ASSISTANT ADMINISTRATOR FOR AIR AND RADIATION
WASHINGTON, D.C. 20460

December 3, 2024

MEMORANDUM

SUBJECT: Guidance on the Preparation of State Implementation Plan Provisions that Address the Nonattainment Area Contingency Measure Requirements for Ozone and Particulate Matter

FROM: Joseph Goffman, Assistant Administrator
Office of Air and Radiation

TO: Regional Air Division Directors, Regions 1 – 10

The purpose of this memorandum is to distribute a non-binding guidance document titled, "Guidance on the Preparation of State Implementation Plan Provisions that Address the Nonattainment Area Contingency Measure Requirements for Ozone and Particulate Matter."

The purpose of this guidance is to assist air agencies that are required to prepare nonattainment area plan submissions under Part D of Title I of the Clean Air Act (CAA). Specifically, in this document the Environmental Protection Agency (EPA) provides nationally applicable guidance to air agencies for the preparation of ozone and particulate matter plans and focuses on the requirement for those plans to include contingency measures (CMs). CMs are emissions control requirements that would take effect upon future events, such as if an area fails to attain a National Ambient Air Quality Standard (NAAQS) by an applicable attainment date, or fails to make reasonable further progress toward attainment.

The EPA is issuing this guidance document because in the 30 years since the EPA first articulated its CM guidance, court decisions have invalidated some key aspects of our prior guidance. These court decisions had the effect of prohibiting an approach that many air agencies have historically used to meet the CM requirement, i.e., the reliance on implemented control measures as CMs (particularly the commonly used approach of relying on surplus emissions reductions from fleet turnover from already-implemented federal mobile source control measures). In addition, the EPA has issued several new, more protective NAAQS, and the CAA requires air agencies with nonattainment areas to develop CMs for these standards. As a result, the EPA is revisiting and updating its guidance to clarify and

recommend approaches available to air agencies to meet the CM requirement, in line with recent court decisions.

Please distribute to air agencies in your region. If you have any questions concerning this document, please contact Dylan Mataway-Novak at (919) 541-5795 or *mataway-novak.dylan@epa.gov*.

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Guidance on the Preparation of State Implementation Plan Provisions that Address the Nonattainment Area Contingency Measure Requirements for Ozone and Particulate Matter

U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Air Quality Policy Division

December 3, 2024

Guidance on the Preparation of State Implementation Plan Provisions that Address the Nonattainment Area Contingency Measure Requirements for Ozone and Particulate Matter

Table of Contents

1. Introduction

The purpose of this guidance document[1] is to assist air agencies[2] that are required to prepare nonattainment area plan submissions under Part D of Title I of the Clean Air Act (CAA or Act). Specifically, in this document the Environmental Protection Agency (the EPA or Agency) provides guidance to air agencies on implementation of nationally applicable requirements for the preparation of ozone and particulate matter (PM)[3] plans and focuses on the requirement for those plans to include contingency measures (CMs). CMs are control requirements that would take effect if an area fails to attain a National Ambient Air Quality Standard (NAAQS) by an applicable attainment date, or fails to make reasonable further progress (RFP) toward attainment. These CM requirements are specified in CAA section 172(c)(9) for nonattainment areas generally, and in section 182(c)(9) for ozone nonattainment areas classified as Serious or above. This document addresses application of the CM requirements for all states with areas designated nonattainment for the ozone and PM NAAQS. It does not address contingency provisions required for maintenance plans in section 175A(d), nor does it address specific contingency provisions for anticipated control measures in Extreme ozone nonattainment areas under section 182(c)(5). It also does not address CM requirements for pollutants other than PM and ozone, where existing CM guidance remains in effect.

The EPA is issuing this guidance document because in the 30 years since the EPA first articulated its CM guidance (explained in Section 2 of this guidance), court decisions (discussed in Section 2.3 of this document) have invalidated some key aspects of our prior guidance. These court decisions had the effect of prohibiting an approach that many air agencies have historically used to meet the CM requirement, i.e., the reliance on implemented control measures as CMs (particularly the commonly used approach of relying on surplus reductions from fleet turnover from already-implemented federal mobile source control measures). In addition, the EPA has issued several new, more protective NAAQS, and implementation of these NAAQS requires air agencies with nonattainment areas to submit CMs in accordance with

[1] This document is intended only to provide clarity to the public regarding existing requirements under the CAA or the EPA regulations. This document is not a rule or regulation, and the guidance it contains may not apply to a particular situation based upon the individual facts and circumstances. This guidance does not change or substitute for any law, regulation, or other legally binding requirement and is not legally enforceable. The use of non-mandatory language such as "guidance," "recommend," "may," "should," and "can" is intended to describe the EPA's policies and recommendations. The use of mandatory terminology such as "must" and "required" is intended to describe controlling legal requirements under the terms of the CAA and of the EPA regulations. Such language and anything else in this document is not intended to and does not establish legally binding requirements in and of itself. None of the recommendations in this guidance are binding or enforceable against any person, and neither any part of the guidance nor the guidance as a whole constitutes final agency action that affects the rights and obligations of any person or represents the consummation of agency decision making. Only final EPA actions taken to approve or disapprove state implementation plan (SIP) submissions that implement any of the recommendations in this guidance would be final actions for purposes of CAA section 307(b).

[2] References to air agencies include all state, local, and tribal air agencies responsible for developing and submitting ozone or particulate matter nonattainment area plans.

[3] As used in this document, PM refers to both PM_{10} and $PM_{2.5}$. The guidance is intended to address planning requirements for NAAQS for both pollutants.

current requirements. As a result, the EPA is revisiting and updating its guidance to clarify and recommend approaches available to air agencies to meet the CM requirement, in line with recent court interpretations.

This guidance focuses on three key aspects of the EPA's CM guidance. First, the guidance addresses the method that air agencies should use to calculate the EPA-recommended amount of emissions reductions that CMs should provide. Longstanding EPA guidance, discussed in Section 2 of this document, has recommended that CMs provide emission reductions approximately equal to or greater than the amount needed to meet the requirement for RFP in the relevant area for 1 year. In this guidance, the EPA continues to recommend an annual progress-based approach for calculating the recommended amount of reductions for CMs, but is revising the metric to be more closely tied to the air quality improvement needs of the area when the CMs may be triggered in the future. The term "triggered" for CMs refers to the EPA having made a final determination that requires implementation of the CMs, such as a final determination that a nonattainment area has failed to meet RFP or has failed to attain a NAAQS by the applicable attainment date.[4] The CAA establishes timeframes for the EPA to make such determinations.

Second, this guidance provides recommendations for how air agencies can identify and assess potential CMs and addresses the situation where an air agency cannot identify feasible CMs in sufficient quantity to produce the recommended amount of reductions using an updated metric. Previous EPA policy has indicated that states could provide a "reasoned justification" to have CMs that result in less than the recommended 1 year's worth (OYW) of RFP. This document revises the EPA's recommendation for the amount of reductions CM should achieve (OYW of progress), and provides additional guidance to air agencies with specific recommendations about how to develop reasoned justifications to support state implementation plan (SIP) submissions for which the submitting agency is asserting that it cannot adopt and submit CMs that would provide for the recommended amount of emission reductions, due to a lack of feasible measures.

Finally, this guidance addresses the time period within which emission reductions from CMs should occur. The EPA previously recommended that CMs take effect within 60 days of being triggered, and that the resulting reductions generally should occur within 1 year of the triggering event, e.g., within 1 year of the EPA's official determination that the area failed to attain by the applicable attainment date. In instances where there are insufficient CMs available to achieve the recommended amount of emissions reductions within 1 year, the EPA provides recommendations for how air agencies could include CMs that provide reductions within 2 years of the triggering event. This revised guidance does not alter the 60-day recommendation for the measures to take effect.

[4] For ozone nonattainment areas classified Serious or above, CAA section 182(c)(9) further specifies that CMs are triggered by an area's failure to meet any applicable milestone. For $PM_{2.5}$, the triggers for CM are further specified by regulation at 40 CFR 1014(a)(1)-(4). The term "triggered" as used here would also include any final EPA determination regarding these requirements.

In addition to updating the EPA's guidance on these three aspects of CM, this guidance document also summarizes the EPA's guidance for CMs more broadly, including aspects that the EPA is not updating, to ensure clarity and national consistency.

2. Background

This section provides background and context on the relevant statutory provisions, prior EPA guidance, and court decisions involving the CM requirement.

2.1. Nonattainment Area CM Provisions in the CAA

The CAA's nonattainment area CM requirements appear in two specific provisions: sections 172(c)(9) and 182(c)(9). Congress added these CM requirements to the CAA as part of the Amendments of 1990. Any evaluation of these provisions must rely on the statutory language as well as the larger statutory context and structure of the Act with respect to nonattainment area plan requirements.

Section 172(c)(9) of the CAA is included in the Part D Subpart 1 general nonattainment area plan requirements applicable to all NAAQS. It provides that states must include specific measures as CMs as a required element of their attainment plan submissions. It applies to attainment plans regardless of the classification of the nonattainment area, with one notable exception, i.e., states are not required to meet certain nonattainment area plan requirements, including the CM requirement, for ozone nonattainment areas classified as "Marginal."[5] Section 172(c)(9) of the CAA provides as follows:

> (9) Contingency measures
> Such plan shall provide for the implementation of specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national ambient air quality standard by the attainment date applicable under this part [D]. Such measures shall be included in the plan revision as contingency measures to take effect in any such case without further action by the State or the Administrator.

Section 182(c)(9) is included in the Part D, Subpart 2, ozone NAAQS nonattainment area plan requirements and applies specifically to states with ozone nonattainment areas classified as "Serious" or above. It provides that states must include specific measures as CMs as a required element of their attainment plan submissions. In particular, section 182(c)(9) adds the requirement that the CMs must be in place to be triggered in the event that the state fails to

[5] See text at the end of CAA Section 182(a)(4), which states "[s]ection 7502(c)(9) [172(c)(9)] of this title (relating to contingency measures) shall not apply to Marginal Areas."

meet a reasonable further progress "milestone" related to CAA sections 182(c)(2)(B) and 182(g).[6] Section 182(c)(9) provides as follows:

> (9) Contingency measures
> …
> In addition to the contingency provisions required under [section 172(c)(9)] of this title, the plan revision shall provide for the implementation of specific measures to be undertaken if the area fails to meet any applicable milestone. Such measures shall be included in the plan revision as contingency measures to take effect without further action by the State or the Administrator upon a failure by the State to meet the applicable milestone.

The CAA includes no specific definition of the term "contingency measures" in section 302 or elsewhere, and thus section 172(c)(9) and section 182(c)(9) provide the statutory parameters that both states and the EPA must meet with respect to these requirements.

2.2. Existing EPA Guidance and Regulations Interpreting the CM Provisions

The statutory requirements of sections 172(c)(9) and 182(c)(9) leave some important questions unanswered. Thus, the EPA has previously addressed the CM requirements in a series of guidance documents and implementation rules. To understand the EPA's interpretation of these statutory requirements, and the evolution of the EPA guidance for CMs, it is helpful to review key aspects of these documents. This subsection describes the EPA's historical approach to CMs guidance and identifies the aspects of that guidance that the EPA is updating. Sections 3-5 describe updates to the EPA's guidance concerning CMs.

2.2.1. 1992 General Preamble

In 1992, the EPA published the "General Preamble for Implementation of Title I of the Clean Air Act Amendments of 1990" (General Preamble), which served as a preliminary roadmap outlining how the Agency intended to interpret various provisions of the CAA, as amended in 1990.[7] In the General Preamble, the EPA provided its first guidance concerning key aspects of the new statutory CM requirements, including: (1) the recommendation that CMs should provide OYW of RFP; (2) the conditions under which less or more than OYW of RFP may be appropriate; (3) the timing of emissions reductions from CMs; (4) how early implementation of an otherwise required measure could be a valid CM; and (5) what constitutes taking effect "without any further action" in the CM context. The EPA provided somewhat different guidance

[6] The EPA has explained that "[s]ection 182(c)(9) requires that certain state submissions must provide for the implementation of contingency measures in the event of a failure to meet a milestone; it does not require the state to submit separate and distinct contingency measures allocated exclusively for a failure to meet a milestone." 86 FR 27524 at 27527 (May 21, 2021).

[7] 57 FR 13498 at 13511/Column 1 (April 16, 1992). The General Preamble served as an advance notice of how the EPA generally intended, in subsequent rulemakings, to take action on SIP submissions and to interpret various Title I provisions. The EPA has subsequently applied this guidance in the context of many individual EPA SIP actions.

for CMs for each of the criteria pollutants, based on differences in other relevant statutory provisions and the nature of the pollutants, but the portions of the General Preamble most relevant in this guidance document are those for ozone and PM_{10}.[8]

Ozone

The EPA previously provided guidance to address the CM requirements for the ozone NAAQS, taking into consideration other related provisions of Part D, Subpart 2 (of CAA Title I) that gave context for interpreting these requirements. We highlight some key aspects of the historical guidance that are relevant for this new guidance document.

Amount of Emissions Reductions

From the outset, the EPA recognized that neither section 172(c)(9) nor section 182(c)(9) "specif[ies] how many measures are needed or the magnitude of emissions reductions that must be provided by these measures."[9] Knowing the amount of emissions reductions that CMs should provide is a crucial issue for implementing the CM requirements. Because the express statutory language of these provisions does not provide an answer, the EPA provided guidance on this important question. To do so, the EPA considered the purpose of CMs in the context of ozone nonattainment area plan requirements.

First, the EPA noted that both statutory provisions require that CMs go into effect in the event that the state fails to meet RFP or fails to attain the NAAQS in the area.[10] Second, the EPA noted that under CAA section 182(b)(1)(A), states were separately required to make a SIP submission to meet RFP. For Moderate area RFP, the statute requires a 15 percent reduction from the base year emissions inventory (EI) over 6 years. For Serious and above area RFP, the statute requires a 3 percent per year reduction averaged over 3-year periods. The RFP calculation is for volatile organic compounds (VOC), but in states that meet the equivalence provisions in CAA section 182(c)(2)(C), air agencies may substitute nitrogen oxides (NO_X) reductions for a shortfall in VOC reductions for the period after the initial 6-year period. With respect to CMs, the EPA stated: "If the strategy for an area relies on NO_X substitution in lieu of or in addition to VOC reductions, the State should also submit NO_X contingency measures as necessary to meet the 3 percent requirement."[11]

Third, the EPA considered whether it would be appropriate for the agency to read the statute to require that CMs triggered by a failure to meet RFP should result in emissions reductions

[8] The EPA notes that guidance in the General Preamble and subsequent Addendum (59 FR 41998 (August 16, 1994)) remained applicable for the PM_{10} NAAQS, whereas The EPA provided additional guidance and regulatory requirements for purposes of the $PM_{2.5}$ NAAQS in the $PM_{2.5}$ Implementation Rule (81 FR 58010 (August 24, 2016)). States must meet the statutory CM requirements in attainment plans for any of the NAAQS for which they have a designated nonattainment area.

[9] 57 FR 13498 at 13511/1.

