40 CFR Part 52

[EPA-R04-OAR-2021-0841; EPA-HQ-OAR-2021-0663; FRL-10291-01-R4]

Air Plan Disapproval; AL; Interstate Transport Requirements for the 2015 8-Hour Ozone National Ambient Air Quality Standards

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: Pursuant to the Federal Clean Air Act (CAA or the Act), the Environmental Protection Agency (EPA or Agency) is proposing to disapprove the State Implementation Plan (SIP) submittal from Alabama dated June 21, 2022, regarding the interstate transport requirements for the 2015 8-hour ozone national ambient air quality standards (NAAQS or standard). The "Good Neighbor" or "Interstate Transport" provision of the Act requires that each State's implementation plan contain adequate provisions to prohibit emissions from within the State from significantly contributing to nonattainment or interfering with maintenance of the NAAQS in other states. This requirement is part of the broader set of "infrastructure" requirements, which are designed to ensure that the structural components of each State's air quality management program are adequate to meet the State's responsibilities under the CAA. If EPA finalizes this disapproval, the Agency will continue to be subject to an obligation to promulgate a Federal Implementation Plan (FIP) for Alabama to address the relevant interstate transport requirements, which was triggered by a finding of failure to submit published on June 22, 2022. Disapproval does not start a mandatory sanctions clock.

DATES: Written comments must be received on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: You may submit comments, identified by Docket No. EPA-R04-OAR-2021-0841, through the Federal eRulemaking Portal at https://www.regulations.gov following the online instructions for submitting comments.

Instructions: All submissions received must include the Docket No. EPA-R04-OAR-2021-0841 for this rulemaking. Comments received may be posted without change to https://www.regulations.gov/, including any personal information provided. For detailed instructions on submitting comments and additional information on the rulemaking process, see the "Public Participation" heading of the **SUPPLEMENTARY INFORMATION** section of this document. The EPA Docket Office can be contacted at (202) 566-1744, and is located at EPA Docket Center Reading Room, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. For further information on EPA Docket Center services and the current hours of operation at the EPA Docket Center, please visit us online at https://www.epa.gov/dockets.

FOR FURTHER INFORMATION CONTACT: Evan Adams of the Air Regulatory Management Section, Air Planning and Implementation Branch, Air and Radiation Division, U.S. Environmental Protection Agency, Region 4, 61 Forsyth Street, SW, Atlanta, Georgia 30303-8960. Mr. Adams can be reached by telephone at (404) 562-9009, or via electronic mail at adams.evan@epa.gov.

SUPPLEMENTARY INFORMATION: *Public Participation:* Submit your comments, identified by Docket No. EPA-R04-OAR-2021-0841, at https://www.regulations.gov. Once submitted, comments cannot be edited or removed from the docket. EPA may publish any comment received to its public docket. Do not submit to EPA's docket at https://www.regulations.gov any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (i.e., on the web, cloud, or other file sharing system).

There are two dockets supporting this action, EPA-R04-OAR-2021-0841 and EPA-HQ-OAR-2021-0663. Docket No. EPA-R04-OAR-2021-0841 contains information specific to Alabama, Mississippi, Tennessee, and Kentucky,[1] including this notice of proposed rulemaking. Docket No. EPA-HQ-OAR-2021-0663 contains additional modeling files, emissions inventory files, technical support documents, and other relevant supporting documentation regarding interstate transport of emissions for the 2015 8-hour ozone NAAQS which are being used to support this action. All comments regarding information in either of these dockets are to be made in Docket No. EPA-R04-OAR-2021-0841. For the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit https://www.epa.gov/dockets/commenting-epa-dockets.

The indices to Docket No. EPA-R04-OAR-2021-0841 and Docket No. EPA-R04-OAR-2021-0663 are available electronically at *www.regulations.gov*. While all documents in each docket are listed in their respective index, some information may not be publicly available due to docket file size restrictions or content (e.g., CBI).

Table of Contents

[1] EPA previously proposed action related to another Alabama SIP submission addressing the 2015 ozone interstate transport requirements in a notice of proposed rulemaking that included Mississippi's and Tennessee's SIP submissions addressing these same requirements. EPA is using that same docket for the proposed action related to Alabama's June 21, 2022, submittal addressing the 2015 ozone interstate transport requirements. EPA is not reopening for public comment the notice of proposed rulemaking published in the *Federal Register* at 87 FR 9545 on February 22, 2022.

I. Background

The following provides background for EPA's proposed action related to the interstate transport requirements for the 2015 8-hour ozone NAAQS for Alabama.

A. Description of Statutory Background

On October 1, 2015, EPA promulgated a revision to the ozone NAAQS (2015 8-hour ozone NAAQS), lowering the level of both the primary and secondary standards to 0.070 parts per million (ppm).[2] Section 110(a)(1) of the CAA requires states to submit, within 3 years after promulgation of a new or revised standard, SIP submissions meeting the applicable requirements of section 110(a)(2).[3] One of these applicable requirements is found in CAA section 110(a)(2)(D)(i)(I), otherwise known as the "good neighbor" or "interstate transport" provision, which generally requires SIPs to contain adequate provisions to prohibit in-state emissions activities from having certain adverse air quality effects on other states due to interstate transport of pollution. There are two so-called "prongs" within CAA section 110(a)(2)(D)(i)(I). A SIP for a new or revised NAAQS must contain adequate provisions prohibiting any source or other type of emissions activity within the State from emitting air pollutants in amounts that will significantly contribute to nonattainment of the NAAQS in another State (prong 1) or interfere with maintenance of the NAAQS in another State (prong 2). EPA and states must give

