing mobile source NO_X reductions through 2024 and beyond, will make the Sacramento Metro Area even more NO_X-limited, thereby further strengthening the Plan's conclusions regarding the efficacy of NO_X emissions reductions compared to VOC reductions.

The EPA also disagrees that an equivalence demonstration requires a quantitative analysis. Depending on the facts and circumstances of a given nonattainment area, analytical information that establishes equivalence may be quantitative or qualitative, or both. In this instance, some of the evidence relied upon could be termed qualitative, such as the shape of curves in the isopleth diagram.[60] The Plan's modeling and monitoring analyses, and the analyses used in the cited research papers, are predominantly quantitative, with qualitative aspects and some qualitative conclusions. Qualitative evidence can be just as useful as quantitative evidence. For NO_X substitution to yield an equivalent ozone decrease, as required in CAA section 182(c)(2)(C), a demonstration is adequate if it shows that NO_X reductions are more effective than VOC reductions—it does not need to quantify an exact amount by which these reductions are more effective.

We also disagree with CBD's suggestion that the overall geographic distribution of NO_X and VOC emissions would be significantly affected by realistic and incremental changes in these emissions. Incremental changes resulting from the construction or closing of NO_X point sources

[59] Plan Appendix B-4, B-158.
[60] These curves are partly quantified by the proposed rule's estimate that NO_X emissions reductions are 14 times as effective as VOC reductions.

would not affect the preponderance of NO_X emissions from mobile sources in the developed urban area, when compared to the lower NO_X emissions in suburban and rural areas. These changes would also not significantly affect the reverse pattern of relatively more VOC emissions (from biogenic sources) in rural areas compared to urban areas. Such small changes in overall NO_X or VOC emissions would merely affect the degree and amount by which NO_X reductions are shown to be more effective than VOC reductions. Consequently, the EPA's overall conclusion that NO_X substitution within the Plan meets the requirements of CAA section 182(c)(2)(C) remains unchanged.

Regarding CBD's concern that ambient ozone data from a single monitoring site is inadequate to demonstrate equivalency, we agree that this could be problematic in some circumstances but disagree that this is a problem for the Sacramento Metro Area, for two reasons. First, as discussed previously, in concluding that NO_X emissions reductions are more effective than VOC reductions at reducing ozone, the State considered studies of ozone response at monitoring sites throughout the nonattainment area as part of the Plan. Second, the Plan demonstrates attainment at all monitoring sites, and its conclusion that NO_X reductions are more effective than VOC for the site with the highest design value, i.e., the Folsom monitoring site, the "controlling" site for determining whether or not the NAAQS is attained in the Sacramento Metro Area, therefore ensures that NO_X reductions will be effective in achieving ozone reductions that will help the nonattainment area toward attainment in all sub-regions. We anticipate that any increase in ozone concentrations that might result from NO_X emission reductions would be only small, transient, and affect locations with ozone concentrations well below the NAAQS. These ozone increases would typically occur under low temperature conditions, with corresponding low ozone concentrations well below the NAAQS, not at elevated ozone concentrations that could affect public health or interfere with attainment of the 2015 ozone NAAQS. As noted above, ambient ozone data recorded in the Central subregion of

the Sacramento Metro Area between 2011 and 2014 already show ozone levels under 70 ppb, the concentration that the EPA has established as the 2015 ozone NAAQS.

Concerning future air quality planning for the 2015 ozone NAAQS, the State has requested that the EPA reclassify the Sacramento Metro nonattainment area as a Serious nonattainment area, and the attainment plan for Serious areas is not yet due. The EPA has proposed to require that the State submit an attainment plan for the 2015 ozone NAAQS for the Sacramento Metro Area by August 3, 2022.[61] As proposed, this plan will be required to demonstrate, through photochemical grid modeling and other demonstrations, that all portions of the Sacramento Metro Area will attain the 2015 NAAQS by no later than August 3, 2027. Based on conditions in this area as described above and in the proposed rule and the Plan, we anticipate that NO_X reductions, including those used to demonstrate attainment of the 2008 ozone NAAQS, will remain a critical piece of the State's control strategy to meet the 2015 ozone NAAQS. Accordingly, we disagree with CBD's assertion that the Plan's use of NO_X substitution will interfere with attainment of the newer and more stringent ozone standards in the Sacramento Metro Area or violate CAA section 110(l).

