

unless to do so would be inconsistent with applicable law or otherwise impractical. The EPA believes that this action is not subject to the requirements of section 12(d) of the NTTAA because application of those requirements would be inconsistent with the CAA.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA lacks the discretionary authority to address environmental justice in this action.

K. Congressional Review Act (CRA)

This action is subject to the CRA, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a “major rule” as defined by 5 U.S.C. 804(2).

L. Petitions for Judicial Review

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 December 21, 2021. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule 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, Carbon monoxide, Reporting and recordkeeping requirements.

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

Dated: October 13, 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 DD—Nevada

■ 2. In § 52.1470(e), the table is amended by adding an entry for “Second 10-year Carbon Monoxide Limited Maintenance Plan, Las Vegas Valley Maintenance Area, Clark County, Nevada (May 2019)” after the entry for “Resolution of the Clark County Board of Commissioners Adopting the Clark County Carbon Monoxide Redesignation Request and Maintenance Plan, adopted by the Clark County Board of Commissioners on September 2, 2008” to read as follows.

§ 52.1470 Identification of plan.

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(e) * * *

EPA-APPROVED NEVADA NONREGULATORY AND QUASI-REGULATORY MEASURES

Name of SIP provision	Applicable geographic or nonattainment area or title/subject	State submittal date	EPA approval date	Explanation
Air Quality Implementation Plans for the State of Nevada¹				
* Second 10-year Carbon Monoxide Limited Maintenance Plan, Las Vegas Valley Maintenance Area, Clark County, Nevada (May 2019).	* Las Vegas Valley, Clark County.	* June 18, 2019	* October 22, 2021, [Insert Federal Register citation].	* Fulfills requirement for second ten-year maintenance plan.
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¹ The organization of this table generally follows from the organization of the State of Nevada’s original 1972 SIP, which was divided into 12 sections. Nonattainment and maintenance plans, among other types of plans, are listed under Section 5 (Control Strategy). Lead SIPs and Small Business Stationary Source Technical and Environmental Compliance Assistance SIPs are listed after Section 12 followed by nonregulatory or quasi-regulatory statutory provisions approved into the SIP. Regulatory statutory provisions are listed in 40 CFR 52.1470(c).

[FR Doc. 2021–22714 Filed 10–21–21; 8:45 am]

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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 November 22, 2021.

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:

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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 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 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.,

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.

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.

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.

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) 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 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 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,

- 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

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.

²⁰ Id. at 68531–68532.

²¹ Id. at 68527–68529.

⁷ 85 FR 68509, 68511–68512.

⁸ Id. at 68513–68515.

⁹ Id. at 68516–68518.

¹⁰ Id. at 68518–68523.

¹¹ Id. at 68523–68525.

¹² 80 FR 4795 (January 29, 2015).

¹³ 85 FR 68509, 68523–68525.

¹⁴ Id. at 68525–68527.

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

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 HNO₃); as a result, peak ozone hours and downwind locations are more NO_x-limited than 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 (NO₂) as it converts or “titrates” ozone (O₃) to regular oxygen (O₂). 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 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.

²⁶ EPA, Health Risk and Exposure Assessment for Ozone Final Report, 2–5.

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 (HNO₃), 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.

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>.

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 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 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 occurring 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

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

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)).

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.