[2] National Ambient Air Quality Standards for Ozone, Final Rule, 80 FR 65292 (October 26, 2015). Although the level of the standard is specified in the units of ppm, ozone concentrations are also described in parts per billion (ppb). For example, 0.070 ppm is equivalent to 70 ppb.
[3] SIP revisions that are intended to meet the applicable requirements of section 110(a)(1) and (2) of the CAA are often referred to as infrastructure SIPs and the applicable elements under section 110(a)(2) are referred to as infrastructure requirements.

independent significance to prong 1 and prong 2 when evaluating downwind air quality problems under CAA section 110(a)(2)(D)(i)(I).[4]

B. Description of EPA's Four Step Interstate Transport Regulatory Process

EPA is using the 4-step interstate transport framework (or 4-step framework) to evaluate the SIP submittal from the Alabama Department of Environmental Management (ADEM or Alabama) addressing the interstate transport provision for the 2015 8-hour ozone NAAQS. EPA has addressed the interstate transport requirements of CAA section 110(a)(2)(D)(i)(I) with respect to prior ozone NAAQS in several regional regulatory actions, including the Cross-State Air Pollution Rule (CSAPR), which addressed interstate transport with respect to the 1997 ozone NAAQS as well as the 1997 and 2006 fine particulate matter standards,[5] and the Cross-State Air Pollution Rule Update (CSAPR Update)[6] and the Revised CSAPR Update, both of which addressed the 2008 ozone NAAQS.[7]

Through the development and implementation of the CSAPR rulemakings and prior regional rulemakings pursuant to the interstate transport provision,[8] EPA, working in partnership with states, developed the following 4-step interstate transport framework to evaluate a State's obligations to eliminate interstate transport emissions under the interstate transport provision for the ozone NAAQS: (1) Identify monitoring sites that are projected to have problems attaining and/or maintaining the NAAQS (i.e., nonattainment and/or maintenance receptors); (2) identify states that impact those air quality problems in other (i.e., downwind) states sufficiently such that

---

[4] *See North Carolina v. EPA*, 531 F.3d 896, 909-11 (D.C. Cir. 2008).
[5] *See* Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals, 76 FR 48208 (August 8, 2011).
[6] Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS, 81 FR 74504 (October 26, 2016).
[7] In 2019, the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) remanded the CSAPR Update to the extent it failed to require upwind states to eliminate their significant contribution by the next applicable attainment date by which downwind states must come into compliance with the NAAQS, as established under CAA section 181(a). *Wisconsin v. EPA*, 938 F.3d 303, 313 (D.C. Cir. 2019). The Revised CSAPR Update for the 2008 Ozone NAAQS, 86 FR 23054 (April 30, 2021), responded to the remand of the CSAPR Update in *Wisconsin* and the vacatur of a separate rule, the "CSAPR Close-Out," 83 FR 65878 (December 21, 2018), in *New York v. EPA*, 781 F. App'x 4 (D.C. Cir. 2019).
[8] In addition to the CSAPR rulemakings, other regional rulemakings addressing ozone transport include the "NOx SIP Call," 63 FR 57356 (October 27, 1998), and the "Clean Air Interstate Rule" (CAIR), 70 FR 25162 (May 12, 2005).

the states are considered "linked" and therefore warrant further review and analysis; (3) identify the emissions reductions necessary (if any), applying a multifactor analysis, to eliminate each linked upwind state's significant contribution to nonattainment or interference with maintenance of the NAAQS at the locations identified in Step 1; and (4) adopt permanent and enforceable measures needed to achieve those emissions reductions.

C. Background on EPA's Ozone Transport Modeling Information

In general, EPA has performed nationwide air quality modeling to project ozone design values which are used in combination with measured data to identify nonattainment and maintenance receptors. To quantify the contribution of emissions from specific upwind states on 2023 ozone design values for the identified downwind nonattainment and maintenance receptors, EPA performed nationwide, State-level ozone source apportionment modeling for 2023. The source apportionment modeling provided contributions to ozone at receptors from precursor emissions of anthropogenic nitrogen oxides (NOx) and volatile organic compounds (VOCs) in individual upwind states.

EPA has released several documents containing projected ozone design values, contributions, and information relevant to evaluating interstate transport with respect to the 2015 8-hour ozone NAAQS. First, on January 6, 2017, EPA published a notice of data availability (NODA) in which the Agency requested comment on preliminary interstate ozone transport data including projected ozone design values and interstate contributions for 2023 using a 2011 base year platform.[9] In the NODA, EPA used the year 2023 as the analytic year for this preliminary modeling because that year aligns with the expected attainment year for Moderate ozone nonattainment areas for the 2015 8-hour ozone NAAQS.[10] On October 27, 2017, EPA released a memorandum (October 2017 memorandum) containing updated modeling data for 2023, which

[9] *See* Notice of Availability of the Environmental Protection Agency's Preliminary Interstate Ozone Transport Modeling Data for the 2015 8-hour Ozone National Ambient Air Quality Standard (NAAQS), 82 FR 1733 (January 6, 2017).
[10] *See* 82 FR 1733, 1735.

incorporated changes made in response to comments on the NODA, and noted that the modeling may be useful for states developing SIPs to address interstate transport obligations for the 2008 ozone NAAQS.[11] On March 27, 2018, EPA issued a memorandum (March 2018 memorandum) noting that the same 2023 modeling data released in the October 2017 memorandum could also be useful for identifying potential downwind air quality problems with respect to the 2015 8-hour ozone NAAQS at Step 1 of the 4-step interstate transport framework.[12] The March 2018 memorandum also included the then newly available contribution modeling data for 2023 to assist states in evaluating their impact on potential downwind air quality problems for the 2015 8-hour ozone NAAQS under Step 2 of the 4-step interstate transport framework.[13] EPA subsequently issued two more memoranda in August and October 2018, providing additional information to states developing interstate transport SIP submissions for the 2015 8-hour ozone NAAQS concerning, respectively, potential contribution thresholds that may be appropriate to apply in Step 2 of the 4-step interstate transport framework, and considerations for identifying downwind areas that may have problems maintaining the standard at Step 1 of the 4-step interstate transport framework.[14]

Since the release of the modeling data shared in the March 2018 memorandum, EPA performed updated modeling using a 2016-based emissions modeling platform (i.e., 2016v1).