Comment #3: CBD states that an equivalence demonstration should be as rigorous as an attainment demonstration; as such, an equivalence demonstration should be based on photochemical modeling or another equally rigorous technique. The commenter suggests that the State could compare modeled relative response factors (RRFs) for each RFP milestone year for the 3 percent per year VOC reductions to corresponding RRFs from the control strategy, or the State could use ozone isopleth diagrams together with conservative assumptions about the amount of allowable NO_X substitution. The commenter acknowledges that section 182(c)(2)(C) does not explicitly prescribe the use of photochemical grid modeling or an equally rigorous method and argues that this does not mean that section 182(c)(2)(C) is worthy of a less rigorous demonstration. The commenter argues that Congress added the RFP provisions to the CAA in

[61] 86 FR 44677, 44678 (August 13, 2021).

response to the EPA's failure to address ozone pollution under the general requirements for attainment demonstrations in subpart 1 of the CAA. The commenter states that, in any case, it would be arbitrary for the EPA to ignore the entire nonattainment area except for the isopleths at the Folsom monitor and the Eastern region weekend effect in assessing the equivalence demonstration.

Response to Comment #3: The EPA disagrees that an equivalence demonstration for purposes of CAA section 182(c)(2)(C) must be as technically rigorous as a NAAQS attainment demonstration. As the commenter notes, CAA section 182(c)(2)(C) does not require the use of photochemical grid modeling to demonstrate the relative effectiveness of NO_X and VOC emissions reductions in reducing ozone concentrations, whereas CAA section 182(c)(2)(A) explicitly requires photochemical grid modeling or another equivalent analytical method as part of the attainment demonstration. Instead, Congress provided the EPA with discretion to evaluate state demonstrations supporting NO_X substitution, and to define the conditions under which NO_X substitution is appropriate "in order to maximize the reduction in ozone air pollution."[62] We believe that this approach reflects an appropriate balance in the level of analysis required for demonstrating attainment by the attainment date, and for the supporting evaluation of the relative effectiveness of potential measures and reductions used to meet RFP milestones. Consequently, we disagree that a NO_X equivalence demonstration for RFP purposes must reflect the same or equally rigorous analytical methods as used in the attainment demonstration. As discussed previously, a qualitative analysis may show that NO_X reductions are more effective than VOC reductions and be adequate for purposes of allowing NO_X substitution under section 182(c)(2)(C). As described above, we proposed to approve the RFP demonstration and its use of NO_X substitution based on our analyses of the photochemical modeling results included in the attainment demonstration and the Folsom isopleth diagram, the other monitoring data from the Plan, and the research papers and analyses cited within. Collectively, these analyses and data

[62] CAA section 182(c)(2)(C).

show that NO_X emissions reductions are effective at reducing ozone throughout the Sacramento Metro Area and are more effective than VOC reductions at bringing the area into attainment of the NAAQS. Accordingly, we support the Plan's use of NO_X substitution.

Comment #4: CBD comments that the EPA has not demonstrated that the approval of NO_X substitution complies with Executive Order 12898, which expresses the EPA's obligation to identify and address disproportionate impacts of its actions on minority populations and low-income populations, i.e., environmental justice (EJ) communities. The commenter asserts that because the EPA is not applying the NO_X Substitution Guidance in evaluating the Plan's use of NO_X substitution, it is exercising discretion, and should use this discretion to require the State to demonstrate equivalence at each monitoring site through photochemical modeling of the relevant scenarios. Furthermore, the commenter says that because the record does not support the EPA's conclusion that NO_X substitution will result in equivalent reductions in ozone concentrations throughout the area, EJ communities may be disproportionately and adversely impacted by the EPA's action by experiencing fewer reductions in ozone than would be achieved through VOC reductions alone, or even ozone increases. The commenter suggests that the EPA could exercise discretion to disapprove the Plan on this basis, and that this disapproval could result in the EPA issuing a Federal implementation plan requiring additional emissions reductions to ensure equivalent reductions in ozone concentrations. The commenter states that it is not a sufficient response to say that approving the Plan will have no adverse impact to EJ communities because it improves the status quo by making State law federally enforceable. The commenter provides a map generated using CalEnviroScreen, showing EJ communities concentrated in the Central subregion where the commenter asserts that the Plan does not demonstrate equivalence.