[10] Id. at 13511/1

[11] Id. at 13520/3.

that could make up for an "entire shortfall" of the full 15 percent (thereby requiring a state to "adopt double the measures" to meet RFP), or some lesser amount. Fourth, the EPA observed that in the event of a failure to meet RFP or a failure to attain, the state would need to develop and submit a new SIP submission to address the deficiency as necessary within 1 year.
Even in 1992, states were having difficulty identifying and adopting measures to meet RFP. Therefore, the EPA reasoned that it would be more appropriate to interpret the statute to require that upon triggering, the CMs (whether one or more than one cumulatively) should provide emissions reductions equivalent to OYW of RFP, rather than some larger amount. The EPA reasoned that this RFP-based approach would assure that the CMs would provide additional emissions reductions while the state took action to address the deficiency that triggered the CMs. The Agency concluded:

> Therefore, the EPA will interpret the Act to require States with moderate and above ozone nonattainment areas to include sufficient contingency measures . . . so that, upon implementation of such measures, additional emissions reductions of up to 3 percent of the emissions in the adjusted base year inventory (or such lesser percentage that will cure the identified failure) would be achieved in the year following the year in which the failure has been identified.[12]

This was the genesis of the EPA's guidance that CMs should achieve emissions reductions equivalent to "one year's worth" of RFP in the area in question, and the assumption that states and the EPA should calculate this amount of emissions reductions based on the initial base year EI for the nonattainment area, rather than some other form of calculation. At the time, the EPA logically thought it appropriate to recommend that CMs achieve a specific amount of emissions reductions related to the then current expectations for RFP.

The EPA's guidance in the General Preamble concerning the amount of emissions reductions that CMs should achieve reflected the Agency's judgment at the time concerning an appropriate approach. The EPA formulated this guidance 30 years ago, at a time before promulgation of multiple iterations of increasingly protective ozone NAAQS, and before development of multiple rounds of attainment plans to meet those NAAQS, have made it increasingly difficult for states to identify and adopt additional control measures that are valid CMs. This guidance document revises the General Preamble's OYW of RFP approach to calculating emissions reductions needed for CMs. The new approach is described in Section 3.

Conditions Under Which Less or More Reductions Are Appropriate

In the General Preamble, the EPA considered the possibility that its recommendation that CMs should achieve OYW of RFP based on the initial base year EI might result in CMs that provided too much or too little emissions reductions, compared to the actual shortfall that might trigger the CMs in the future. Thus, when recommending that the CMs provide emissions reductions equivalent to OYW of RFP, the EPA stated that the CMs should result in "additional emissions

[12] Id. at 13511/2.

reductions of up to 3 percent of the emissions in the adjusted base year inventory (*or such lesser percentage that will cure the identified failure*)."[13] By this, the EPA was suggesting that if the future RFP or attainment shortfall that triggers the CMs could be cured by less than the full amount of reductions that would result from implementing all the CMs that add up to OYW of RFP, then it may not be necessary to trigger all of the CMs. The EPA also acknowledged that "there is the possibility that in some cases 3 percent may not be adequate." For those situations, the EPA recommended two alternative approaches, one being a combination of the CMs and an enforceable commitment from the state to create a tracking program, and another being for the state to submit additional CMs to be held "as a reserve" in the event of a larger shortfall.

These complexities that the EPA identified serve to illustrate that the OYW of RFP approach was understood by the Agency to be merely a rough estimate of the appropriate amount of emissions reductions, based on certain assumptions at that point in time. It illustrates that the EPA was aware that its approach might turn out to be incorrect in either direction, and that CMs based on this approach would not necessarily reflect the amount of emissions reductions needed to make up a shortfall at the time of an actual triggering event.

The EPA notes that its guidance in the General Preamble concerning the conditions under which less or more emissions reductions from CMs might be appropriate, and how to address that possibility, was premised upon the theory that the amount of reductions should be based on the separate RFP requirement in the first instance. As previously explained, this recommendation resulted from the EPA's then-expectations concerning the amount of emissions reductions that would be appropriate. The EPA had these expectations before the Agency promulgated several more stringent iterations of the ozone NAAQS and air agencies developed new attainment plans to address those NAAQS, which have reduced the pool of available control measures that could be valid CMs.

In this guidance document, the EPA is revising its approach to estimating the amount of emissions reductions that CMs should achieve from OYW of RFP to OYW of progress, and thus the EPA's revised guidance does not follow the previously described approach related to the conditions under which less or more reductions are appropriate. The EPA's new approach is intended to more closely relate the amount of emissions reductions provided by CMs to the potential need for additional emissions reductions in the event CMs are triggered.

Timing of Emissions Reductions

Another important point that the EPA addressed in the General Preamble was the timing of emissions reductions from CMs. As with the amount of emissions reductions that CMs should achieve, neither CAA section 172(c)(9) nor section 182(c)(9) expressly provides the timeframe within which the CM emissions reductions should occur. In light of this, the EPA considered the

[13] Id. at 13511/2 (emphasis added).

context and purpose of CMs to interpret the provisions and provide guidance to states on this important question of timing.

The EPA directly addressed the question of how soon after a triggering event CMs should take effect. To evaluate this question, the EPA considered both the fact that the statutory provisions imply the need for prompt emissions reductions in the event CMs are triggered, and the intended purpose for CMs within the broader statutory structure for attainment plans. Thus, in discussing the express statutory requirement that CMs "take effect" with no further action by the state or the EPA, the Agency stated its view that: "EPA will expect all actions needed to effect full implementation of the measures to occur within 60 days after EPA notifies the State of its failure."[14] This reflects the EPA's continuing view that CMs should generally begin to achieve emissions reductions soon after the triggering event to be consistent with the purpose of CMs. The intended purpose of CMs is to provide emissions reductions, to continue to make progress toward RFP and/or attainment, and to bridge the gap after a triggering event while the state is "conducting additional control measure development and implementation as necessary to correct the shortfall in emissions reductions or to adopt newly required measures resulting from bump-up to a higher classification."[15] Accordingly, the EPA recommended that CMs should be measures for which the air agency can initiate implementation quickly. The EPA is not altering its guidance with respect to this 60-day expectation.

On the equally important question of what the outer date for CMs to achieve the intended emissions reductions should be, the EPA guidance did not definitively state when the emissions reductions should occur. By implication, however, the EPA was recommending that CMs achieve the necessary emissions reductions during the year following a triggering event, because the EPA assumed that would be the period of time during which the state would be developing the subsequent SIP submission to cure the deficiency. This is illustrated by the General Preamble statement that a submission should include sufficient contingency measures so that, "upon implementation of such measures, additional emissions reductions…*would be achieved in the year following the year in which the failure has been identified.*"[16]

This was the origin of the EPA's guidance to states that CMs should, among other requirements, be measures that will begin to achieve emissions reductions soon after the triggering event, and that the reductions from the CM (the full OYW of RFP) should occur within 1 year following the triggering event.[17] As with other aspects of the EPA's guidance, however, these recommendations concerning the timing of emissions reductions from CMs were colored by the

[14] Id. at 13512/1.

[15] Id. at 13511/2.

[16] Id. at 13511/2 (emphasis added).

[17] The EPA notes that, where air quality is influenced by seasonal variability, this 1-year period should be sufficient to encompass at least one relevant season (e.g., at least one summer). However, the EPA acknowledges that it is possible a triggering event could occur at a less convenient time of year. For example, a triggering event could occur in the middle of the relevant season, which could make it difficult for certain CMs to achieve their anticipated reductions within the timeframe needed. Air agencies should take this possibility into account when developing CMs, but the EPA recognizes it is impractical to assess all possible timing scenarios.

Agency's then current understanding. In retrospect, interpreting the CAA to restrict CMs to measures that can achieve needed emissions reductions only in this 1-year time frame may serve to disqualify control measures that could otherwise be valid CMs that would serve the intended purpose of providing emissions reductions and bridging the gap after a state's failure to meet RFP or to attain. As explained in Section 5, the EPA is revising this aspect of its prior guidance to allow for CMs that result in emissions reductions that occur up to 2 years from the triggering event under appropriate circumstances.

Early Implementation

In the General Preamble, the EPA recognized that one form of valid CM could be the accelerated implementation of a control measure that the state must include in its SIP to meet another requirement, such as reasonably available control measures or reasonably available control technology (RACM/RACT), or RFP in the attainment plan. As an example, the EPA suggested that "a State could include as a contingency measure the requirements that measures which would take place in later years if the area met its RFP target or attainment deadline, would take effect earlier if the area did not meet its RFP or attainment deadline."[18] It is important to note that, for this example, the EPA clearly contemplated that although the control measure at issue might be in the SIP to meet another requirement, the triggering of the CM would result in the air agency *accelerating the actual implementation* of such measure so that the emissions reductions would happen *earlier* than otherwise required (i.e., the acceleration is a direct result of the triggering of the CM). Such a CM would meet the statutory language of CAA sections 172(c)(9) and 182(c)(9), which requires CMs to be both conditional and prospective.

To clarify, this initial concept in the General Preamble is distinct and separate from the EPA's later interpretation of CAA sections 172(c)(9) and 182(c)(9), discussed in Section 2.2.2, to allow states to use the reductions from measures designated as CMs but implemented early (i.e., before triggering), or the surplus emissions reductions from already implemented measures required for other attainment plan purposes, to meet the CM requirements. The EPA now acknowledges that the CAA does not allow approval of this latter form of CM, as courts have held this to be an incorrect reading of the plain language of the statute. However, the EPA notes that a CM that requires accelerated implementation of an otherwise already required control measure as a result of a triggering event could still be a valid CM, if appropriately structured. This form of CM may be of limited utility in a situation in which a state has few or no available control measures, and the existing measures in the SIP to meet other requirements are incapable of more accelerated implementation, but the EPA generally considers it a potentially available approach.

Without Further State or EPA Action

[18] 57 FR 13498 at 13511/2-3.

In the General Preamble, the EPA acknowledged that although the statutory language of section 172(c)(9) and section 182(c)(9) provides that CMs must take effect "without further action by the State or the Administrator," the Agency considers this language to allow certain "minimal" actions by the state to implement the measures. For example, the EPA noted that actions such as notification of affected sources subject to the triggered CM might be appropriate, whereas additional rulemaking or legislative action by the state to implement the CM would not be. This remains an element of the EPA's guidance for CMs and is not affected by this guidance document.

Particulate Matter

The EPA also provided guidance to address the CM requirements for the PM_{10} NAAQS in the General Preamble that was very similar to that for the ozone NAAQS. Core tenets of the guidance pertained to: (1) the amount of emissions reductions CMs should achieve; (2) the fact that CMs are in addition to and beyond what is required for other attainment plan purposes; (3) when states should begin to implement CMs; (4) the timing of when CM reductions should be "implemented;" and (5) when CMs should be "fully adopted and take effect."[19]

Amount of Emissions Reductions

As with ozone, the EPA recommended that states should have CMs that would achieve OYW of RFP for the area. Unlike the statutory provisions relevant to ozone, however, Part D, Subpart 4 (of CAA Title I) does not include a statutory requirement for a particular percentage of emissions reductions for purposes of RFP. The EPA guidance recommended that RFP for PM_{10} nonattainment areas should represent generally linear progress toward attainment (i.e., the difference between the attainment projected inventory[20] and the base year EI, divided by the number of years between the base year and the attainment year).[21] Following this approach to RFP, the EPA recommended that the CMs should achieve a proportional amount of emissions reductions based on the number of years from the base year to the applicable attainment date:

> the contingency emissions reductions should be approximately equal to the emissions reductions necessary to demonstrate RFP for one year. For instance, reductions equal to 25 percent of the total strategy would be appropriate for a moderate nonattainment area since the control strategy must generally be implemented in a 3- to 4-year period between SIP development and the attainment date, and since RFP generally requires annual incremental reductions to attain the standards.[22]

[19] Id. at 13543-13544.
[20] The term "attainment projected inventory" is described further in Section 3.8.1 (for ozone) and Section 3.8.2 (for particulate matter) of the EPA's "Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter NAAQS and Regional Haze Regulations." *See https://www.EPA.gov/air-emissions-inventories/air-emissions-inventory-guidance-implementation-ozone-and-particulate*.
[21] 59 FR 41998, 42015 (August 16, 1994).
[22] 57 FR 13498 at 13543-44.

Thus, at the time of the General Preamble, the EPA was interpreting section 172(c)(9) for purposes of the PM_{10} NAAQS based on its then understanding of the facts and the most appropriate way to address this requirement.

As explained in more detail in Section 3, after more than 30 years of experience implementing the PM NAAQS, including the addition of $PM_{2.5}$ as a different indicator and NAAQS criteria pollutant, several increasingly more stringent iterations of the $PM_{2.5}$ NAAQS, and in some cases multiple rounds of state development of attainment plans for the PM_{10} and $PM_{2.5}$ NAAQS, the EPA has concluded that this OYW of RFP approach to the CM requirement is no longer as appropriate. This guidance document revises the EPA's guidance with respect to the approach for determining the appropriate amount of emissions reductions for CMs for both ozone and PM.

Timing of CMs

As noted previously, neither section 172(c)(9) nor 182(c)(9) expressly provide when the resulting emissions reductions from CMs should occur. In light of this, the EPA considered the context and purpose of CMs to interpret the provisions and provide guidance to states on this important question of timing.

In the case of PM, as with ozone, EPA guidance was unclear. In one place, the EPA stated that "[c]ontingency measures must be implemented immediately after EPA determines the area has failed to make RFP or to attain the standards."[23] At the end of the very same paragraph, the EPA stated that "[c]ontingency measures must be fully adopted and take effect within 1 year without further legislative action once EPA makes such determinations." There is no explanation to elaborate on the EPA's use of these different terms (i.e., implemented, fully adopted, and take effect). The EPA is now concerned that there has been confusion about the meaning of the term "take effect" and whether it pertains to the effective date of a state's CM regulation, to the date when the state is beginning to "implement" the CMs, or to the date when partial or full implementation of CMs will achieve emission reductions. In reviewing its prior CM guidance, the EPA has concluded that it is important to revisit the question of when emissions reductions from CMs should occur in light of the purpose of these provisions. Section 5 discusses the EPA's revised approach.

2.2.2. 1993 Guidance Memoranda

In August 1993, the EPA issued two guidance memoranda that further addressed the CM requirements. On August 13, 1993, the EPA issued a guidance memorandum regarding the early implementation of CMs for ozone and carbon monoxide nonattainment areas.[24] In this initial 1993 guidance, the EPA first explicitly addressed the issue of states electing to implement

[23] Id. at 13544/1

[24] EPA, Memorandum from G.T. Helms, Chief, Ozone/Carbon Monoxide Programs Branch, Office of Air Quality Planning and Standards, to Air Branch Chief[s], Regions I-X, "Early Implementation of Contingency Measures for Ozone and Carbon Monoxide (CO) Nonattainment Areas," August 13, 1993.