---

[11] *See* Information on the Interstate Transport State Implementation Plan Submissions for the 2008 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I), October 27, 2017 ("October 2017 memorandum"), available in Docket ID No. EPA-HQ-OAR-2021-0663 or at *https://www.epa.gov/interstate-air-pollution-transport/interstate-air-pollution-transport-memos-and-notices*.

[12] *See* Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I), March 27, 2018 ("March 2018 memorandum"), available in Docket ID No. EPA-HQ-OAR-2021-0663 or at *https://www.epa.gov/interstate-air-pollution-transport/interstate-air-pollution-transport-memos-and-notices*.

[13] The March 2018 memorandum, however, provided, "While the information in this memorandum and the associated air quality analysis data could be used to inform the development of these SIPs, the information is not a final determination regarding states' obligations under the good neighbor provision. Any such determination would be made through notice-and-comment rulemaking."

[14] *See* Analysis of Contribution Thresholds for Use in Clean Air Act Section 110(a)(2)(D)(i)(I) Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards, August 31, 2018) ("August 2018 memorandum"), and Considerations for Identifying Maintenance Receptors for Use in Clean Air Act Section 110(a)(2)(D)(i)(I) Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards, October 19, 2018 ("October 2018 memorandum"), available in Docket ID No. EPA-HQ-OAR-2021-0663 or at *https://www.epa.gov/sites/default/files/2018-10/documents/maintenance_receptors_flexibility_memo.pdf.*

This emissions platform was developed under the EPA/Multi-Jurisdictional Organization (MJO)/State collaborative project.[15] This collaborative project was a multi-year joint effort by EPA, MJOs, and states to develop a new, more recent emissions platform for use by EPA and states in regulatory modeling as an improvement over the dated 2011-based platform that EPA had used to project ozone design values and contribution data provided in the 2017 and 2018 memoranda. EPA used the 2016v1 emissions to project ozone design values and contributions for 2023. On October 30, 2020, in the Notice of Proposed Rulemaking for the Revised CSAPR Update, EPA released and accepted public comment on 2023 modeling that used the 2016v1 emissions platform.[16] Although the Revised CSAPR Update addressed transport for the 2008 ozone NAAQS, the projected design values and contributions from the 2016v1 platform are also useful for identifying downwind ozone problems and linkages with respect to the 2015 8-hour ozone NAAQS.[17]

Following the Revised CSAPR Update final rule, EPA made further updates to the 2016 emissions platform to include mobile emissions from EPA's Motor Vehicle Emission Simulator (MOVES3) model[18] and updated emissions projections for electric generating units (EGUs) that reflect the emissions reductions from the Revised CSAPR Update, recent information on plant closures, and other sector trends. The construct of the updated emissions platform, 2016v2, is described in the emissions modeling technical support document (TSD) included in the docket for this proposed rulemaking.[19] EPA performed air quality modeling of the 2016v2 emissions using the most recent public release version of the Comprehensive Air Quality Modeling with Extensions (CAMx) photochemical modeling, version 7.10.[20] EPA proposes to primarily rely on

[15] The results of this modeling, as well as the underlying modeling files, are included in Docket ID No. EPA-HQ-OAR-2021-0663.
[16] *See* 85 FR 68964, 68981.
[17] *See* the Air Quality Modeling Technical Support Document for the Final Revised Cross-State Air Pollution Rule Update, included in Docket ID No. EPA-HQ-OAR-2021-0663.
[18] Additional details and documentation related to the MOVES3 model can be found at https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves.
[19] *See* Technical Support Document (TSD) Preparation of Emissions Inventories for the 2016v2 North American Emissions Modeling Platform included in the Docket ID No. EPA-HQ-OAR-2021-0663.
[20] Ramboll Environment and Health, January 2021, www.camx.com.

modeling based on the updated and newly available 2016v2 emissions platform in evaluating these submissions with respect to Steps 1 and 2 of the 4-step interstate transport framework. By using the updated modeling results, EPA is using the most recently available and technically appropriate information for this proposed rulemaking. Section III of this document and the Air Quality Modeling TSD for 2015 Ozone NAAQS Transport SIP Proposed Actions included in Docket No. EPA-HQ-OAR-2021-0663 contain additional detail on the modeling performed using the 2016v2 emissions modeling.

In this document, EPA is accepting public comment on this updated 2023 modeling, which uses the 2016v2 emissions platform. Comments on EPA's air quality modeling should be submitted in Docket No. EPA-R04-OAR-2021-0841. Comments are not being accepted in Docket No. EPA-HQ-OAR-2021-0663.

States may have chosen to rely on the results of EPA modeling and/or alternative modeling performed by states or MJOs to evaluate downwind air quality problems and contributions as part of their submissions. In Section III of this document, EPA evaluates how Alabama used air quality modeling information in their submission.