Response to Comment #4: As explained in our previous responses, the EPA and the State have determined that NO_X reductions are critical to the Sacramento Metro Area's attainment of the 2008 ozone NAAQS and we anticipate that any localized increase in ozone concentrations resulting from these NO_X reductions would be minor, transitory, and occur well below the limits

established by the NAAQS. Furthermore, we find that the Plan appropriately focuses on ozone reductions in the regions subject to the highest ozone concentrations, e.g., the eastern region and design value monitor at Folsom, where adverse health impacts are most likely to occur. In this context, we disagree that the use of NO_X substitution is inappropriate even if it may generate disproportionate reductions in ozone concentrations within high ozone and NO_X-limited areas.

Executive Order 12898, "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations," directs Federal agencies to identify and address "disproportionately high and adverse human health or environmental effects" of their actions on minority populations and low-income populations to the greatest extent practicable and permitted by law.[63] Given our conclusion that the Plan satisfies all applicable CAA requirements related to demonstrating expeditious attainment of the ozone NAAQS, including the requirements for RFP and NO_X substitution,[64] we have no basis to conclude that this action will cause disproportionately high or adverse human health or environmental effects on any population, including any minority, low-income, or indigenous population. Under the CAA, the EPA is required to approve a SIP submission that satisfies the requirements of the Act and applicable Federal regulations,[65] and Executive Order 12898 does not provide an independent basis for disapproving such a SIP submission. The EPA remains committed, however, to working with CARB and the local air districts in the Sacramento Metro Area to ensure that the ozone attainment plans for this area satisfy CAA requirements for attainment and RFP and thereby protect all populations in the area, including minority, low-income, and indigenous populations, from disproportionately high or adverse air pollution impacts.

Comment #5: CBD comments that the proposed rule fails to acknowledge the EPA's NO_X Substitution Guidance, and that the EPA should explicitly disavow the guidance and its

---

[63] 59 FR 7629 (February 16, 1994).
[64] Our response to Comment #7 discusses our reasons for deferring action on the State's contingency measures revision.
[65] CAA section 110(k); 40 CFR 52.02(a).

justifications. The commenter says that there is no basis for this guidance and suggests that the EPA's prior use of the guidance may have caused increases in asthma, hospital and emergency room visits, and premature mortality. An appendix to the comments provides numerous comments directed at the NO_X Substitution Guidance, asserting generally that this guidance contradicts CAA section 182(c)(2)(C) by recommending a procedure that fails to demonstrate any equivalence between VOC and NO_X reductions, relies on incorrect policy assumptions, and gives legal justifications that are without merit.

Response to Comment #5*:* Our proposed approval of the Plan's use of NO_X substitution is compatible with the NO_X Substitution Guidance, which, while non-binding and not having the force of regulation, provides a recommended procedure for substituting NO_X emission reductions for VOC reductions on a percentage basis, consistent with a state's ozone attainment plan, control strategy, modeled attainment demonstration, and RFP milestones and requirements. The NO_X Substitution Guidance specifies that the EPA will review NO_X substitution on a case-by-case basis and will generally approve reasonable NO_X substitution proposals.[66] As noted in our proposed rule and described above, our approval of the State's reasonable use of NO_X substitution is supported by local conditions and needs as documented in the modeling and analyses included in the Sacramento Metro Ozone SIP and is consistent with the requirements in CAA section 182(c)(2)(C).[67]

To be clear, our action on the Plan is not intended to disavow or rescind any portion of the NO_X Substitution Guidance. Comments relating solely to the NO_X Substitution Guidance are outside the scope of this rulemaking action.