CMs earlier than otherwise required (i.e., before a triggering event). Specifically, the EPA stated: "[i]t seems illogical to penalize nonattainment areas that are taking extra steps to ensure attainment of the NAAQS by having them adopt additional contingency measures now. Therefore, in cases of early implementation of State contingency measures, we do not feel that it is necessary now to adopt additional contingency measures to backfill for the early activation of contingency measures."[25] In subsequent rulemakings on individual SIP submissions, the EPA expanded upon this concept of early implementation of CMs to allow states to have CMs that are control measures that are already implemented and that provide ongoing reductions each year that are in excess of RFP or attainment needs.[26] As noted later in this document, the EPA carried forward its then current interpretation of the CM requirement that allowed approval of already implemented measures as CMs in the ozone and $PM_{2.5}$ NAAQS implementation rules, but courts have rejected this interpretation, and the EPA acknowledges that approval of already implemented measures as CMs is inconsistent with the statutory language of the CM requirements.

On August 23, 1993, the EPA issued another guidance memorandum concerning the CM requirement.[27] In this second 1993 guidance, the EPA addressed the content of the CMs and indicated that for states with ozone nonattainment areas classified Moderate and higher that had completed the initial 15 percent VOC reductions for RFP, CMs could be a mixture of VOC and NO_X reductions on a percentage basis.[28] The EPA indicated that at least 10 percent of the required OYW of RFP should be VOC emissions reductions, allowing up to 90 percent of the CM emissions reductions to be NO_X emissions reductions. While the EPA's guidance from August 23, 1993, explicitly allowed for NO_X reductions in the context of CMs, it did not alter the EPA's approach to the overall amount of reductions required. As explained in Section 3, the EPA is now recommending a different approach to calculating the amount of VOC and/or NO_X reductions recommended for purposes of CMs.

2.2.3. 1994 Addendum to the General Preamble

In 1994, the EPA published the "Addendum to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990" (Addendum).[29] The Addendum provided additional guidance to states with PM_{10} nonattainment areas designated Serious under the Part D Subpart 4 requirements. The EPA reiterated its guidance for section 172(c)(9), emphasizing key points including: (1) states must meet the CM requirement with measures that are not

[25] Id. at 2.

[26] *See,* e.g., 61 FR 36004, at 36009-36010 (July 9, 1996); and 62 FR 10690, at 10695 (March 10, 1997). *See also* 62 FR 15844 (April 3, 1997); 62 FR 66279 (December 18, 1997); 66 FR 30811 (June 8, 2001); 66 FR 586 and 66 FR 634 (January 3, 2001); and 70 FR 71612, at 71651 (November 29, 2005).

[27] EPA, Memorandum from Michael H. Shapiro, Acting Assistant Administrator for Air and Radiation, to Regional Air Directors, "Guidance on Issues Related to 15 Percent Rate-of-Progress Plans," August 23, 1993.

[28] In this context, "on a percentage basis" refers to substitution on the basis of the percentage of NO_X emissions reductions relative to the NO_X RFP baseline inventory. For example, in an area where the RFP baseline is 200 tons per day of VOC and 100 tons per day of NO_X, an RFP shortfall of 1 percent in VOC emissions reductions (i.e., 2 tpd) can be remedied by NO_X emissions reductions of 1 percent of the NO_X inventory (i.e., 1 tpd).

[29] 59 FR 41998.

required to meet other attainment plan obligations; (2) the CMs should be already adopted measures that would go into effect with minimal further action upon a triggering event; and (3) the CMs should result in emissions reductions that are equivalent to OYW of RFP in the area.[30] In the Addendum, the most notable clarification to prior the EPA guidance for PM_{10} was with respect to what additional state or EPA action is permissible after a triggering event, and within what time frame. Comparable to its prior guidance for ozone, the EPA stated that it "generally expects" that any state actions to implement CMs should occur within 60 days of the triggering event, and further recommended that the state "should ensure that the measures are fully implemented as expeditiously as practicable after they take effect."[31] Again, this statement indicated a distinction between the "effective date," the initial "implementation" and the "full implementation" of the CMs, without fully evaluating or explaining what that might mean in terms of when the emissions reductions from CMs should occur.

2.2.4. Implementation Rule for 2008 Ozone NAAQS

For implementation of the 2008 Ozone NAAQS, the EPA issued a rule in 2015 that included additional regulatory requirements and additional guidance for ozone attainment plan requirements.[32] With respect to the CM requirement, the EPA generally relied on its prior guidance in the General Preamble and provided additional guidance on several points. In accordance with longstanding guidance, the EPA reiterated that to meet statutory requirements, CMs: (1) must provide for the implementation of specific measures if the area at issue fails to attain or to meet any milestone; (2) must take effect without further action by the state or the EPA upon a triggering event; and (3) should represent OYW of RFP "amounting to reductions of 3 percent of the baseline emissions inventory for the nonattainment area."[33] The EPA also repeated its guidance that states could rely on emissions reductions from already implemented measures to be CMs, and in particular its "policy that allows promulgated federal measures to be used as contingency measures as long as they provide emissions reductions in the relevant years in excess of those needed for attainment or RFP."[34]

The one significant modification to the EPA's prior CM guidance concerned whether the CMs must result in some VOC emissions reductions or may instead result only in NO_X emissions reductions. As noted previously, the EPA's prior 1993 guidance had been that some portion of the emissions reductions from the CMs must consist of VOC emissions reductions. However, in 2015, the EPA stated that:

> As explained in the proposal, this previous limitation is no longer necessary in all cases. In particular, Moderate and above areas that have completed the initial 15 percent VOC reduction required by CAA section 182(b)(1)(A)(i) can meet the contingency measures

[30] Id. at 42014-15.
[31] Id. at 42015/1.
[32] "Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements," 80 FR 12264 (March 6, 2015).
[33] Id. at 12285.
[34] Id. (citing *LEAN v. EPA*, 382 F.3d 575 (5th Cir. 2004)).

requirement based entirely on NO_X controls if that is what the state's analyses have demonstrated would be more effective in bringing the area into attainment. There would be no minimum VOC requirement.[35]

As explained in Section 3, the EPA now recommends a different approach to calculating the recommended amount of VOC and/or NO_X reductions for purposes of CMs, but is not changing its guidance regarding the availability of NO_X substitution for CM purposes.

Although parties challenged the EPA's implementation rule for the 2008 Ozone NAAQS, no party challenged the EPA's guidance for section 172(c)(9) and section 182(c)(9) requirements.[36]

2.2.5. Implementation Rule for $PM_{2.5}$ NAAQS

In 2016, the EPA promulgated an implementation rule intended to address attainment plan requirements for the 1997 $PM_{2.5}$ NAAQS and all other iterations of the $PM_{2.5}$ NAAQS going forward.[37] With respect to CM requirements, the EPA provided both regulatory requirements in 40 CFR 51.1014 and guidance recommendations in the final rule preamble. This rulemaking highlighted several important distinctions with respect to CM for $PM_{2.5}$.
First, states with $PM_{2.5}$ nonattainment areas must have CMs that can be triggered by four different events: (1) a failure to meet an RFP requirement; (2) a failure to meet any quantitative milestone requirement; (3) a failure to submit a quantitative milestone report; or (4) a failure to attain by the applicable attainment date.[38]

Second, the EPA codified certain CM requirements in regulatory text. For example, the EPA has long interpreted section 172(c)(9) to require that CMs be measures that the state is not otherwise required to adopt and implement to meet other attainment plan requirements such as RACM/RACT, and that the state does not otherwise rely upon to meet RFP or attainment requirements. This and other core CM requirements are set forth by regulation for the $PM_{2.5}$ NAAQS.[39] The EPA provided additional guidance on these requirements in the preamble to the final implementation rule.[40]

Third, unlike Subpart 2 for ozone, Subpart 4, which is applicable to the $PM_{2.5}$ NAAQS, does not include a statutory provision that defines what amount of emissions reductions constitutes RFP, comparable to sections 182(b)(1)(A) and (c)(2)(B) for ozone. Instead, the RFP requirement for

[35] Id. at 12285/2.
[36] See *South Coast Air Quality Management District v. EPA, et al.*, 882 F.3d 1138 (D.C. Cir. 2018). Although the court rejected the EPA's approach to implementation of the 2008 Ozone NAAQS with respect to other issues, no petitioners challenged the EPA's guidance with respect to CM requirements.
[37] See "Fine Particulate Matter National Ambient Air Quality Standards: Nonattainment Area State Implementation Plan Requirements," 81 FR 58010 (August 24, 2016).
[38] 40 CFR 51.1014(a).
[39] 40 CFR 51.1014(b).
[40] 81 FR 58010 at 58066-068 (Moderate area plans); at 58092-93 (Serious area plans); and at 58105-106 (CAA section 189(d) plans).

$PM_{2.5}$ is governed by section 172(c)(2), as defined in section 171(1). The latter section provides that RFP means annual incremental reductions in emissions as is or may reasonably be required by the EPA for purposes of reaching attainment by the attainment date. Thus, rather than a set percentage reduction of emissions measured from the initial EI for the area (base year), the EPA has interpreted RFP for $PM_{2.5}$ to mean annual generally linear reductions in emissions from the base year to the attainment year. Air agencies must perform this calculation for both the NAAQS pollutant and for each relevant plan precursor. Rates of reduction may differ for each pollutant or relevant plan precursor, and a state can use the relative air quality impacts of different precursors identified in the attainment modeling to demonstrate that the emissions reductions provide adequate progress toward attainment to meet the RFP requirement.[41]

Finally, the EPA explained in the $PM_{2.5}$ Implementation Rule the amount of emissions reductions that CMs should achieve. The EPA repeated its longstanding guidance that PM CMs should provide OYW of RFP, calculated as the annual average reductions from the base year EI to the attainment year EI for the area. However, the EPA also acknowledged that there could be situations in which states would be unable to develop CMs that would achieve this amount of emissions reductions. In such cases, the EPA stated that:

> States should explain the amount of anticipated emissions reductions to be accomplished by the contingency measures outlined in the plan. In the rare event that an area is unable to identify contingency measures to account for approximately 1 year's worth of emissions reductions, the state should provide a reasoned justification why the smaller amount of emissions reductions is appropriate.[42]

The EPA did not provide any specific guidance to states concerning how to construct such a reasoned justification, but the Agency anticipated that there could be a factual and analytical basis to support approval of CMs that achieve less than the amount of reductions that the EPA has historically recommended. Section 4 of this document provides additional guidance on this approach.

2.2.6. Implementation Rule for 2015 Ozone NAAQS

For implementation of the 2015 Ozone NAAQS, the EPA issued a new implementation rule in 2018 that was primarily an update to the implementation rule for the 2008 Ozone NAAQS.[43] With respect to the CM requirement, the EPA relied on its prior guidance in the General Preamble and the prior ozone implementation rule.

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[41] 81 FR 58010 at 58055-58063; at 58090–58091; and at 58103-58104. The $PM_{2.5}$ implementation rule also lays out a stepwise option for RFP, but this approach is generally not relevant to the use of RFP in the calculation of the recommended amount of CM reductions based on the average annual rate.

[42] Id. at 58067/3.

[43] See "Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area State Implementation Plan Requirements," 83 FR 62998 (December 6, 2018).

In the preamble to the final rule, the EPA reiterated guidance on a number of key points, including: (1) that CMs must be fully adopted rules or measures that will take effect without further action upon a triggering event; (2) that CMs should achieve OYW of RFP or approximately 3 percent of the baseline EI; (3) that states may rely on NOx emissions rather than VOC emissions, if they have already fulfilled the 15 percent VOC reduction requirement for RFP in section 182(b)(1)(A)(i) and provide a demonstration that NO_X substitution would be effective to bringing the area to attainment; and (4) that CMs may consist of already implemented measures, so long as they meet other CM requirements and the state had not relied upon them for RFP or for attainment in the attainment plan.[44]

As discussed in Section 2.3.3, petitioners argued and the D.C. Circuit agreed that CAA sections 172(c)(9) and 182(c)(9) do not allow the agency to approve already-implemented measures as CMs.[45] Although the court vacated the implementation rule with respect to the EPA's position on this specific issue, petitioners did not challenge any other aspect of the EPA's approach to CMs in the Implementation Rule for the 2015 Ozone NAAQS. Accordingly, the EPA guidance has remained the same with respect to all other aspects of the CM requirements.

2.3. Relevant Court Decisions Addressing the CM Requirement

In addition to the statutory provisions, prior guidance, and existing implementation rules for purposes of the ozone and $PM_{2.5}$ NAAQS, the EPA must take into account a number of significant court decisions that interpret the attainment plan CM requirements. These decisions focus on specific aspects of the EPA's interpretations of the statutory CM requirements, and thus inform the EPA's current guidance.

2.3.1. *Louisiana Environmental Action Network (LEAN) v. EPA*

LEAN v. EPA was a challenge to the EPA's approval of a portion of an attainment plan for the 1979 Ozone NAAQS for the Baton Rouge area of Louisiana.[46] The EPA approved a new substitute CM that consisted of a control measure on a stationary source to reduce VOC emissions. The source had already installed and begun operating a flare to reduce VOC to meet this requirement in 1998; the EPA's approval of the CM was in 2002 and thus after the control measure was already implemented and achieving emissions reductions. In addition, the source at issue was located outside the boundaries of the designated nonattainment area. Petitioners challenged the EPA's approval on several grounds, including: (1) that because the measure was already implemented, it could not be a CM consistent with the express language in section 172(c)(9) and section 182(c)(9) indicating that CMs are supposed to be implemented in the future after a triggering event; and (2) that because the control measure applied to a source outside the nonattainment area, it could not be a CM.

[44] Id. at 63026. However, the EPA also acknowledged that states could not rely on already implemented measures as contingency measures in the 9th Circuit due to the 9th Circuit's decision in *Bahr v. EPA*, 836 F.3d 1218 (9th Cir. 2016), which is discussed in Section 2.3.2.
[45] *Sierra Club v. EPA*, 21 F.4th 815, at 827-828 (D.C. Cir. 2021).
[46] 382 F.3d 575 (5th Cir. 2004).

With respect to the first issue, the court accepted the EPA's arguments that the statutory language was ambiguous, thereby allowing the EPA to interpret the language to allow continuing emissions reductions from already implemented measures as CMs.[47] Subsequent courts have disagreed that the statutory provisions are ambiguous and have ruled that CMs must be conditional and prospective based on the plain language of the provisions. Thus, the EPA now acknowledges that the statutory language does not allow approval of already implemented measures, or surplus emissions reductions from such measures, to be CMs.

With respect to the second issue, the *LEAN* court found that the state and the EPA had failed to provide adequate technical support to demonstrate that the emissions reductions from a source outside the designated nonattainment area would in fact result in the necessary air quality improvements inside the nonattainment area.[48] However, the court's opinion leaves open the possibility that states could rely on control measures on sources outside the designated nonattainment area as CMs, so long as there is an adequate technical showing that the resulting emissions reductions from the CMs will have the required impact within the nonattainment area.[49] Unlike other nonattainment area plan requirements, section 172(c)(9) and section 182(c)(9) do not explicitly require that CMs must apply to sources inside the designated nonattainment area. The *LEAN* decision highlights, however, that the technical support for such an approach to CMs must be adequate.

2.3.2. *Bahr v. EPA*

Bahr v. EPA was a challenge to the EPA's approval of an attainment plan for the PM_{10} NAAQS for the Phoenix Planning Area of Arizona.[50] The EPA approved the state's SIP submission as meeting all applicable nonattainment area plan requirements pursuant to section 189(d), including the CM requirements of section 172(c)(9).