D. EPA's Approach to Evaluating Interstate Transport SIPs for the 2015 8-Hour Ozone NAAQS

EPA proposes to apply a consistent set of policy judgments across all states for purposes of evaluating interstate transport obligations and the approvability of interstate transport SIP submittals for the 2015 8-hour ozone NAAQS. These policy judgments reflect consistency with relevant case law and past agency practice as reflected in CSAPR and related rulemakings. Nationwide consistency in approach is particularly important in the context of interstate ozone transport, which is a regional-scale pollution problem involving many smaller contributors. Effective policy solutions to the problem of interstate ozone transport going back to the NOx SIP Call have necessitated the application of a uniform framework of policy judgments in order to

ensure an "efficient and equitable" approach. *See EME Homer City Generation, LP v. EPA*, 572 U.S. 489, 519 (2014).

In the March, August, and October 2018 memoranda, EPA recognized that states may be able to establish alternative approaches to addressing their interstate transport obligations for the 2015 8-hour ozone NAAQS that vary from a nationally uniform framework. EPA emphasized in these memoranda, however, that such alternative approaches must be technically justified and appropriate in light of the facts and circumstances of each particular State's submittal. In general, EPA continues to believe that deviation from a nationally consistent approach to ozone transport must be substantially justified and have a well-documented technical basis that is consistent with relevant case law. Where states submitted SIPs that rely on any such potential concepts as may have been identified or suggested in the past, EPA will evaluate whether the State adequately justified the technical and legal basis for doing so.

EPA notes that certain potential concepts included in an attachment to the March 2018 memorandum require unique consideration, and these ideas do not constitute Agency guidance with respect to transport obligations for the 2015 8-hour ozone NAAQS. Attachment A to the March 2018 memorandum identified a "Preliminary List of Potential Flexibilities" that could potentially inform SIP development.[21] However, EPA made clear in that attachment that the list of ideas were not suggestions endorsed by the Agency but rather "comments provided in various forums" on which EPA sought "feedback from interested stakeholders."[22] Further, Attachment A stated, "EPA is not at this time making any determination that the ideas discussed below are consistent with the requirements of the CAA, nor are we specifically recommending that states use these approaches."[23] Attachment A to the March 2018 memorandum, therefore, does not constitute Agency guidance, but was intended to generate further discussion around potential approaches to addressing ozone transport among interested stakeholders. To the extent states

[21] March 2018 memorandum, Attachment A.
[22] *Id.* at A-1.
[23] *Id.*

sought to develop or rely on these ideas in support of their SIP submittals, EPA will thoroughly review the technical and legal justifications for doing so.

The remainder of this section describes EPA's proposed framework with respect to analytic year, definition of nonattainment and maintenance receptors, selection of contribution threshold, and multifactor control strategy assessment.

1. Selection of Analytic Year

In general, the states and EPA must implement the interstate transport provision in a manner "consistent with the provisions of [title I of the CAA.]" *See* CAA section 110(a)(2)(D)(i). This requires, among other things, that these obligations are addressed consistently with the timeframes for downwind areas to meet their CAA obligations. With respect to ozone NAAQS, under CAA section 181(a), this means obligations must be addressed "as expeditiously as practicable" and no later than the schedule of attainment dates provided in CAA section 181(a)(1).[24] Several D.C. Circuit court decisions address the issue of the relevant analytic year for the purposes of evaluating ozone transport air-quality problems. On September 13, 2019, the D.C. Circuit issued a decision in *Wisconsin v. EPA*, remanding the CSAPR Update to the extent that it failed to require upwind states to eliminate their significant contribution by the next applicable attainment date by which downwind states must come into compliance with the NAAQS, as established under CAA section 181(a). *See* 938 F.3d 303, 313.

On May 19, 2020, the D.C. Circuit issued a decision in *Maryland v. EPA* that cited the *Wisconsin* decision in holding that EPA must assess the impact of interstate transport on air quality at the next downwind attainment date, including Marginal area attainment dates, in evaluating the basis for EPA's denial of a petition under CAA section 126(b). *Maryland v. EPA*, 958 F.3d 1185, 1203-04 (D.C. Cir. 2020). The court noted that "section 126(b) incorporates the Good Neighbor Provision," and, therefore, "EPA must find a violation [of section 126] if an

[24] For attainment dates for the 2015 8-hour ozone NAAQS, refer to CAA section 181(a), 40 CFR 51.1303, and Additional Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards, 83 FR 25776 (June 4, 2018, effective August 3, 2018).

upwind source will significantly contribute to downwind nonattainment at the *next downwind attainment deadline*. Therefore, the agency must evaluate downwind air quality at that deadline, not at some later date." *Id.* at 1204 (emphasis added). EPA interprets the court's holding in *Maryland* as requiring the states and the Agency, under the good neighbor provision, to assess downwind air quality as expeditiously as practicable and no later than the next applicable attainment date,[25] which is now the Moderate area attainment date under CAA section 181 for ozone nonattainment. The Moderate area attainment date for the 2015 8-hour ozone NAAQS is August 3, 2024.[26] EPA believes that 2023 is now the appropriate year for analysis of interstate transport obligations for the 2015 8-hour ozone NAAQS, because the 2023 ozone season is the last relevant ozone season during which achieved emissions reductions in linked upwind states could assist downwind states with meeting the August 3, 2024, Moderate area attainment date for the 2015 8-hour ozone NAAQS.