Comment #6*:* CBD argues that, because the Plan does not meet the requirements for RFP, the EPA cannot determine that the MVEBs are allowable as a portion of the total allowable

---

[66] NO_X Substitution Guidance at 3 ("The EPA will approve substitution proposals on a case-by-case basis. Generally speaking, any reasonable substitution proposal will be approved.").

[67] See id. at 1 (recognizing that "NO_X controls may effectively reduce ozone in many areas, and that the design of strategies is more efficient when the characteristic properties responsible for ozone formation and control are evaluated for each area").

emissions for demonstrating RFP. The commenter asserts that because there is no measure of total allowable emissions for RFP in the absence of an approvable plan, the EPA has no basis for approval of the MVEBs.

Response to Comment #6: For the reasons described above in our previous responses to comments, we have determined that the State's use of NO_X substitution is appropriate and adequately supported within the Plan, consistent with the RFP and attainment demonstrations, and that the Plan's RFP demonstration is approvable. Consequently, we disagree with the commenter and their rationale suggesting that our approval of the MVEBs is inappropriate.

Comment #7: CBD challenges the EPA's proposed conditional approval of the contingency measures as arbitrary and capricious and contrary to law, based on CAA requirements and interpreting case law. The commenter asserts that the EPA must disapprove the contingency measures.

Response to Comment #7: As explained in the proposed rule, our proposed conditional approval of the State's RFP and attainment contingency measures was based on commitments from the State and Districts in the context of additional emissions reductions in the RFP milestone years and in the year following the attainment year. Following publication of the proposed rule, the Ninth Circuit Court of Appeals issued a decision in *Association of Irritated Residents v. U.S. Environmental Protection Agency*, which remanded the EPA's conditional approval of contingency measures for another California nonattainment area.[68] Based on this decision, we are not finalizing our proposed conditional approval of the Plan's contingency measures at this time. Consequently, CBD's comments on this issue are outside the scope of this final action and we are not providing specific responses to these comments.

[68] *Association of Irritated Residents v. U.S. Environmental Protection Agency*, No. 19-71223 (9th Cir. Aug. 26, 2021).

III. Final Action

For the reasons discussed in detail in the proposed rule and summarized herein, under CAA section 110(k)(3), the EPA is taking final action to approve as a revision to the California SIP the following portions of the Sacramento Metro Area Ozone SIP, as provided within the 2017 Sacramento Regional Ozone Plan and the Sacramento Metro portion of CARB's 2018 SIP Update:

- The base year emissions inventory element in the 2017 Sacramento Regional Ozone Plan meets the requirements of CAA sections 172(c)(3) and 182(a)(1) and 40 CFR 51.1115 for the 2008 ozone NAAQS;
- The RACM demonstration element in the 2017 Sacramento Regional Ozone Plan meets the requirements of CAA section 172(c)(1) and 40 CFR 51.1112(c) for the 2008 ozone NAAQS;
- The attainment demonstration element for the 2008 ozone NAAQS in the 2017 Sacramento Regional Ozone Plan meets the requirements of CAA section 182(c)(2)(A) and 40 CFR 51.1108;
- The ROP demonstration element in the 2017 Sacramento Regional Ozone Plan meets the requirements of CAA 182(b)(1) and 40 CFR 51.1110(a)(2) for the 2008 ozone NAAQS;
- The RFP demonstration element in Section V – SIP Elements for the Sacramento Metropolitan Area of the 2018 SIP Update (as clarified) meets the requirements of CAA sections 172(c)(2), 182(b)(1), and 182(c)(2)(B), and 40 CFR 51.1110(a)(2)(ii) for the 2008 ozone NAAQS;
- The VMT emissions offset demonstration element in the 2017 Sacramento Regional Ozone Plan meets the requirements of CAA section 182(d)(1)(A) and 40 CFR 51.1102 for the 2008 ozone NAAQS; and
- The motor vehicle emissions budgets in Section V – SIP Elements for the Sacramento Metropolitan Area of the 2018 SIP Update for the RFP milestone year of 2023, and the

attainment year of 2024 are consistent with the RFP and attainment demonstrations for the 2008 ozone NAAQS, and the budgets meet the other criteria in 40 CFR 93.118(e). In approving the budgets, we are also finding them adequate for use in transportation conformity determinations, consistent with 40 CFR 93.118(f)(2).