The CMs at issue consisted of measures designed to reduce windblown dust, such as paving and stabilizing roads, lowering speed limits, and purchasing and using street sweepers to help reduce ambient PM_{10}. There was no dispute that the state had already implemented these measures prior to the EPA's approval of the measures as CMs, and that the measures were then in place and thus continuing to reduce windblown dust. The court rejected the EPA's approval of the CMs, reasoning that the statutory language of section 172(c)(9) clearly indicates that CMs must be measures that are to take effect in the future, only after being triggered by a finding of failure to meet RFP or failure to attain.

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[47] Id. at 582-585.

[48] Id. at 584-587.

[49] The EPA has provided guidance with respect to CMs that rely on controls on sources outside the nonattainment area in the $PM_{2.5}$ Implementation Rule. 81 FR 58067 (CM for Moderate nonattainment areas); 81 FR 58105 (CM for Serious nonattainment areas).

[50] 836 F.3d 1218 (9th Cir. 2016).

The 9th Circuit found that the CAA language overrides the EPA's policy-based argument that allowing approval of already implemented measures as CMs would encourage states to implement control measures sooner, consistent with the overall policy objectives of the CAA to reduce pollution and protect public health. The court stated: "Even if we agreed that EPA's policy considerations are compelling, such considerations cannot override the plain language of the statute."[51] Although there was a dissenting opinion in this case, agreeing with the 5th Circuit's 2004 *LEAN* decision, the majority expressly disagreed with that decision. After the court decisions in *Bahr* and *LEAN*, the EPA was left with seemingly contradictory opinions in the 9th and 5th Circuits.

The EPA now draws from this case that the express terms of the statute prohibit the agency from approving as CMs any measures that the state has already implemented. In other words, CMs cannot be measures that will already be in place and achieving emissions reductions regardless of whether there is ever a future triggering event for CMs such as a finding of failure to meet RFP or finding of failure to attain. States must have CMs that are structured and worded so that they are both conditional and prospective, to take effect only in the event of a future triggering event.

2.3.3. Sierra Club v. EPA

Sierra Club v. EPA was a challenge to the EPA's final implementation rule for the 2015 Ozone NAAQS.[52] The EPA issued the rule to provide additional regulatory requirements and guidance to all states concerning nonattainment area SIP requirements for the 2015 ozone NAAQS, including CMs. Among other aspects of the final rule challenged in this case, the EPA had interpreted section 172(c)(9) and section 182(c)(9) to allow approval of emissions reductions from already implemented measures as CMs. In the challenged rule, the EPA also reiterated its interpretation of the CM requirements previously expressed in the implementation rule for the 2008 Ozone NAAQS, in which the EPA explicitly identified surplus emissions reductions that would occur in the future as a result of mobile source fleet turnover as one acceptable form of already implemented CM.[53]

The D.C. Circuit rejected this interpretation. The court held that the specific statutory wording of sections 172(c)(9) and 182(c)(9) unambiguously requires that CMs be "conditional and prospective."[54] The court evaluated the express statutory language in light of dictionary definitions and reasoned that "contingent" means "dependent on or conditioned by something else."[55] Similarly, the court reasoned that already implemented measures are not measures "to take effect" only if and when the contingency occurs.

[51] Id. at 1236-1237.
[52] 21 F.4th 815 (D.C. Cir. 2021).
[53] 80 FR 12264 at 12285.
[54] 21 F.4th at 827.
[55] Id. at 828, citing The Merriam-Webster Collegiate Dictionary 270 (11th ed. 2009).

Significantly, the *Sierra Club* decision explicitly rejected the EPA's argument that these statutory provisions are ambiguous because the 5th Circuit found them to be so in the *LEAN* decision, as did the dissent in *Bahr*. Although the D.C. Circuit acknowledged the different outcome in the *LEAN* decision, it rejected the conclusion that the statutory language is ambiguous with respect to whether already implemented measures can meet the statutory conditional and prospective requirements for CMs.

The EPA draws from this decision, which the court rendered on a rule of nationwide applicability, that it cannot approve as CMs any measures that are already implemented, and that will already be in place and achieving emissions reductions, regardless of whether there is ever a triggering event in the future, such as a finding of failure to meet RFP or finding of failure to attain. Again, states must have CMs that are structured and worded so that they are both conditional and prospective, to take effect only in the event of a future triggering event.

2.3.4. *Association of Irritated Residents (AIR) v. EPA*

AIR v. EPA was a challenge to the EPA's approval of an attainment SIP submission for the 2008 Ozone NAAQS for the San Joaquin Valley area of California.[56] The EPA approved the SIP submission as meeting the CM requirement with a single measure projected to achieve a relatively small amount of emissions reductions, well below the amount that would constitute OYW of RFP in the area. The EPA's approval action very explicitly acknowledged this fact. The EPA explained its view that other surplus emissions reductions in the area, including those that would result from mobile source fleet turnover, that were not relied upon in the attainment plan for any other purpose, would provide substantial additional emissions reductions following a failure to meet a milestone or attain the NAAQS by the applicable attainment date, thereby justifying the small amount of emissions reductions anticipated from the CM.

The 9th Circuit rejected this interpretation. Although the court noted that the CAA does not specify the amount of emissions reductions that CMs must achieve, and that the EPA's prior statements concerning this point are nonbinding guidance, the court evaluated the EPA's action under an arbitrary and capricious standard of review and concluded that the EPA had not provided a sufficiently reasoned explanation for departure from its guidance that CMs should achieve emissions reductions equivalent to OYW of RFP in the area. Notwithstanding the EPA's acknowledgement of the issue, and the EPA's explanation for its application of its guidance to the facts at issue, the court reasoned that the Agency was allowing surplus emission reductions from other already implemented measures to make up for a lack of CMs that would achieve the recommended OYW of RFP. In particular, the court stated that the EPA "has severed the relationship between the requirement of contingency measures and the benchmark of reasonable further progress, without an adequate explanation of why the new – and far more modest – contingency measure is reasonable."[57]

[56] 10 F.4th 937 (9th Cir. 2021).
[57] Id. at 946.

The EPA draws from the *AIR* decision that it cannot approve measures that would achieve reductions that comprise substantially less than OYW of RFP as meeting the CM requirement if the approval is dependent upon surplus emissions reductions from other already implemented measures to justify the smaller amount. In other words, states cannot rely on surplus emissions from other already implemented measures even indirectly as a means to reduce the amount of emissions reductions otherwise recommended for CMs. However, the court acknowledged that the EPA's prior statements concerning the amount of emissions reductions that CM should achieve to meet the statutory requirements are guidance, and that the EPA can revise its guidance if it provides a sufficient reasoned justification for a change. The EPA is heeding the court's decision and in this guidance is reconsidering this key aspect of its prior guidance.

2.4. Summary of the EPA's Approach to CMs, Prior to the Issuance of this Revised Guidance

The following list summarizes key aspects of the EPA's CM policy as it existed prior to the issuance of this guidance. As indicated in the list below, while the EPA is leaving CM policy largely unchanged, the EPA is now revising its guidance concerning the amount of reductions that CMs should provide (described further in Section 3), providing additional guidance on the documentation needed to support a claim that there are no feasible CMs to provide additional emission reductions (Section 4), and extending the length of time during which the EPA recommends reductions from CMs be achieved (Section 5).

1. CMs must be conditional and prospective, not already implemented, per the statute and relevant court decisions. For this same reason, the EPA cannot approve "excess" or "surplus" emissions reductions from already required and implemented control measures as meeting the CM requirement. Thus, for example, additional emissions reductions that will occur each year as a result of mobile source fleet turnover, whether from federal or state requirements, cannot constitute CMs, because they are the result of regulatory requirements that are already implemented and the emissions reductions will occur regardless of whether there is, or is not, any future CM triggering event. **The EPA is not changing this aspect of its prior CM guidance.**

2. CMs cannot be control measures that states are required to adopt and implement to meet other legal requirements. They cannot be control measures that the state is required to impose to meet other CAA requirements including, but not limited to, nonattainment area plan requirements such as RACM/RACT, best available control measures or best available control technology (BACM/BACT), or most stringent measures (MSM), and cannot be measures the state otherwise relies upon to meet RFP or for attainment in the modeled attainment demonstration. States have a separate obligation to meet those other requirements and, by definition, CMs are required to be measures that will provide emissions reductions over and above what the state is required to impose to meet all other separate obligations under the CAA. **The EPA is not changing this aspect of its prior CM guidance.**

3. CMs should achieve emissions reductions equal to or greater than OYW of RFP for the nonattainment area and the NAAQS at issue, as projected in the nonattainment plan. States may meet this OYW requirement to satisfy the CM requirement through one or more control measures; in other words, individual measures do not need to provide this amount of reductions in isolation but can be combined with other measures in order to achieve OYW of RFP and thus meet the CM requirements. **In Section 3 of this document, the EPA is updating this aspect of its prior CM guidance.**

4. CMs (whether one or more measures) that achieve less than the recommended amount of emissions reductions may be sufficient, with a reasoned justification for the lower amount. **In Section 4 of this document, the EPA is updating this aspect of its prior CM guidance**.

5. CMs should take effect within 60 days, and with no further significant action by the state or the EPA, following an EPA notification to the state of a failure to meet RFP or a failure to attain. If the state must take minor administrative actions to initiate implementation of CMs, these actions should be completed within the 60-day period. **The EPA is not changing this aspect of its prior CM guidance.**

6. The emissions reductions resulting from implementation of the CMs should generally occur in the year following the triggering event, such as a determination of failure to meet RFP or failure to attain, i.e., during the period that the state and the EPA should be addressing the deficiency that triggered the CMs through a new SIP submission, as appropriate. **In Section 5 of this document, the EPA is updating this aspect of its prior CM guidance**.

7. CMs may be measures that apply to sources outside the designated nonattainment area (unlike other nonattainment area plan requirements such as RACM/RACT), so long as there is an adequate technical demonstration showing that the emissions reductions from the CMs would provide the necessary air quality benefit within the NAA. **The EPA is not changing this aspect of its prior CM guidance.**

8. It is permissible, but not necessary, for a state to specify that certain CMs are for specific triggering events, such as for RFP failure only or for failure to attain only. If specified in this way, however, the state must ensure that adequate CMs are in place for each triggering event; this could result in the need for additional measures if a state elects to differentiate between CMs in this way. **The EPA is not changing this aspect of its prior CM guidance.**

The EPA intends the remainder of this document to revise and supplement its prior guidance with respect to how to calculate the amount of emissions reductions that CMs should achieve (Section 3) and concerning the period of time during which emissions reductions from CMs should occur (Section 5). In addition, the EPA is expanding its prior guidance concerning what would constitute a reasoned justification for air agencies to provide to establish that they

cannot identify and adopt sufficient CMs to achieve the recommended amount of reductions (Section 4).

3. Showing that the CMs Achieve Sufficient Reductions

As explained in Section 2, the EPA previously recommended that CMs provide reductions that provide for OYW of RFP. Under the historical OYW of RFP approach, air agencies documented the amount of reductions expected from the identified CMs and compared it to the amount of emission reductions that would constitute RFP in 1 year. The EPA now believes that it is appropriate to update its prior guidance to reflect the primary objective of the nonattainment area plan requirements—attaining the NAAQS—and has determined that the amount of reductions should be attainment-focused. Consequently, the EPA considers it more appropriate for CMs to achieve approximately "OYW of progress," which is a different metric than OYW of RFP.

Section 2 describes how RFP and OYW of RFP are calculated, noting differences between the CAA's ozone and PM provisions. To summarize, for ozone, annual RFP is defined as 3 percent of the anthropogenic emissions from the base year EI for the nonattainment area, also called the RFP baseline.[58] For PM, annual RFP is the average annual reductions between the RFP baseline and the projected attainment year EI (i.e., the attainment projected inventory for the nonattainment area, referred to in this document as the attainment projected inventory).

This CM guidance should not be interpreted to change existing EPA guidance or regulatory requirements for RFP in any way. This revised guidance pertains only to recommendations for fulfilling CM requirements.

In contrast to OYW of RFP, the EPA's revised recommended metric for CM, OYW of progress, is calculated in the same way for ozone and PM and applies an annual percentage emissions reduction to the attainment projected inventory as described in Section 3.1. In reviewing its guidance regarding the recommended amount of emissions reductions that CMs should achieve, the EPA observed that basing the amount of emissions reductions on the annual amount of reductions needed to meet the separate RFP requirement—OYW of RFP—may in some cases lead to an amount that is greater than what typically would be needed to make up for a shortfall in RFP or for attainment purposes. The situation arises because the separate RFP requirement is tied in part to the RFP baseline, despite the fact that the actual emissions levels in nonattainment areas typically decline over time as a result of the implementation of emissions control measures. Because the emissions level represented by the RFP baseline for a given attainment plan is fixed until the attainment date,[59] an amount calculated based on a

[58] For the purposes of this guidance, the term "RFP baseline" does not include the exclusions listed in CAA section 182(b)(1)(D).

[59] In the event of reclassification of a nonattainment area for PM_{10} or $PM_{2.5}$, the state is required to update the RFP baseline as part of the new attainment plan SIP submission; for an ozone nonattainment area, the RFP baseline remains the same following reclassification.

percentage of that level would also be fixed. Consequently, as the emissions levels decline in subsequent years, that amount actually represents an ever-growing percentage of any future year inventory. For example, the amount of VOC that represents 3 percent of the RFP baseline could represent 10 percent or more of the attainment projected inventory in some cases. Meanwhile, the timing of the implementation of CMs (i.e., the future year in which CMs will be triggered, if at all), is uncertain. CMs would be triggered no earlier than the first RFP milestone (and then only if a milestone failure occurred) and might not be triggered until the attainment date.[60] In either case, the emissions levels at the attainment date will presumptively have declined from the baseline by the time CMs would be triggered.[61]

After decades of implementing the CAA, the EPA now believes that its OYW of progress approach to calculating the amount of reductions for CMs is more consistent with the purpose of CMs, because it is more closely tied to the conditions in the nonattainment area at the time of the potential triggering event (i.e., to the projected levels of emissions of the relevant pollutants in the attainment year that would result in attainment).

For this reason, the EPA is revising its guidance concerning the minimum amount of emissions reductions that CMs should achieve. The CAA does not specify the amount of anticipated reductions that CMs should achieve. *See* CAA sections 172(c)(9) and 182(c)(9). In creating the CMs requirement, however, the EPA presumes that Congress must have intended the amount of reductions that CMs are anticipated to achieve to be material, and an amount consistent with the goal for CMs to maintain progress in reducing emissions while an air agency updates its SIP to meet the CAA requirements. However, by not specifying that amount, Congress implicitly delegated to the EPA the responsibility to determine some recommended amount against which to evaluate the approvability of submitted CMs. Under CAA section 110(k), the EPA is required to determine whether a SIP submission meets all applicable requirements, and the EPA is authorized to approve, disapprove, partially approve and partially disapprove, or conditionally approve a given SIP submission, as appropriate.[62] In other words, because the EPA has a statutory duty to evaluate an air agency's submitted CMs for compliance with CAA requirements, it is appropriate for the EPA to recommend a minimum amount of emission reductions that CMs should achieve in order to meet the Act's requirements. As explained

[60] Note that for Moderate ozone nonattainment areas, the end of the RFP interval occurs at the 6-year mark and thus coincides with the attainment date. For areas classified Serious or above, there are separate RFP milestone-related triggers for CMs that could occur in advance of the attainment date.