EPA recognizes that the attainment date for nonattainment areas classified as Marginal for the 2015 8-hour ozone NAAQS was August 3, 2021. Under the *Maryland* holding, any necessary emissions reductions to satisfy interstate transport obligations should have been implemented by no later than this date. At the time of the statutory deadline to submit interstate transport SIPs (October 1, 2018), many states relied upon EPA modeling of the year 2023, and no State provided an alternative analysis using a 2021 analytic year (or the prior 2020 ozone season). However, EPA must act on SIP submittals using the information available at the time it takes such action. In this circumstance, EPA does not believe it would be appropriate to evaluate states' obligations under CAA section 110(a)(2)(D)(i)(I) as of an attainment date that is wholly in the past, because the Agency interprets the interstate transport provision as forward looking.

---

[25] EPA notes that the court in *Maryland* did not have occasion to evaluate circumstances in which EPA may determine that an upwind linkage to a downwind air quality problem exists at Steps 1 and 2 of the interstate transport framework by a particular attainment date, but for reasons of impossibility or profound uncertainty the Agency is unable to mandate upwind pollution controls by that date. *See Wisconsin*, 938 F.3d at 320. The D.C. Circuit noted in *Wisconsin* that upon a sufficient showing, these circumstances may warrant flexibility in effectuating the purpose of the interstate transport provision.

[26] *See* CAA section 181(a); 40 CFR 51.1303; Additional Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards, 83 FR 25776 (June 4, 2018, effective August 3, 2018).

See 86 FR 23054, 23074, April 30, 2021; *see also Wisconsin*, 938 F.3d at 322. Consequently, in this proposal EPA will use the analytical year of 2023 to evaluate Alabama's CAA section 110(a)(2)(D)(i)(I) SIP submission with respect to the 2015 8-hour ozone NAAQS.

2. Step 1 of the 4-Step Interstate Transport Framework

In Step 1, EPA identifies monitoring sites that are projected to have problems attaining and/or maintaining the NAAQS in the 2023 analytic year. Where EPA's analysis shows that a site does not fall under the definition of a nonattainment or maintenance receptor, that site is excluded from further analysis under EPA's 4-step interstate transport framework. For sites that are identified as a nonattainment or maintenance receptor in 2023, EPA proceeds to the next step of the 4-step interstate transport framework by identifying the upwind state's contribution to those receptors.

EPA's approach to identifying ozone nonattainment and maintenance receptors in this action is consistent with the approach used in previous transport rulemakings. EPA's approach gives independent consideration to both the "contribute significantly to nonattainment" and the "interfere with maintenance" prongs of CAA section 110(a)(2)(D)(i)(I), consistent with the D.C. Circuit's direction in *North Carolina v. EPA*.[27]

For the purpose of this proposal, EPA identifies nonattainment receptors as those monitoring sites that are projected to have average design values that exceed the NAAQS and that are also measuring nonattainment based on the most recent monitored design values. This approach is consistent with prior transport rulemakings, such as the CSAPR Update, where EPA defined nonattainment receptors as those areas that both currently measure nonattainment and that EPA projects will be in nonattainment in the future analytic year (i.e., 2023).[28]

---

[27] *See North Carolina v. EPA*, 531 F.3d 896, 910-11 (D.C. Cir. 2008) (holding that EPA must give "independent significance" to each prong of CAA section 110(a)(2)(D)(i)(I)).

[28] *See* 81 FR 74504 (October 26, 2016). This same concept, relying on both current monitoring data and modeling to define nonattainment receptors, was also applied in CAIR. *See* 70 FR 25162 at 25241, 25249 (January 14, 2005); *see also North Carolina*, 531 F.3d at 913-14 (affirming as reasonable EPA's approach to defining nonattainment in CAIR).

In addition, in this proposal, EPA identifies a receptor to be a "maintenance" receptor for purposes of defining interference with maintenance, consistent with the method used in CSAPR and upheld by the D.C. Circuit in *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118, 136 (D.C. Cir. 2015).[29] Specifically, EPA identified maintenance receptors as those receptors that would have difficulty maintaining the relevant NAAQS in a scenario that takes into account historical variability in air quality at that receptor. The variability in air quality was determined by evaluating the "maximum" future design value at each receptor based on a projection of the maximum measured design value over the relevant base period. EPA interprets the projected maximum future design value to be a potential future air quality outcome consistent with the meteorology that yielded maximum measured concentrations in the ambient data set analyzed for that receptor (i.e., ozone conducive meteorology). EPA also recognizes that previously experienced meteorological conditions (e.g., dominant wind direction, temperatures, air mass patterns) promoting ozone formation that led to maximum concentrations in the measured data may reoccur in the future. The maximum design value gives a reasonable projection of future air quality at the receptor under a scenario in which such conditions do, in fact, reoccur. The projected maximum design value is used to identify upwind emissions that, under those circumstances, could interfere with the downwind area's ability to maintain the NAAQS.

Recognizing that nonattainment receptors are also, by definition, maintenance receptors, EPA often uses the term "maintenance-only" to refer to those receptors that are not nonattainment receptors. Consistent with the concepts for maintenance receptors, as described above, EPA identifies "maintenance-only" receptors as those monitoring sites that have projected average design values above the level of the applicable NAAQS, but that are not currently measuring nonattainment based on the most recent official design values. In addition, those monitoring sites with projected average design values below the NAAQS, but with projected

[29] *See* 76 FR 48208 (August 8, 2011). The CSAPR Update and Revised CSAPR Update also used this approach. *See* 81 FR 74504 (October 26, 2016) and 86 FR 23054 (April 30, 2021).

maximum design values above the NAAQS are also identified as "maintenance-only" receptors, even if they are currently measuring nonattainment based on the most recent official design values.