Table 1 – Transportation Conformity Motor Vehicle Emissions Budgets for the 2008 Ozone NAAQS in the Sacramento Metro Area (summer planning inventory, tons per day)

Budget Year	VOC	NO_X
2023	15	22
2024	15	21

Source: 85 FR 68509; Id. at 68530, Table 9; and 2018 SIP Update, Table V-4.

We also find that the:

- Emissions statement element of the 2017 Sacramento Regional Ozone Plan satisfies the requirements under CAA section 182(a)(3)(B) based on our prior approval of the Districts' emissions statement rules;
- Enhanced vehicle inspection and maintenance program in the Sacramento Metro Area meets the requirements of CAA section 182(c)(3) and 40 CFR 51.1102 for the 2008 ozone NAAQS;
- California SIP revision to opt out of the Federal Clean Fuels Fleet Program meets the requirements of CAA sections 182(c)(4)(A) and 246 and 40 CFR 51.1102 for the 2008 ozone NAAQS with respect to the Sacramento Metro Area; and
- Enhanced monitoring in the Sacramento Metro Area meets the requirements of CAA section 182(c)(1) and 40 CFR 51.1102 for the 2008 ozone NAAQS.

To conclude, we are deferring final action on the contingency measures element of the Sacramento Metro Area Ozone SIP as meeting the requirements of CAA sections 172(c)(9) and 182(c)(9).

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 they meet the criteria of the Clean Air Act. Accordingly, this action merely approves state plans as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this 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);
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- Does not have federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- Is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the Clean Air Act; and
- Does not provide 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. Four Indian tribes have areas of Indian country located within the boundaries of the Sacramento Metro ozone nonattainment area. 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).

The Congressional Review Act, 5 U.S.C. section 801 *et seq*., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. The EPA will submit a report containing this action and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the *Federal Register*. A major rule cannot take effect until 60 days after it is published in the *Federal Register*. This action is not a "major rule" as defined by 5 U.S.C. 804(2).

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this action for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (See section 307(b)(2)).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Ozone, Reporting and recordkeeping requirements, Volatile organic compounds.

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

Dated: October 9, 2021.

Deborah Jordan,
Acting Regional Administrator,
Region IX.

Chapter I, title 40 of the Code of Federal Regulations is amended as follows:

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

1. The authority citation for part 52 continues to read as follows:

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

Subpart F—California

2. Section 52.220 is amended by adding paragraphs (c)(514)(ii)(A)(*10*) and (c)(566) to read as follows:

§52.220 Identification of plan—in part.

* * * * *

(c) * * *

(514) * * *

(ii) * * *

(A) * * *

(*10*) 2018 Updates to the California State Implementation Plan, adopted on October 25, 2018, chapter V ("SIP Elements for the Sacramento Metropolitan Area"), excluding section V.D ("Contingency Measures"); and pages A-15 through A-18 of Appendix A ("Nonattainment Area Inventories").

* * * * *

(566) The following plan was submitted on December 18, 2017 by the Governor's designee.

(i) [Reserved]

(ii) *Additional materials*. (A) Sacramento Metropolitan Area 2008 8-Hour Ozone National Ambient Air Quality Standard Planning Area.

(*1*) Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan, dated July 24, 2017, excluding the following portions: subchapter 7.9, "Contingency Measures"; subchapter 10.5, "Proposed New Motor Vehicle Emissions Budgets"; and chapter 12 (regarding reasonable further progress).

(*2*) [Reserved]

(B) [Reserved]

[FR Doc. 2021-22661 Filed: 10/21/2021 8:45 am; Publication Date: 10/22/2021]