[61] This declining inventory/increasing percentage effect associated with OYW of RFP is more pronounced in nonattainment areas with higher classifications, particularly for ozone areas, where the base year inventory can be 10 years or more removed from the attainment date. Over long time periods, the emissions levels in the attainment projected inventory will likely be significantly lower than the RFP baseline.

[62] *See*, e.g., *Mich. v. United States EPA*, 213 F.3d 663, 687 (D.C. Cir. 2000) ("While the states have considerable latitude in fashioning SIPs, the CAA 'nonetheless subjects the States to strict minimum compliance requirements' and gives the EPA the authority to determine a state's compliance with the requirements" (citing *Union Elec. Co.*, 427 U.S. 246, 256-57 (1976)); *Mich. Dep't of Envtl. Quality v. Browner*, 230 F.3d 181 (6th Cir. 2000) ("Although states are given broad authority to design programs, the EPA has the final authority to determine whether a SIP meets the requirements of the CAA."); *Env't Comm. of the Fla. Elec. Power Coordinating Grp., Inc. v. EPA*, 94 F.4th 77, 85 (D.C. Cir. 2024) ("Congress tasked the EPA with ensuring that SIPs comply with the Act's requirements.").

previously, the EPA now considers it appropriate to measure the amount of emission reductions in light of the attainment needs as of the attainment year.

Thus, in the absence of a CAA-specified amount of emissions reductions required for CMs and following Congress's implied delegation of authority, the EPA is revising its guidance with respect to the recommended amount of reductions that CMs should achieve, given the statutory purpose of CMs, which is to ensure uninterrupted progress toward attainment while the air agency takes the next steps to address the failure. It is more appropriate for CMs to achieve emissions reductions reflecting a relative amount equal to or greater than the annual emissions reductions between the base year and the attainment year, as applied to the attainment projected inventory, rather than to a set percentage of the RFP baseline (for ozone) or to the annual average reductions between the RFP baseline and the attainment projected inventory (for PM).[63] In making this change in our recommendation, the EPA recognizes attainment of the NAAQS as the primary objective of the nonattainment area plan requirements, and thus concludes the appropriate metric should be attainment-focused. Applying OYW of progress for CM purposes (rather than OYW of RFP) in the plan submission to determine the recommended amount of CM reductions is an appropriate approach for ensuring such progress. The EPA also recognizes an air agency may elect to adopt CMs that achieve more emission reductions than the EPA's recommendation. More details about performing this calculation are provided in Section 3.1 and some examples are provided in Section 3.2.

In addition to focusing on the attainment projected inventory, there is, for ozone, an additional way in which the OYW of progress metric will differ from OYW of RFP: the recommended percentage of reductions for CM purposes represents appropriate progress toward attainment as opposed to a fixed amount. Under the CAA, and as explained previously, the rate of emissions reductions to meet OYW of RFP for ozone is essentially specified to be a fixed amount of VOC (3 percent of the base inventory per year).[64] This fixed amount is not necessarily equivalent to the amount of emissions reductions of VOC and/or NO_X that the area will need (as reflected in the attainment projected inventory) to attain the ozone NAAQS by the applicable attainment date. The annual rate of reductions (i.e., the percentage) could be more or less than 3 percent.[65]

To best reflect the attainment needs of the area, OYW of progress should be calculated for all relevant precursors to determine the annual percentage reduction to apply to the attainment projected inventory. This applies to VOC and NO_X for ozone and to direct $PM_{2.5}$ and each

[63] CAA section 172(c)(3) requires emissions from all sources to be included for attainment planning purposes, and the EPA cannot exclude emissions from the OYW of progress calculation. However, emissions reductions that will occur prior to the attainment date may be factored in when establishing the projected inventory used in the OYW of progress calculation.

[64] The CAA expresses RFP for ozone in terms of averages over certain time periods. For example, RFP for Serious ozone areas is expressed in CAA section 182(c)(2)(B) as an average of 3 percent per year over 3 consecutive years.

[65] This approach for CM is similar to how the RFP percentage is already determined for $PM_{2.5}$ precursors, because RFP for PM is not a fixed percentage.

significant $PM_{2.5}$ plan precursor for $PM_{2.5}$. Attainment demonstration modeling may provide a reasonable basis to identify ratios of the effectiveness of reductions of one precursor to reduce ambient concentrations relative to other precursors. If that is the case, then a state may use the ratio to substitute CM reductions of one precursor for a shortfall in CM reductions of another precursor. The EPA recommends that an air agency intending to use such a substitution approach consult with its Regional office concerning selection of a methodology for developing appropriate ratios.

The EPA notes that for ozone, the OYW of RFP calculation under our previous guidance was initially done only for VOC, with the possibility of NO_X substitution (discussed in Section 2.2.1 of this document). For the recommended OYW of progress metric, states should perform this calculation separately for each precursor, but with inter-precursor substitution available as appropriate. This would ensure that the air agency develops CMs to achieve reductions of all precursors that are applied in the area to reach attainment. In most areas, we anticipate that the OYW of progress metric would amount to fewer emissions reductions needed for CMs. However, for certain areas (e.g., areas needing more than 3 percent of VOC and NO_X annually to attain for ozone) the OYW of progress metric has the potential to result in more CM emissions reductions being needed for one or more precursors than would have been needed under the prior OYW of RFP approach, even after accounting for the reductions that will be achieved by the plan. This possibility does not alter our conclusion that the new recommended metric results in an amount of reductions that better aligns with the area's air quality needs for reductions of each precursor by accounting for declining emissions.

The EPA expects that air agencies will generally submit CMs concurrently with their modeled attainment demonstrations. Occasionally, a submitted attainment demonstration may not meet all minimum CAA requirements, and therefore it will not be possible for the EPA to approve it. For example, the EPA cannot approve a submitted attainment demonstration that does not successfully demonstrate attainment by the attainment date, nor can it approve one where actual ambient data indicates that it is impossible for the area to attain.[66] In this circumstance, there can be no approvable attainment projected inventory from which to calculate OYW of progress. In such cases, the EPA cannot approve a CM submission based on a showing of OYW of progress. However, the EPA can still approve a CM submission based on either (1) an infeasibility justification following the approach described in Section 4, or (2) an "RFP-only" CM submission associated with a request to reclassify the area before its attainment date, as described here.

The RFP-only option is based on the fact that air agencies that are unable to demonstrate attainment by the attainment date have the option to seek reclassification before they fail to attain. Upon such reclassification, CMs for failure to attain by the attainment date associated

[66] For instance, it may become impossible for an area to attain when the attainment date has already passed and the area has failed to attain or when the attainment date is approaching and, based on partial-year data, has already failed to attain.

with the previous classification are no longer required.[67] However, air agencies still must meet the requirement to have CMs for failure to meet RFP and for the other RFP-related triggers for the previous plan. The EPA recommends an approach for determining the recommended amount of CMs for RFP-only CM plan submissions (i.e., submissions for areas for which air agencies have requested reclassification) that relies on the OYW of RFP metric.
First, for $PM_{2.5}$, CAA section 188(b) and the EPA regulations provide for air agencies with a Moderate $PM_{2.5}$ area to make an impracticability demonstration for the area, resulting in reclassification of the area to Serious before the Moderate attainment date.[68] When the EPA approves the demonstration and reclassifies the area, CMs for failure to attain by the Moderate area attainment date are no longer required; however, CMs are required for other purposes in the Moderate plan, to be triggered in the event of a failure to meet RFP, failure to meet a quantitative milestone, or failure to submit a quantitative milestone report.[69] Consequently, when an air agency submits its CM plan with an impracticability demonstration, the EPA expects that it could submit an RFP-only CM plan for the area. In such cases, because there would be no approved modeled attainment demonstration from which to calculate OYW of progress, the appropriate metric for OYW would be the OYW of RFP metric. The EPA has established how air agencies should determine RFP for such areas in the $PM_{2.5}$ SIP requirements rule, despite the absence of an approvable attainment demonstration.[70]

Second, for ozone nonattainment areas, CAA section 182(b)(3) expressly provides for states to request voluntary reclassification before the attainment date and does not limit the circumstances or timing for such a request. Upon the EPA granting such a request, similar to the EPA's approving an impracticability demonstration for a Moderate $PM_{2.5}$ area, there would be no CM required for failure to attain by the attainment date for the area's current classification, but CMs would still be needed to address RFP failure (i.e., failure to meet a milestone). Thus, when submitting a CM plan concurrently with or following a request for voluntary reclassification, a state could submit an RFP-only CM submission for such areas for the lower classification. The appropriate metric for OYW for such a plan would be OYW of RFP. As noted previously, OYW of RFP for such areas is established by the CAA as 3 percent of the base year inventory for VOC.

The EPA expects that the use of the OYW of RFP metric would be limited to these two specific situations (i.e., where a CM requirement for a lower classification must still be met with respect to RFP, but not for failure to attain). Because these situations both involve reclassification, the air agency will later need to demonstrate attainment by the applicable attainment date for the new classification, and this new attainment demonstration will help establish the OYW of progress metric for the CMs required as part of the new attainment plan required for the area as reclassified.

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[67] See, e.g.,89 FR 51829. In addition, the EPA recently proposed a rule to codify this existing interpretation at 89 FR 80833.
[68] 40 CFR 51.1002(b)(1).
[69] 40 CFR 51.1014(a).
[70] The method for calculating RFP in Moderate areas that cannot demonstrate attainment by the Moderate area statutory deadline is described in the $PM_{2.5}$ implementation rule (81 FR 58010, 58056-58057).

3.1. OYW of Progress Calculation Described

The EPA recommends that air agencies use the following equation to calculate OYW of progress (for each pollutant or plan precursor) for the purpose of assessing the adequacy of the reductions provided by the submitted CMs:

$$OYW\ of\ Progress = \frac{RFP\ baseline - Attainment\ projected\ inventory}{N_{years} \times\ RFP\ baseline} \times\ Attainment\ projected\ inventory$$

Where N_{years} is the expected attainment year (as per the modeled attainment demonstration) minus the base year (e.g., 2017 or 2018 for the 2015 ozone standard). The OYW of progress calculation is based on anthropogenic emissions. The use of the terms "RFP baseline" and "attainment projected inventory," refer to anthropogenic emissions within the nonattainment area[71].

States should use this approach for ozone and PM attainment plans and should perform the calculation separately for each relevant pollutant and plan precursor. This calculation can be broken down into three steps.

Step 1. Calculate the average annual emissions reductions needed to attain: For each pollutant or plan precursor, determine the amount of emissions reductions within the nonattainment area between the base year and the projected attainment year and divide by the number of years between the base year and the attainment year. For PM, this typically represents the RFP annual average reduction, but for ozone, this will likely be different from the 3 percent (of the base year) annual requirement for RFP.

Step 2. Calculate the annual percentage reduction needed to attain: Determine what percentage of the RFP baseline is represented by the annual average emissions reduction needed to attain by dividing the annual average reductions (result of Step 1) by the RFP baseline and multiplying by 100.[72]

Step 3. Calculate the amount of emissions reductions needed for OYW of progress for each precursor: Multiply the total emissions from the attainment projected inventory by

[71] Because modeling inventories usually reflect county boundaries, states with nonattainment areas that do not follow county boundaries will need to calculate the portion of their modeling inventories that map to the nonattainment area. States may use the same approach to do such mapping as they used for the base year inventory for the nonattainment area (i.e., the planning inventories not used for modeling).

[72] This discussion uses "percentage reductions" because that is the commonly-used terminology when describing OYW. The resulting equation and examples do not expressly include the multiplication by 100 in Step 2 (to calculate percentage reductions) or the division by 100 in Step 3 (to apply the percentage reductions to determine the amount of emissions reductions that represents OYW of progress) because those operations cancel out.

the annual percentage reduction needed to attain (result of Step 2) and dividing by 100. This represents the amount of emissions reductions CMs should provide to meet OYW of progress.

The EPA reiterates that this calculation depends on an approvable attainment demonstration, which could either be a modeled attainment demonstration or, where the model does not show attainment, one that relies on weight of evidence to demonstrate attainment.
To affirm that the CMs achieve OYW of progress, the air agency should provide in the SIP submission documentation of the expected reductions from the CMs contained within the plan and a comparison of the expected emissions reductions to the OYW of progress amount calculated previously. Air agencies should include all steps of these calculations in their SIP submissions. The EPA expects that the CM requirements would be met if the expected reductions meet or exceed the OYW of progress amount for the relevant pollutant or precursor, and the CMs meet all other applicable requirements. If submitted CMs fall short of the recommended amount, Section 4 of this guidance addresses the potential for a reasoned justification for a lesser amount. Air agencies should ensure that other CM requirements unrelated to the amount of reductions are met (e.g., the measures are prospective and conditional and will take effect without further actions by the State or the EPA as sections 172(c)(9) and 182(c)(9) require). Finally, we note that this OYW of progress approach is only for the purpose of calculating the amount of emissions reductions for CM purposes and does not relieve a state from meeting other applicable CAA requirements (e.g., RFP, the milestone compliance demonstration requirements in CAA section 182(g), or the quantitative milestone requirements of section 189(c), which include separate and distinct requirements from sections 172(c)(9) and 182(c)(9)).

3.2. Examples OYW of Progress Calculations

This section provides examples of the OYW of progress calculation. The first example is for a Severe ozone nonattainment area and the second is for a Serious $PM_{2.5}$ nonattainment area. The EPA is providing these examples for the purpose of illustrating the concepts only. They are not based on any particular nonattainment area.

3.2.1. Example for Severe Ozone Nonattainment Area

Consider the example of a state with a Severe ozone nonattainment area that has a 2017 RFP baseline of 200 tons per day (tpd) of VOC and 150 tpd of NO_X. The attainment demonstration shows that the area will attain the ozone NAAQS in 2032. The 2032 attainment projected inventory is 140 tpd of VOC and 50 tpd of NO_X. The annual average reduction in emissions during the 15-year plan period is 4.0 tpd for VOC and 6.7 tpd for NO_X, which represents 2.0 percent and 4.4 percent of the RFP baseline of VOC and NO_X, respectively, i.e., the annual percent reductions needed to attain.

Under the OYW of progress approach, the CMs should provide emissions reductions sufficient to maintain the annual percentage reductions needed to attain. This amount (OYW of progress)

is calculated by applying the annual percentage reductions needed to attain to the emissions totals from the attainment projected inventory. That is, upon triggering, the CMs should provide emissions reductions sufficient to provide an annual emissions reduction rate of 2.0 percent for VOC and 4.4 percent for NO_X, based on the attainment projected inventory. In this example, the CMs should provide emissions reductions equivalent to 2.8 tpd of VOC and 2.2 tpd of NO_X. This amount represents OYW of progress for CM purposes (but is not equivalent to the amount of emissions reductions the state would need to achieve for RFP purposes).

$$OYW\ of\ Progress\ for\ VOC = \frac{(200\ tpd - 140\ tpd)}{(2032 - 2017) \times (200\ tpd)} \times 140\ tpd = 2.8\ tpd$$

$$OYW\ of\ Progress\ for\ NOx = \frac{(150\ tpd - 50\ tpd)}{(2032 - 2017) \times (150\ tpd)} \times 50\ tpd = 2.2\ tpd$$

This example can be broken down into three steps as described in Section 3.1.