3. Step 2 of the 4-Step Interstate Transport Framework

In Step 2, EPA quantifies the contribution of each upwind state to each receptor in the 2023 analytic year. The contribution metric used in Step 2 is defined as the average impact from each State to each receptor on the days with the highest ozone concentrations at the receptor based on the 2023 modeling. If a State's contribution value does not equal or exceed the threshold of 1 percent of the NAAQS (i.e., 0.70 ppb for the 2015 8-hour ozone NAAQS), the upwind state is not "linked" to a downwind air quality problem, and EPA, therefore, concludes that the State does not significantly contribute to nonattainment or interfere with maintenance of the NAAQS in the downwind states. However, if a State's contribution equals or exceeds the 1 percent threshold, the State's emissions are further evaluated in Step 3, considering both air quality and cost as part of a multi-factor analysis, to determine what, if any, emissions might be deemed "significant" and, thus, must be eliminated under CAA section 110(a)(2)(D)(i)(I).

EPA is proposing to rely in the first instance on the 1 percent threshold for the purpose of evaluating a State's contribution to nonattainment or maintenance of the 2015 8-hour ozone NAAQS (i.e., 0.70 ppb) at downwind receptors. This is consistent with the Step 2 approach that EPA applied in CSAPR for the 1997 ozone NAAQS, which has subsequently been applied in the CSAPR Update when evaluating interstate transport obligations for the 2008 ozone NAAQS. EPA continues to find 1 percent to be an appropriate threshold. For ozone, as EPA found in CAIR, CSAPR, and the CSAPR Update, a portion of the nonattainment problems from anthropogenic sources in the U.S. results from the combined impact of relatively small contributions from many upwind states, along with contributions from in-state sources and, in some cases, substantially larger contributions from a subset of particular upwind states. EPA's analysis shows that much of the ozone transport problem being analyzed in this proposed

rulemaking is the result of the collective impacts of contributions from many upwind states. Therefore, application of a consistent contribution threshold is necessary to identify those upwind states that should have responsibility for addressing their contribution to the downwind nonattainment and maintenance problems to which they collectively contribute. Continuing to use 1 percent of the NAAQS as the screening metric to evaluate collective contribution from many upwind states also allows EPA (and states) to apply a consistent framework to evaluate interstate emissions transport under the interstate transport provision from one NAAQS to the next. *See* 81 FR at 74518, October 26, 2016; *see also* 86 FR at 23085, April 30, 2021 (reviewing and explaining rationale from CSAPR, 76 FR at 48237-38, August 8, 2011, for selection of 1 percent threshold).

The following describes EPA's experience with alternative Step 2 thresholds. EPA's August 2018 memorandum recognized that in certain circumstances, a State may be able to establish that an alternative contribution threshold of 1 ppb is justifiable. Where a State relies on this alternative threshold, and where that State determined that it was not linked at Step 2 using the alternative threshold, EPA will evaluate whether the State provided a technically sound assessment of the appropriateness of using this alternative threshold based on the facts and circumstances underlying its application in the particular SIP submission.

EPA here shares further evaluation of its experience since the issuance of the August 2018 memorandum regarding use of alternative thresholds at Step 2. This experience leads the Agency to now believe it may not be appropriate to continue to attempt to recognize alternative contribution thresholds at Step 2. The August 2018 memorandum stated that "it may be reasonable and appropriate" for states to rely on an alternative threshold of 1 ppb at Step 2.[30] (The memorandum also indicated that any higher alternative threshold, such as 2 ppb, would likely not be appropriate.) However, EPA also provided that "air agencies should consider whether the recommendations in this guidance are appropriate for each situation." Following

[30] *See* August 2018 memorandum at 4.

receipt and review of 49 good neighbor SIP submittals for the 2015 8-hour ozone NAAQS, EPA's experience has been that nearly every State that attempted to rely on a 1 ppb threshold did not provide sufficient information and analysis to support a determination that an alternative threshold was reasonable or appropriate for that State.

For instance, in nearly all submittals, the states did not provide EPA with analysis specific to their State or the receptors to which its emissions are potentially linked. In one case, the proposed approval of Iowa's SIP submittal, EPA expended its own resources to attempt to supplement the information submitted by the State, in order to more thoroughly evaluate the state-specific circumstances that could support approval.[31] It was at EPA's sole discretion to perform this analysis in support of the State's submittal, and the Agency is not obligated to conduct supplemental analysis to fill the gaps whenever it believes a State's analysis is insufficient. The Agency no longer intends to undertake supplemental analysis of SIP submittals with respect to alternative thresholds at Step 2 for purposes of the 2015 8-hour ozone NAAQS.

Furthermore, EPA's experience since 2018 is that allowing for alternative Step 2 thresholds may be impractical or otherwise inadvisable for a number of additional policy reasons. For a regional air pollutant such as ozone, consistency in requirements and expectations across all states is essential. Based on its review of submittals to-date and after further consideration of the policy implications of attempting to recognize an alternative Step 2 threshold for certain states, the Agency now believes the attempted use of different thresholds at Step 2 with respect to the 2015 8-hour ozone NAAQS raises substantial policy consistency and practical implementation concerns.[32] The availability of different thresholds at Step 2 has the potential to result in inconsistent application of good neighbor obligations based solely on the

---

[31] Air Plan Approval; Iowa; Infrastructure State Implementation Plan Requirements for the 2015 Ozone National Ambient Air Quality Standard, 85 FR 12232 (March 2, 2020). The Agency received adverse comment on this proposed approval and has subsequently formally withdrawn the proposed approval. *See* 87 FR 9477 (February 22, 2022).

[32] EPA notes that Congress has placed on EPA a general obligation to ensure the requirements of the CAA are implemented consistently across states and regions. *See* CAA section 301(a)(2). Where the management and regulation of interstate pollution levels spanning many states is at stake, consistency in application of CAA requirements is paramount.

strength of a State's implementation plan submittal at Step 2 of the 4-step interstate transport framework. From the perspective of ensuring effective regional implementation of good neighbor obligations, the more important analysis is the evaluation of the emissions reductions needed, if any, to address a State's significant contribution after consideration of a multifactor analysis at Step 3, including a detailed evaluation that considers air quality factors and cost. Where alternative thresholds for purposes of Step 2 may be "similar" in terms of capturing the relative amount of upwind contribution (as described in the August 2018 memorandum), nonetheless, use of an alternative threshold would allow certain states to avoid further evaluation of potential emission controls while other states must proceed to a Step 3 analysis. This can create significant equity and consistency problems among states.

Further, it is not clear that national ozone transport policy is best served by allowing for less stringent thresholds at Step 2. EPA recognized in the August 2018 memorandum that there was some similarity in the amount of total upwind contribution captured (on a nationwide basis) between 1 percent and 1 ppb. However, EPA notes that while this may be true in some sense, that is hardly a compelling basis to move to a 1 ppb threshold. Indeed, the 1 ppb threshold has the disadvantage of losing a certain amount of total upwind contribution for further evaluation at Step 3 (e.g., roughly 7 percent of total upwind state contribution was lost according to the modeling underlying the August 2018 memorandum;[33] in EPA's updated modeling, the amount lost is 5 percent). Considering the core statutory objective of ensuring elimination of all significant contribution to nonattainment or interference of the NAAQS in other states and the broad, regional nature of the collective contribution problem with respect to ozone, there does not appear to be a compelling policy imperative in allowing some states to use a 1 ppb threshold while others rely on a 1 percent of the NAAQS threshold.

Consistency with past interstate transport actions such as CSAPR, and the CSAPR Update and Revised CSAPR Update rulemakings (which used a Step 2 threshold of 1 percent of the

[33] *See* August 2018 memorandum at 4.

NAAQS for two less stringent ozone NAAQS), is also important. Continuing to use a 1 percent of NAAQS approach ensures that as the NAAQS are revised and made more stringent, an appropriate increase in stringency at Step 2 occurs, so as to ensure an appropriately larger amount of total upwind-state contribution is captured for purposes of fully addressing interstate transport. *See* 76 FR 48208, 48237-38, August 8, 2011.

Therefore, notwithstanding the August 2018 memorandum's recognition of the potential viability of alternative Step 2 thresholds, and in particular, a potentially applicable 1 ppb threshold, EPA's experience since the issuance of that memorandum has revealed substantial programmatic and policy difficulties in attempting to implement this approach. As discussed further below, the basis for disapproval of Alabama's SIP submission with respect to the Step 2 analysis is, in the Agency's view, warranted even under the terms of the August 2018 memorandum.

4. Step 3 of the 4-Step Interstate Transport Framework

Consistent with EPA's longstanding approach to eliminating significant contribution or interference with maintenance, at Step 3, states linked at Steps 1 and 2 are generally expected to prepare a multifactor assessment of potential emissions controls. EPA's analysis at Step 3 in prior Federal actions addressing interstate transport requirements has primarily focused on an evaluation of cost-effectiveness of potential emissions controls (on a marginal cost-per-ton basis), the total emissions reductions that may be achieved by requiring such controls (if applied across all linked upwind states), and an evaluation of the air quality impacts such emissions reductions would have on the downwind receptors to which a State is linked; other factors may potentially be relevant if adequately supported. In general, where EPA's or alternative air quality and contribution modeling establishes that a State is linked at Steps 1 and 2, it will be insufficient at Step 3 for a State merely to point to its existing rules requiring control measures as a basis for approval. In general, the emissions-reducing effects of all existing emissions control requirements are already reflected in the air quality results of the modeling for Steps 1 and 2. If

the State is shown to still be linked to one or more downwind receptor(s), states must provide a well-documented evaluation determining whether their emissions constitute significant contribution or interference with maintenance by evaluating additional available control opportunities by preparing a multifactor assessment. While EPA has not prescribed a particular method for this assessment, EPA expects states at a minimum to present a sufficient technical evaluation. This would typically include information on emissions sources, applicable control technologies, emissions reductions, costs, cost effectiveness, and downwind air quality impacts of the estimated reductions, before concluding that no additional emissions controls should be required.[34]

5. Step 4 of the 4-Step Interstate Transport Framework

At Step 4, states (or EPA) develop permanent and federally enforceable control strategies to achieve the emissions reductions determined to be necessary at Step 3 to eliminate significant contribution to nonattainment or interference with maintenance of the NAAQS. For a State linked at Steps 1 and 2 to rely on an emissions control measure at Step 3 to address its interstate transport obligations, that measure must be included in the State's implementation plan so that it is permanent and federally enforceable. *See* CAA section 110(a)(2)(D) ("Each such [SIP] shall . . . contain adequate provisions. . . ."). *See also* CAA section 110(a)(2)(A); *Committee for a Better Arvin v. EPA*, 786 F.3d 1169, 1175-76 (9th Cir. 2015) (holding that measures relied on by a State to meet CAA requirements must be included in the SIP).