Step 1: Calculate the annual average reductions needed to attain for each relevant precursor.

VOC Step 1a	$200\ tpd - 140\ tpd = 60\ tpd$
VOC Step 1b	$60\ tpd \div 15\ years = 4.0$
NO_X Step 1a	$150\ tpd - 50\ tpd = 100\ tpd$
NO_X Step 1b	$100\ tpd \div 15\ years = 6.67$

Step 2: Calculate the annual percentage reduction needed to attain.

VOC	$4.0\ tpd \div 200\ tpd = 0.02\ (or\ 2\%)$
NO_X	$6.67\ tpd \div 150\ tpd = 0.044\ (or\ 4.4\%)$

Step 3: Calculate the amount of reductions needed for OYW of progress.

VOC	$140\ tpd \times 0.02\ (or\ 2\%) = 2.8\ tpd$
NO_X	$50\ tpd \times 0.044\ (or\ 4.4\%) = 2.2\ tpd$

Comparison of Historical and Revised Guidance:

Under the EPA's prior guidance for CMs, the Agency recommended that CMs should achieve emissions reductions equivalent to OYW of RFP, which is essentially defined for ozone as 3

percent of the VOC emissions from the RFP baseline (anthropogenic portion of the base year inventory for the NAA).[73]

VOC	$200\ tpd \times 0.03\ (or\ 3\%) = 6.0\ tpd$

In this example, under the EPA's prior guidance, CMs should provide for emissions reductions equivalent to **6.0 tpd of VOC** (or, under the NO_X substitution guidance, 4.5 tpd of NO_X or a combination of VOC and NO_X on a percentage basis). Under the revised guidance, CMs should provide for emissions reductions equivalent to **2.8 tpd of VOC** and **2.3 tpd of NO_X** (although, as noted earlier in this section, a shortfall of reductions from CMs for one of the precursors may be remedied by additional reductions from CMs for other precursors if the attainment demonstration provides the basis to develop a ratio of relative effectiveness).

3.2.2. Example for Moderate $PM_{2.5}$ Nonattainment Area

Consider the example of a Moderate $PM_{2.5}$ nonattainment area that has a 2011 RFP baseline of 100 tpd of direct $PM_{2.5}$ and 200 tpd of NO_X and the air agency has adequately demonstrated the insignificance of precursor emissions of VOC, sulfur dioxide (SO_2), and ammonia. The modeled attainment demonstration shows that the area will attain the NAAQS by the end of 2021. The attainment projected inventory is 75 tpd of direct $PM_{2.5}$ emissions and 150 tpd of NO_X. The annual average reduction in emissions during the 10 years between the base year and the attainment year is 2.5 tpd of direct $PM_{2.5}$ and 5.0 tpd for NO_X, which represents 2.5 percent of the RFP baseline for both direct $PM_{2.5}$ and NO_X. This represents OYW of RFP, which for purposes of the $PM_{2.5}$ NAAQS is defined as generally linear annual emissions reductions, rather than a set percentage as for ozone. Under the EPA's prior guidance for CMs, this OYW of RFP is the amount of emissions reductions that the CMs should achieve.

Under the revised OYW of progress approach, the CMs should provide emissions reductions sufficient to maintain the annual percentage reductions needed to attain. This amount (OYW of progress) is calculated by applying the annual percentage reductions needed to attain to the attainment projected inventory. That is, upon triggering, the CMs should provide emissions reductions sufficient to provide an annual emissions reduction rate of 2.5 percent for both direct $PM_{2.5}$ and NO_X calculated as a percentage of the attainment projected inventory rather than the RFP baseline. In this example, the CMs should provide emissions reductions equivalent to 1.9 tpd of direct $PM_{2.5}$ and 3.8 tpd of NO_X. This amount represents OYW of progress for CM purposes (but is not equivalent to the amount of emissions reductions the state would need to achieve for RFP purposes).

[73] NO_X reductions could generally be credited to make up for a shortfall in VOC reductions on a percentage-of-inventory basis. In other words, if VOC CMs only achieve reductions equivalent to 2 percent of the VOC base year inventory, the addition of NO_X CMs that achieve 1 percent of the NO_X base year EI could be used to meet a OYW of RFP requirement of 3 percent.

$$OYW\ of\ Progress\ for\ Direct\ PM2.5\text{:}\ \frac{(100\ tpd - 75\ tpd)}{(2021 - 2011) \times (100\ tpd)} \times 75\ tpd = 1.9\ tpd$$

$$OYW\ of\ Progress\ for\ NOx\text{:}\ \frac{(200\ tpd - 150\ tpd)}{(2021 - 2011) \times (200\ tpd)} \times 150\ tpd = 3.8\ tpd$$

As with the previous example for a Severe ozone nonattainment area, this example can be broken down into three steps as described in Section 3.1.

Step 1: Calculate the annual average reductions needed to attain for each relevant precursor. (In this example, we assume the state has adequately demonstrated that it does not need to regulate the $PM_{2.5}$ precursors VOC, SO_2, and ammonia.)

Direct $PM_{2.5}$ Step 1a	$100\ tpd - 75\ tpd = 25\ tpd$
Direct $PM_{2.5}$ Step 1b	$25\ tpd \div 10\ = 2.5\ tpd$
NO_X Step 1a	$200\ tpd - 150\ tpd = 50\ tpd$
NO_X Step 1b	$50\ tpd \div 10\ = 5.0\ tpd$

Step 2: Calculate the annual percentage reduction needed to attain.

Direct $PM_{2.5}$	$2.5\ tpd \div 100\ tpd = 0.025\ (or\ 2.5\%)$
NO_X	$5.0\ tpd \div 200\ tpd = 0.025\ (or\ 2.5\%)$

Step 3: Calculate the amount of reductions needed for OYW of progress.

Direct $PM_{2.5}$	$75\ tpd \times 0.025\ (or\ 2.5\%) = 1.9\ tpd$
NO_X	$150\ tpd \times 0.025\ (or\ 2.5\%) = 3.8\ tpd$

Comparison of Historical and Revised Guidance:

Under the EPA's prior guidance, the EPA recommended that CMs should provide for emissions reductions equivalent to OYW of RFP for direct $PM_{2.5}$ and each $PM_{2.5}$ plan precursor. The amount of OYW of RFP is determined by the same method as previously described for step 1. That is, calculate the annual average reductions needed to attain for each relevant precursor by

subtracting the attainment projected inventory from the RFP baseline and dividing that value by the number of years between the base year and the attainment year.

Direct $PM_{2.5}$ Step 1a	$100\ tpd - 75\ tpd = 25\ tpd$
Direct $PM_{2.5}$ Step 1b	$25\ tpd \div 10\ = 2.5\ tpd$
NO_X Step 1a	$200\ tpd - 150\ tpd = 50\ tpd$
NO_X Step 1b	$50\ tpd \div 10\ = 5.0\ tpd$

In this example, under the EPA's prior guidance, CMs should provide for emissions reductions equivalent to **2.5 tpd of direct $PM_{2.5}$** and **5.0 tpd of NO_X**. Under the revised guidance, CMs should provide for emissions reductions equivalent to **1.9 tpd of direct $PM_{2.5}$** and **3.8 tpd of NO_X.**[74]

4. Contingency Measures and Reasoned Justification for Less Than OYW of Progress

The EPA recognizes that some air agencies are concerned that they will not be able to identify technologically and economically feasible CMs that provide emissions reductions sufficient to meet the recommended amount. As noted in Section 2, existing EPA guidance allows an air agency that is unable to provide sufficient emissions reductions from CMs to provide a reasoned justification for a lesser amount. The EPA has not previously provided further guidance on how to identify potential CMs or how to develop a reasoned justification when those efforts fall short. This guidance is intended to provide clarification in response to requests from air agencies that are concerned about the availability of feasible CMs to provide OYW of reductions.

While the EPA notes that CAA section 172(c)(9) and section 182(c)(9) do not explicitly provide for consideration of whether specific measures are feasible, the Agency does not read the statute to require CMs that are not feasible, i.e., to require the imposition of control measures regardless of any technological or cost constraints whatsoever. The EPA notes that the statutory provisions applicable to other attainment plan control measure requirements, including RACM/RACT (for ozone and PM), BACM/BACT (for PM), and most stringent measures (for PM) allow air agencies to exclude certain measures that are deemed unreasonable or infeasible (depending on the requirement). For example, the most stringent measures provision in CAA section 188(e) requires plans to include "the most stringent measures that are included

[74] Interprecursor substitution using appropriate ratios could allow plans to be approved with amounts that differ from this result (i.e., lesser reductions of one precursor in exchange for greater reductions of another precursor).

in the implementation plan of any state or are achieved in practice in any state, *and can feasibly be implemented in the area*" [emphasis added].

As explained in Section 3, the CAA does not specify the amount of reductions that CMs should achieve. The EPA presumes that by not specifying an amount, Congress implicitly delegated to the EPA the responsibility to determine a recommended amount of reductions against which to evaluate the approvability of CMs in SIP submissions. However, the EPA notes that in some cases it may be appropriate to approve CMs that achieve less than that recommended amount, based on the facts and circumstances surrounding a given nonattainment area and an air agency's demonstration that additional CMs are not feasible. In other words, because the CAA does not specify the amount of reductions required for CMs, the EPA may make case-by-case determinations that CMs meet the CAA requirements despite not achieving the EPA's recommended amount of emissions reductions, so long as that SIP submission includes a reasoned justification that adequately supports the air agency's conclusion that additional CMs are not feasible. Thus, the EPA anticipates that a demonstrated lack of additional feasible measures could support EPA approval of CMs that achieve less than the recommended amount of emission reductions.

To justify a lesser amount of emissions reductions based on infeasibility, an air agency would need to provide the EPA with an adequate explanation and documentation that there are not additional feasible CMs that could achieve the recommended full OYW of progress amount.

The EPA notes that a key factor affecting the availability of feasible measures that can serve as CMs in a given nonattainment area is the degree to which the air agency has (1) already implemented control measures for sources within the nonattainment area, or (2) already included requirements for additional control measures for such sources in the air agency's current SIP to meet other control strategy requirements for implementation by no later than the attainment date. In some areas, particularly those with longstanding nonattainment challenges where the air agencies have already adopted increasingly stringent measures in attainment plans over the years since the EPA issued the General Preamble, the available supply of feasible measures that can serve as CMs may be greatly diminished. These air agencies may be justified in adopting and submitting CMs that would result in less than OYW of progress if they have identified and evaluated all potentially available measures, have adopted the measures necessary to expeditiously attain the relevant NAAQS and satisfy other CAA requirements, have adopted the remaining feasible measures as CMs, and have adequately demonstrated these points in their SIP submission to the EPA.

To identify candidate CMs, air agencies should evaluate all controls that are not yet on-the-books (adopted) or on-the-way (included in the control strategy for the plan [75]), and which they could prospectively apply to sources within the nonattainment area. Examples of potentially

[75] "Plan" here refers to the latest plan developed by the state, which in most cases will include a control strategy submitted to demonstrate attainment and RFP, and which would typically be submitted concurrently with the CM submission.

available measures could include those that: (1) are presently being implemented for comparable sources outside the relevant nonattainment area or are presently being implemented for different sources within the nonattainment area (referred to in this guidance as "existing measures") or (2) are identifiable measures that may be feasible for sources in the nonattainment area, but have not been previously implemented elsewhere (referred to in this document as "potential control measures"). In this document, we refer to existing measures and potential control measures collectively as "candidate measures."

If, after adequately evaluating candidate measures, the air agency is unable to identify feasible CMs that would reduce emissions by an amount sufficient to meet the OYW of progress recommendation, then it may be appropriate for the air agency to adopt CMs that result in less than that amount, supported by a reasoned justification as described in this section. The EPA recommends that an air agency that is seeking to satisfy the statutory CM requirement with less than OYW of progress based on its determination that there is lack of feasible measures provide a reasoned justification that demonstrates the following: (1) for the relevant source categories and pollutants in the nonattainment area, the air agency has in fact considered all candidate measures (i.e., existing and potential measures, as described previously); and (2) the air agency has undertaken a thorough analysis and has reached reasonable conclusions in its determinations regarding the feasibility or infeasibility of candidate measures.

Where the attainment plan associated with the CM submission contains a robust control strategy analysis demonstrating that the area is attaining as expeditiously as practicable, that analysis can serve as a foundation for much of this effort. However, the EPA recommends additional documentation specific to the identification of candidate CMs and any feasibility analyses, as described in this section, to ensure that a plan that relies on a reasoned justification is adequately supported.

This section provides a suggested step-by-step methodology for air agencies to identify and assess the feasibility of candidate measures for CMs and, where they are unable to find CMs that provide OYW of progress, to develop a reasoned justification that documents their efforts to identify and assess potential CMs. The methodology described in this guidance is based on the following general principles:

- The process for identifying CMs should involve a case-specific factual analysis that begins with a thorough examination, as described in this section, of relevant emissions sources in the area, the on-the-books and on-the-way control measures that apply to those sources, and the range of existing and potential control measures for such sources.
    - The list of candidate control measures generated should encompass a broad range of sources and measures that could reduce relevant emissions.
    - If existing or potential control measures are excluded from the list of candidate measures and not evaluated, the resulting infeasibility claim would likely be deficient.

- Once candidate measures are identified, a case-specific factual analysis should be undertaken to determine the technological and economic feasibility of each of the measures.
    - Feasible measures that provide emissions reductions up to the equivalent of OYW of progress should be adopted as CMs.
- Air agencies that do not identify feasible CMs sufficient to provide OYW of progress should provide a reasoned justification that documents their efforts to identify candidate measures and explains the reasoning behind each claim that a candidate measure is infeasible in the area. As explained later in this section, "infeasible" means: (1) the measure is either technologically or economically infeasible or (2) the timing of actual reductions from the measure cannot meet the recommended timeframe (i.e., reductions cannot be achieved within 1, or at most 2, years of implementation).

Under longstanding EPA guidance, an air agency may establish that specific control measures are not technologically or economically feasible in the context of its attainment demonstration control strategy analyses.[76] For example, an air agency could determine that a measure is not feasible to implement RACM/RACT, BACM/BACT, or MSM, or that the measure is not needed to attain by the applicable attainment date and will not advance attainment. However, a claim that a measure is infeasible for control strategy purposes does not necessarily mean that it is also infeasible as a CM, and such measures should be evaluated to determine their suitability as CMs.

The EPA expects that justifications establishing that control measures evaluated as potential CMs are infeasible could be similar to analyses evaluating the feasibility of the measures to meet other CAA requirements such as RACM/RACT, but should not simply repeat the prior infeasibility showing. By statute, CMs are a separate and distinct nonattainment area plan requirement that is in addition to other control measure requirements, and therefore, disqualification of a specific control measure for purposes of other requirements does not per se disqualify the measure as a CM.

It is important to note the possibility that there may be *feasible* controls that the air agency previously considered in the control strategy analysis, but determined to be unnecessary for attainment, insufficient to advance attainment, or otherwise not required by the CAA. Where these measures are otherwise suitable for adoption as CMs, the air agency should include them as CMs in the attainment plan submission. If such measures are sufficient to reach OYW of progress, then a reasoned justification will not be necessary. If such measures and all other feasible CMs still do not reach OYW of progress, then the shortfall may be addressed by a reasoned justification.

[76] *See*, e.g., 1992 General Preamble at 57 FR 13540-41, which states in reference to RACM/RACT that a submission should contain "a reasoned justification for partial or full rejection of any available control measures, including those considered or presented during the State's public hearing process, that explains, with appropriate documentation, why each rejected control measure is infeasible or otherwise unreasonable."

Even where an air agency submits a reasoned justification, it should also adopt and submit all feasible CMs (possibly including measures it previously excluded from the control strategy), documenting the reductions that would be achieved from the implementation of these CMs, if triggered. The EPA anticipates that an air agency will be able to identify at least some feasible measures to serve as CMs, even if they achieve substantially less than OYW of progress. In light of the expected variation in the availability of feasible measures and resulting emissions reductions across different nonattainment areas, we are not recommending a minimum amount of CM emissions reductions that would be approvable in conjunction with a reasoned justification. With sufficient justification, CMs representing a lesser amount of reductions may be reasonable. However, the EPA emphasizes that lower amounts of CM emissions reductions will warrant more robust analyses demonstrating a thorough effort to identify candidate measures and to document the infeasibility of candidate measures. In light of the very strong likelihood that any area will have at least some available measures to achieve emission reductions, however small the amount, we do not recommend submission of an attainment plan that includes no CMs (i.e., zero reductions) for the pollutant or relevant precursor.[77]

4.1. Recommended procedure for identifying CMs, assessing feasibility, and, where necessary, developing a reasoned justification demonstrating that the area lacks sufficient feasible measures to achieve reductions consistent with OYW of progress.

The EPA recommends that air agencies use the following stepwise approach to address CM requirements: (1) identify candidate CMs, (2) assess the feasibility of each candidate CM, and (3) for areas that are not able to provide CMs that will result in OYW of progress, prepare a reasoned justification.

Step 1: Identify candidate contingency measures. *List existing and potential control measures not already included in the attainment plan that could be applied to controlled and uncontrolled sources in the nonattainment area. Consider opportunities to strengthen measures, such as measures that are already in place, and assess whether there are new measures that could be adopted*.

In this step, the air agency should conduct a thorough analysis to identify the sources present in the nonattainment area, along with the associated "on-the-books" control measures (i.e., the control measures that already apply to those sources) and the "on-the-way" control measures (i.e., the control measures in the attainment plan that will be implemented during the upcoming planning period), and any remaining unregulated source categories. This will document the current level of controls on sources in the area and will facilitate the identification and (in Step 2) evaluation of candidate CMs. This analysis should include the following elements:

[77] The EPA notes that in the *AIR* decision, the court rejected the EPA's approval of a CM that would have achieved 10 percent of the recommended amount. However, the EPA's action there was not based upon a reasoned justification as described in this guidance. The EPA believes that with the appropriate justification, CMs that provide less than the recommended amount could be supported.

- An emissions inventory that provides a comprehensive, detailed list of source categories emitting relevant pollutants and precursors, including identification of subcategories based on different fuels or materials (e.g., feedstock or production materials) as applicable. For ozone areas that are newly designated for a NAAQS and for PM areas, the base year inventory for the nonattainment area can be used for this purpose. Ozone areas that have been reclassified to a higher classification should use the most recent periodic inventory for the nonattainment area.
    - The emissions inventory should separate broader source categories into more specific categories that correspond with different control measures that apply and should separately list subcategories that are currently unregulated. For example, reciprocating engines can be categorized according to size or the type of fuel used to allow contingency measures to be specified for certain subcategories. Farming operations can be broken down into tilling dust, harvesting dust, and animal husbandry. Animal husbandry can be categorized by the type of livestock, for example, dairy cattle, range cattle, feedlot cattle, poultry, etc. This level of detail is necessary for the next step of the analysis.
- Identification of the on-the-books and on-the-way controls that apply to the source categories or subcategories present in the nonattainment area.
    - In order to facilitate a comparison of the on-the books and on-the-way control measures with other existing and potential control measures, and the identification of unregulated sources and subcategories in the nonattainment area, air agencies should list each source category included in the inventory as described previously, the amount of relevant emissions generated by that source category, and the corresponding rules that apply (or are scheduled to apply as part of the adopted plan) to the individual source categories and subcategories, and note any exemptions that apply.
- Identification of existing and potential control measures, including opportunities to strengthen on-the-books and on-the-way controls.[78] A robust attainment plan control strategy analysis[79] can serve as a good starting point for conducting this analysis.[80] If the control strategy analysis was previously limited in scope (for example, a RACT analysis that only evaluated major sources and CTG-covered sources within an ozone nonattainment area), the air agency should evaluate additional sources because the CM requirement is not limited in this way.
    - The CM analysis should include the full range of sources, i.e., stationary point sources, anthropogenic area sources (also referred to as nonpoint sources), and mobile sources.

[78] Changes to on-the-books and on-the-way control measures could include strengthening emissions limits, lowering applicability thresholds, removing exemptions, and advancing compliance dates.

[79] The $PM_{2.5}$ Implementation Rule provides a detailed description of the elements of a control strategy analysis, including guidance regarding the determination of technological and economic feasibility. 81 FR 58010, 58033-58043 (August 24, 2016).

[80] Serious PM areas are required to adopt BACM/BACT, and under some circumstances, MSM. Such measures may also be useful models for contingency measures in other areas.

- For stationary source measures, air agencies can use resources such as the EPA's Menu of Control Measures,[81] recent control strategy analyses (e.g., RACM/BACM and RACT/BACT analyses), and control measures in other nonattainment areas (particularly those with higher classifications or more mature programs), the RACT/BACT/LAER Clearinghouse (RBLC)[82], and other resources available to the air agency to identify potential new stationary source control measures.
- For mobile source measures, there are currently two EPA webpages that provide information on mobile source program design and implementation as well as guidance on the crediting of such programs in a state implementation plan: (1) the Guidance on Control Strategies for State and Local Agencies webpage[83] and (2) the Policy and Technical Guidance webpage.[84]
- Some air agencies or multi-jurisdictional air organizations provide additional sources of information that can also assist in identifying additional control measures.[85] The EPA recommends consulting with the appropriate Regional office regarding sources of measures beyond those the EPA has identified.

Air agencies do not need to list measures they do not have the legal authority to implement as candidate measures in Step 1 or evaluate the feasibility of such measures in Step 2. However, the EPA recommends that reasoned justifications include a description of any such measures that were recommended by the public or are being implemented elsewhere, and an explanation of why the air agency lacks the legal authority to implement them.[86]

In developing the Step 1 list of candidate measures, air agencies may determine that some source categories do not have potential control measures that would have more than a trivial impact on emissions. To avoid air agencies spending significant resources analyzing measures whose reductions apply only to sources in such categories, it would be appropriate for the air

[81] *https://www.EPA.gov/air-quality-implementation-plans/menu-control-measures-naaqs-implementation*.
[82] *https://cfpub.EPA.gov/rblc/*.
[83] *https://www.EPA.gov/state-and-local-transportation/guidance-control-strategies-state-and-local-agencies*. This webpage contains EPA guidance to help state and local air quality agencies quantify and implement state implementation plan control strategies that reduce mobile source emissions. Examples include commuter programs, diesel retrofits and replacements, land use, locomotive idle reduction, transportation control measures (TCMs), and transportation pricing programs.
[84] *https://www.EPA.gov/state-and-local-transportation/policy-and-technical-guidance*. This webpage provides links to general information on mobile source CAA requirements and guidance on control strategies.
[85] Two examples are (1) the Ozone Transport Commission's (OTC) 2017 "White Paper on Control Technologies and OTC State Regulations for NO_X Emissions from Eight Source Categories" and (2) the CARB Technology Clearinghouse, *see https://ww2.arb.ca.gov/our-work/programs/technology-clearinghouse/technology-clearinghouse-tools*.
[86] The EPA notes that a state is obligated to meet the CM requirement of the CAA and thus division of authority between the state and local air districts, or between different state agencies within a given state, does not provide a basis to claim lack of authority to meet the CM requirement.

agency to exclude such measures from the Step 1 list. The EPA recommends that if an air agency seeks to exclude measures in this way, the emission reductions from such measures should be unquestionably negligible. The EPA presumes that candidate measures that would impose additional control measures only on categories of sources that collectively emit no more than 5 percent of OYW of progress for the area would be considered unquestionably negligible. If an air agency does not identify CMs that provide the recommended amount of reductions (i.e., OYW of progress), it should identify the categories in the reasoned justification that it did not evaluate because it presumed the emissions reductions from the candidate measures applicable to those categories to be unquestionably negligible based on the low collective emissions from such categories. Moreover, in keeping with the recommendation earlier in this section regarding the preference for states to adopt at least one CM or a combination of CMs, air agencies that would otherwise be unable to identify any feasible CMs may need to evaluate some smaller categories even if they yield measures that only achieve a relatively small amount of emission reductions.

The result of Step 1 would be a detailed list of source categories and subcategories, the associated relevant emissions for each category/subcategory, the "on-the-books" and on-the-way" control measures that apply to each category, and all existing or potential control measures that, prior to any feasibility analysis, are applicable to sources in the nonattainment area, could achieve additional emissions reductions, and are not already adopted or implemented within the area. The EPA anticipates that the Step 1 search for candidate measures will identify measures that have the potential to be feasible as CMs. The list of measures identified in Step 1 will identify the candidate CMs that the air agency should evaluate for feasibility in Step 2. This comprehensive list will also allow the EPA and the public to review the existing or potential measures that the air agency considered and will provide an opportunity to identify additional candidate measures that the air agency did not include in the analysis.

Step 2: Assess the feasibility of candidate CMs. *Analyze each of the candidate measures identified in Step 1 to determine whether it is feasible as a CM. If feasible, include the measure as a CM in the SIP submission. If the identified CMs provide emissions reductions consistent with OYW of progress, a reasoned justification will be unnecessary*.

In this step, the air agency should determine which of the candidate measures identified in Step 1 are feasible as CMs. Feasibility considerations can include whether the measure is technologically and economically feasible, and whether some portion of emissions reductions resulting from implementation of the measure could be achieved within 2 years of implementation following a triggering event. Air agencies should adopt as CMs the candidate measures that they determine to be feasible and should estimate the total CM reductions that will be achieved within 2 years of triggering the CMs to determine whether the plan provides reductions consistent with the OYW of progress metric. If the feasible measures are sufficient to reach OYW of progress, a reasoned justification will not be needed. The measures not found to be feasible in this step will constitute the list of infeasible measures that air agencies unable

to provide CMs totalling OYW of progress should address in the reasoned justification, as described in Step 3.

A particular set of candidate measures that an air agency could determine to be feasible in Step 2 and that would not already be included in the control strategy, would be the technologically and economically feasible measures that an air agency determined it is not required to impose to meet RACM requirements because the measures would not advance the attainment date by 1 year (or otherwise be required to meet BACM or MSM requirements for PM NAAQS purposes, where applicable). Assuming these measures meet the other requirements to be valid CMs, they should be adopted as CMs as needed to provide anticipated reductions toward meeting the OYW of progress recommendation. In other words, the fact that the control measures would not advance the attainment date by 1 year or are not otherwise required to meet BACM or MSM requirements is not a reason for rejecting them as CMs.

The EPA has previously issued guidance addressing feasibility for various control measure requirements in attainment plans (e.g., RACM/RACT, BACM/BACT, and MSM).[87] This guidance has described the analytical factors that states should also draw from in evaluating the feasibility of candidate measures as CMs, identifying two kinds of feasibility: technological and economic. Each of these is briefly reviewed in this section. The discussion focuses on the considerations for evaluating feasibility of measures for CM purposes, which build upon these previously discussed feasibility considerations for other control measure requirements. Therefore, this discussion should not be read as addressing feasibility analyses for requirements other than CMs.

Technological Feasibility

The EPA has identified several factors that affect the technological feasibility of a measure, including the source's process and operating procedures, raw materials requirements, physical plant layout, and adverse environmental impacts such as water pollution, waste disposal, and energy requirements that would negate the environmental benefit of the emissions control. If, upon consideration of these and other relevant factors, the air agency determines that a measure would render the source completely inoperable, make the source clearly unsafe to operate, or create significant negative non-air quality related environmental impacts, such a showing could support a justification that the measure is technologically infeasible.

An additional consideration in technological feasibility is the time frame for achieving reductions. For CMs, as explained in section 5 of this guidance, some portion of the reductions should be achieved within 2 years from the triggering event. Where an otherwise feasible measure requires longer than 2 years to achieve any reductions, this could be a justification for

[87] *See*, e.g., the Appendices to the 1992 General Preamble, 57 FR 18070 at 18073-4 (April 28, 1992); the 1992 NO_X Supplement to the General Preamble, 57 FR 55620 at 55624-5 (November 25, 1992); the 1994 PM_{10} General Preamble Addendum, 59 FR 41988 at 42013; and the 2016 $PM_{2.5}$ NAAQS SIP Requirements Rule, 81 FR 58010 at 58084-85.

a finding of technological infeasibility, if the air agency provides appropriate documentation of the anticipated time frame for achieving emissions reductions.

The EPA acknowledges that if an air agency determines that a control measure is not technologically feasible in the attainment plan control strategy analysis, it may also not be technologically feasible as a CM. However, in light of the separate CAA requirement for CM, the EPA recommends that any control measures a state rejected because of technological infeasibility in a control strategy analysis should still be evaluated to determine whether the measures may be feasible as CM. For example, there may be timing considerations (e.g., the need to implement RACT by a specified date) that could render an identified measure infeasible as RACT, but feasible on the time frame by which the CM would likely be implemented (i.e., up to and including the 2 years following the CM trigger date (e.g., the date based on a finding of failure to attain). Moreover, if the air agency included a measure in the plan's control strategy but its scope/coverage was limited due to technological feasibility considerations, then the state should consider it in Step 2 of the CM analysis by evaluating whether the additional lead time before the triggering event (e.g., for CMs tied to a failure to attain, there may be multiple years before the attainment deadline) would allow for the measure to be feasibly achieved as a CM.

Where adoption of a candidate measure involves significant planning, such as an extensive stakeholder, planning and/or budgeting process, that measure could still be feasible as a CM. Air agencies would need to complete these processes prior to submitting such a measure to the EPA in order to assure its timely approval in a SIP, and ensure that it can otherwise meet CM requirements and guidance for timing and implementation without further state or EPA action.

However, it is reasonable for states to account for factors that might prevent a particular measure from taking effect within 60 days of triggering when evaluating its feasibility as a CM. For example, a measure may be infeasible if it requires a plan for program implementation *after* the triggering event with details (e.g., project plan, detailed budget, schedule, etc. to assure the timely and successful implementation of the measure) that cannot be specified to take effect within 60 days of triggering. A potential measure may also be infeasible if it requires program funding to be available upon triggering the CM, but the funding or irrevocable funding commitment cannot be secured prior to the time the state submits, and the EPA approves, the CM. Securing program funding or irrevocable funding commitments in advance for a CM that may never be triggered may be a challenge for states. Where a state claims that a measure is infeasible for these reasons, it should clearly identify the specific factors that prevent it from taking effect within 60 days.

Economic Feasibility

The CAA does not indicate whether the cost of controls is a factor to consider when identifying CMs. On one hand, this suggests that air agencies ought to be considering all possible CMs regardless of how much those controls cost to implement. However, as explained previously, the EPA does not read the CAA CM requirements to require air agencies to adopt and impose

economically infeasible measures. As such, the EPA anticipates that there may be some upper limit relevant to costs in the context of CMs, i.e., that at some point costs could become so exorbitant that it would render the otherwise possible CMs infeasible. However, this point is difficult to define because it depends on many fact-specific considerations that can change over time. The EPA therefore recommends that air agencies evaluate the economic feasibility of potential CMs based on a cost/ton threshold that is higher than what was considered in a fashion similar to the economic analysis for measures in the control strategy in the nonattainment area, including any thresholds associated with RACT determinations. For example, a measure that was determined economically "unreasonable" for RACT purposes because of cost is not automatically economically infeasible for use as a CM.

The EPA often uses cost per ton reduced as an indicator of economic feasibility, but the EPA cannot recommend a single one-size-fits-all cost per ton (cost/ton) amount that would provide a bright line that renders a control measure economically feasible (or infeasible) for CM purposes.[88] Instead, evaluating whether a given measure is economically feasible as a CM should include a robust evaluation of the cost of the control measure to be implemented within a given timeframe. Therefore, the EPA recommends that air agencies provide cost/ton estimates for each of the candidate measures the air agency is rejecting as a CM. The EPA's Control Cost Manual provides guidance for developing accurate and consistent cost estimates for air pollution control devices.[89] Providing cost/ton estimates for CMs that the air agency *is* adopting also provides a useful basis for illustrating the relatively higher cost/ton of any measures rejected on this basis. Importantly, economic feasibility considerations include the control cost for a source relative to other similar sources that have implemented a specific control measure. The EPA presumes that it is reasonable for similar sources to bear similar costs to achieve emissions reductions. Economic feasibility rests very little on the ability of a particular source to "afford" to reduce emissions to the level of similar sources.[90] Air agencies should also ensure that control measures are not rejected categorically as economically infeasible if they may otherwise be economically feasible for some individual sources within that category.

In determining what is economically feasible for CM purposes, the fact that a candidate CM is more costly than those in the plan's control strategy is not a basis for concluding it is economically infeasible. The EPA expects air agencies may need to consider more costly measures than those in the control strategy because, by definition, triggering CMs means the area has failed to attain or meet RFP through implementing the measures that are already in the approved attainment plan. Consistent with the statutory purpose of CMs to provide additional emissions reductions in the event that the measures in the approved attainment plan fail to meet RFP or result in attainment, the EPA believes that CMs are logically measures

[88] The cost per ton amount referred to here is for an annual or annualized cost; that is, the typical yearly cost associated with a control measure under consideration for CM purposes.
[89] *https://www.EPA.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution*. Section 1, Chapter 2 of the Control Cost Manual provides guidance on the cost estimation methodology that is appropriate for use with air pollution control devices such as those under consideration as CMs.
[90] *See*, e.g., 57 FR 18070 at 18074; and 81 FR 58010 at 58085.

that may have greater economic consequence than what was considered appropriate in the control strategy. Accordingly, measures that the air agency rejected in the control strategy analysis due to economic considerations should be considered to be candidate CMs and evaluated by the air agency in Step 2 to determine feasibility. If the air agency still rejects the measures as CM due to economic infeasibility, it will need to document its reasoning in Step 3.

As with technological feasibility, the economic feasibility analysis for candidate CMs should consider the timeframe by which the measures will need to achieve reductions. As explained in Section 5, the EPA recommends that for CMs, some portion of the emissions reductions should be achieved no later than 2 years following the trigger for the CM. To the degree that a measure, once triggered, would cost more to implement within 2 years of triggering than it would to implement it over a longer time, this could be a relevant consideration to the measure's economic feasibility as a CM, provided the costs of the "faster" implementation are appropriately documented. At the same time, the economic feasibility analysis should consider the potential that the trigger for CMs might not occur until after the attainment date, and creditable emissions reductions might not be realized until 2 years later. This additional time to prepare for the triggering and implementation of a measure might reasonably lower its cost compared to the cost of implementing it now. Accounting for these timing considerations need not be based on detailed economic forecasts, but should provide a sufficiently robust basis for an air agency's conclusions regarding economic infeasibility of the measure specifically as a CM.

Step 3: Reasoned Justification. *Where the air agency is unable to identify CMs that provide OYW of progress, prepare a reasoned justification to include with the SIP submission that documents the air agency's efforts to identify candidate measures, including any measures that it excluded as candidates due to lack of authority or because they were in unquestionably negligible categories. The justification should then explain the air agency's conclusion regarding each candidate measure that was rejected as infeasible, including whether the basis for the conclusion is technological or economic infeasibility, or inability to achieve any reductions within 2 years. Provide information and analysis to support each conclusion.*

Following the generation of the list of candidate CMs (Step 1) and the identification and adoption of the subset of those that are feasible (Step 2), an air agency begins Step 3 with the list of measures it has determined to be infeasible. In Step 3, the air agency should explain and document the process it undertook to identify candidate measures (Step 1) and for each measure it rejected, document the reasons why it rejected the existing or potential control measures during Step 2 review. In keeping with Step 2, the EPA recommends that the air agency first identify whether the justification for excluding a measure as a CM is based on a determination that the measure is technologically infeasible and/or economically infeasible, including if the measure cannot achieve reductions within 1 or at most 2 years. The air agency should then provide the basis for each such determination, consistent with the feasibility considerations that it evaluated in Step 2.

For a technological infeasibility determination, the explanation should identify on a measure-by-measure basis, the specific factors that the air agency used in determining that the measure cannot be implemented for the relevant sources (or, as applicable, that its implementation cannot be broadened). If the technological infeasibility determination is tied to the timeframe for achieving reductions (for example, if the measure cannot possibly achieve any reductions within 2 years) the air agency should describe the implementation time frames that it considered. As noted in Step 2, in light of the separate CM requirement, the justification should address why the new or expanded measure is technologically infeasible for CM purposes.

For an economic infeasibility determination, the explanation should identify on a measure-by-measure basis, the cost factors and other related factors that the air agency used in determining that the measure is economically infeasible. The EPA recommends that the air agency provide cost/ton estimates for each of the measures being rejected as CMs on this basis. The air agency should also provide an explanation of why this cost/ton is infeasible for the specific CM under consideration. For example, it could compare the cost/ton of the infeasible measure to the estimates for CMs that the state is adopting to illustrate the relatively higher cost/ton of the rejected measures. The explanation of the air agency's judgments regarding infeasibility of measures as CMs should address the CM-specific factors noted in discussion of economic feasibility in Step 2, i.e., the expectation that CMs should be evaluated on a higher cost threshold basis than for other control strategy analysis in the SIP, and the costs to implement CMs should consider the relevant time frames that may be available to implement CMs, e.g., the lead time prior to a potential triggering event and the 1 to 2 year time frame for the CM to achieve the emissions reductions.

The EPA recognizes that in cases where the air agency is asserting that numerous measures are infeasible, this documentation effort will require an additional effort beyond that already invested to document the control strategy analysis. At the same time, we recognize that without adequate record support, the EPA would lack a basis for determining a SIP met CAA CM requirements if the CMs result in emissions reductions less than OYW of progress, particularly if the amount is significantly less than OYW. To balance these factors, the EPA recommends that for Step 1, the air agency prioritize more robust documentation of its approach for identifying candidate measures for the sources and categories that comprise larger portions of the emissions inventory. Similarly, for Step 3, the EPA recommends that the air agency provide more robust documentation for the infeasibility analysis for the measures that, if feasible, would have provided a greater amount of reductions. That being said, in order to provide the strongest justification, the air agency should still at least describe the basis for infeasibility for any category and measure identified in Step 1. To further affirm that it has addressed all non-trivial measures, an air agency should list the source categories for which the aggregate reductions from available CMs would result in unquestionably negligible emissions reductions, as determined in Step 1. As noted previously, the further a CM plan is from achieving OYW of progress, the more robust the record supporting its reasoned justification should be.

5. Guidance on Timing of Reductions from CMs

The EPA is also updating its guidance on the recommended timing of emissions reductions that CMs should achieve. Sections 172(c)(9) and 182(c)(9) both provide that CMs must "take effect" without further action by the EPA or the state, but do not define the term "take effect" or specify timelines for implementing the measures or achieving reductions. As discussed in Section 2, in the 1992 General Preamble, the EPA did address the question of how soon the CMs for ozone should take effect, and acknowledged that certain actions, such as notification of sources, modification of permits, etc., would probably be needed before a measure could be implemented effectively. There, the EPA concluded that in general, the actions needed to initiate implementation of the measures should occur within 60 days after the EPA notifies the State of its failure. For purposes of PM, the EPA stated in the General Preamble that states should implement CMs "immediately" after a triggering event, but subsequently in the $PM_{2.5}$ Implementation Rule, the EPA indicated that states should implement the CMs "quickly" in recognition of the potential need for minimal administrative actions to begin implementation, and by regulation the EPA has required that the CMs expressly specify the time frame during which the CMs will become effective after a triggering event.[91] We continue to believe that 60 days is an appropriate period for such administrative actions to occur for the purposes of initiating implementation of the CMs. The EPA is not altering its previous guidance with respect to this 60-day period.

Once the air agency begins implementation of the CM, sources will take the specified actions to reduce emissions. Depending on the type of control measure, implementation could achieve immediate emissions reductions, or could provide a specified time period for sources to come into compliance. As discussed in Section 2, the EPA did not make explicit recommendations in the General Preamble as to when the CM must be fully implemented. However, the EPA implicitly was assuming that the emissions reductions should occur within the year following a triggering event. This was a function of the EPA's approach to guidance on the amount of emissions reductions that CMs should achieve, premised on OYW of RFP, and the purpose of CMs as providing emissions reductions that would bridge the gap during the period – which prior guidance generally assumed to be 1 year – that a state would be developing a new SIP submission to address the underlying deficiencies that resulted in the failure to meet RFP or the failure to attain. Following this logic, the EPA previously concluded that emissions reductions from CMs should generally occur within a year of the triggering event. The EPA continues to believe that 1 year is generally the appropriate timeframe for CMs to achieve reductions because of the intended purpose of CMs to provide emissions reductions to bridge the gap between the failure and the subsequent corrective action.[92]

Section 4 of this guidance discusses factors that could be relevant when an air agency is unable to identify and adopt sufficient CMs to provide OYW of progress due to a lack of feasible

[91] 57 FR 13498 at 13544/1 ("immediately"); 81 FR 58.066 ("quickly"); 40 CFR 51.1014.

[92] In the unlikely event that a triggering event occurs before an air agency adopts measures to satisfy the CM plan requirement, the time frame for achieving reductions, i.e., 1 year and if necessary, 2 years, would be evaluated based on the adoption date of the measure rather than the now-passed trigger date. In other words, states should consider the feasibility of achieving the emissions reductions within 1-2 years of starting to implement the CMs (not based on a trigger date that is in the past).

measures. However, the EPA notes the possibility that an air agency lacking sufficient feasible CM reductions in 1 year could, upon accounting for reductions in the second year, come closer to reaching – or potentially fully reach – OYW of progress. The EPA believes in this case that, rather than exclude measures that are feasible as CMs because they would not result in sufficient emissions reductions in the first year after triggering, it is preferable for air agencies to consider and include these as CMs in their SIP submissions. We think that CMs that result in emissions reductions during the second year following triggering will still serve the important purpose of CMs to continue progress toward attainment, as the state develops and submits, and the EPA acts on, a SIP submission to address the underlying deficiency.

The EPA acknowledges that this approach would result in the OYW of progress reductions being spread out over the (up to) 2-year period following the triggering event. The CAA does not specify the timing of anticipated reductions that CMs should achieve. *See* CAA sections 172(c)(9) and 182(c)(9). In creating the CMs requirement, however, the EPA presumes that Congress must have intended the timing of the reductions to be consistent with the goal for CMs, which is to maintain progress in reducing emissions while a state updates its SIP to meet the CAA requirements. But by not specifying the specific timing, Congress implicitly delegated to the EPA the responsibility to determine the recommended timing of reductions against which to evaluate the approvability of submitted CMs.

In light of the fact that the statute does not specify the timing for achieving the CM emissions reductions, the EPA is revising its recommendation to provide for this approach to the timing of emission reductions from CMs, especially where there are insufficient measures available to achieve sufficient emissions reductions over a 1-year period. If an air agency elects to adopt as CMs measures that will require more than one year from the triggering event to provide the full amount of necessary reductions, then it should provide an adequate explanation of why the reductions could not be achieved within the first year and how much additional time is needed (up to 1 additional year). Reductions should be achieved as soon as possible. This new approach remains consistent with the EPA's original approach because the benefits of reductions in the second year would result in improvements to air quality during the time that the state and the EPA are taking the next steps in response to the failure that triggered the CM, such as the state developing and the EPA acting on a new SIP submission (e.g., the SIP submission that would be required upon reclassification, or in response to a PM milestone failure under section 189(c)(3)). With the benefit of up to an additional year to achieve reductions, air agencies may also be able to avoid the need for an infeasibility justification by instead developing and adopting CMs that will provide the OYW of progress recommended amount of emissions reductions.

Where partial implementation of a measure is feasible in the first year following triggering of a CM, but further implementation is feasible in the second year (e.g., a phased-in control measure), the same reasoning applies. The EPA believes that it could be appropriate for the reductions in both years to count toward the OYW of progress showing, but the state should adequately explain and document the basis for the inability to fully realize the reductions of the measure in 1 year. On the other hand, where the phased measure extends to periods beyond

the second year, the EPA does not believe it would be appropriate to continue to credit new reductions that occur beyond 2 years to the initial OYW of progress showing, because by that time, the next steps to revise the state's SIP should be well underway.[93] For example, within 2 years of a CM triggering event, the state generally would have been required to develop and submit a SIP submission containing new control measures necessary to achieve attainment or address RFP. Where an air agency wishes to adopt a CM with phased implementation that continues to achieve additional reductions beyond the second year following triggering, the EPA would apply reductions that occur within 2 years toward the OYW of progress total and would likely be able to approve that portion of the measure that results in reductions beyond 2 years as a SIP strengthening measure. We would not consider new reductions beyond 2 years to count toward OYW of progress for the CM requirement. Again, the intended purpose of CMs is to achieve emission reductions following a triggering event, during the period thereafter in the next 1 to 2 years.

[93] As noted in the previous footnote, this timeline would be altered in the unlikely event that a state submits CMs after the triggering event has already occurred.