II. Summary of Alabama's 2015 8-hour Ozone Transport SIP Submissions

The following section provides information related to Alabama's June 21, 2022, SIP submission addressing the interstate transport requirements for the 2015 8-hour ozone NAAQS, as well as information related to previous submittals for the 2015 8-hour ozone NAAQS.

---

[34] As examples of general approaches for how such an analysis could be conducted for their sources, states could look to the CSAPR Update, 81 FR 74504, 74539-51, October 26, 2016; CSAPR, 76 FR 48208, 48246-63, August 8, 2011; CAIR, 70 FR 25162, 25195-229; or the NOx SIP Call, 63 FR 57356, 57399-405, October 27, 1998. *See also* the Revised CSAPR Update, 86 FR 23054, 23086-23116, April 30, 2021. Consistently across these rulemakings, EPA has developed emissions inventories, analyzed different levels of control stringency at different cost thresholds, and assessed resulting downwind air quality improvements.

A. Prior Submissions

On August 20, 2018, Alabama submitted multiple SIP revisions under one cover letter, including an interstate transport SIP revision for the 2015 8-hour ozone NAAQS which relied on modeling released with the March 2018 memorandum. EPA initially proposed approval of Alabama's interstate transport SIP revision for the 2015 8-hour ozone NAAQS, based on the modeling provided in the March 2018 memorandum. *See* 84 FR 71854, 71859 (December 30, 2019). When EPA completed updating the modeling of 2023 in 2020, using a 2016-based emissions modeling platform (2016v1), it became evident that Alabama was projected to be linked above 1 percent of the NAAQS to downwind nonattainment and maintenance receptors (see footnote 47 of this document).

As a result, EPA deferred acting on Alabama's interstate transport SIP submittal when EPA published a supplemental proposal in 2021 to approve four other southeastern states' good neighbor SIP submissions using the updated 2023 modeling. *See* 86 FR 37942, 37943 (July 19, 2021). The next update to the 2023 modeling used an updated 2016-based emissions modeling platform (2016v2), and it confirms the prior 2016-based modeling of 2023 in that it continues to show Alabama is linked to at least one downwind nonattainment or maintenance receptor above 1 percent of the NAAQS.

Subsequently, EPA proposed to disapprove Alabama's August 20, 2018, interstate transport SIP submission on February 22, 2022, based in part on the updated modeling using the 2016v2 emissions modeling platform, discussed in Section I.C. of this document. *See* 87 FR 9545, 9562. Additionally, EPA withdrew its 2019 proposed approval on Alabama's August 20, 2018, interstate transport SIP revision as published on December 30, 2019. *See* 84 FR 71854.

Subsequently, on April 21, 2022, ADEM withdrew the August 20, 2018, submission that EPA had proposed to disapprove.[35] On the same day, April 21, 2022, ADEM provided a replacement submission for its August 20, 2018, submission addressing the interstate

[35] ADEM's April 21, 2022, withdrawal letter is provided in Docket ID No. EPA-R04-OAR-2021-0841.

requirements for the 2015 ozone standards. Based on EPA's review of that new submission and the completeness criteria for SIPs (40 CFR part 51, Appendix V), EPA determined Alabama's April 21, 2022, submission was incomplete and provided that determination to Alabama in a letter dated June 14, 2022.[36] On June 15, 2022, EPA signed a document (published in the *Federal Register* on June 22, 2022), finding that the State failed to submit a complete submission addressing the 2015 ozone interstate transport requirements through the transmission of Alabama's April 21, 2022, submittal. *See* 87 FR 37235.

B. Current Submission

On June 21, 2022, Alabama submitted a SIP revision addressing the CAA section 110(a)(2)(D)(i)(I) good neighbor interstate transport requirements for the 2015 8-hour ozone NAAQS. The SIP submission purported to address the issues identified in the EPA's June 15, 2022, incompleteness letter. The June 21, 2022, SIP submission provides Alabama's evaluation of its impact on downwind states and concludes that emissions from the State will not significantly contribute to nonattainment or interfere with maintenance of the 2015 8-hour ozone NAAQS in other states in 2023.

Alabama's June 21, 2022, submittal identifies existing SIP-approved regulations and Federal programs[37] that regulate ozone precursor emissions from sources in the State, including the CSAPR trading programs, which, according to Alabama, are the reason for the decline of ozone precursor emissions in the State.[38] Alabama's submission acknowledges that CSAPR does not address interstate transport for the 2015 ozone standard but does provide residual NOx

---

[36] *See* EPA's June 14, 2022, incompleteness letter to ADEM in Docket ID No. EPA-R04-OAR-2021-0841.

[37] Alabama's submission cites the following SIP approved regulations: Administrative Code Rule 335-3-6, "Control of Organic Emissions", 335-3-8, "Control of Nitrogen Oxides Emissions", 335-3-14-.01, "General Provisions", 335-3-14-.02, "Permit Procedures", 335-3-14-.03, "Standards for Granting Permits", 335-3-14-.04, "Air Permits Authorizing Construction in in Clean Air Areas [Prevention of Significant Deterioration Permitting (PSD)]" and 335-3-14-.05, "Air Permits Authorizing Construction in or Near Nonattainment Areas." Alabama's Submission cites the following Federal Rules: EPA's Tier 1 and 2 mobile source rules, EPA's nonroad Diesel Rule, EPA's 2007 Heavy-duty Highway Rule, New Source Performance Standards, National Emission Standards for Hazardous Air Pollutants, and CSAPR.

[38] Alabama's SIP references CSAPR, which covers the NOx ozone season trading program established in EPA's 2011 CSAPR, 76 FR 48208 (August 8, 2011). In addition, Alabama's submittal includes a reference to the SIP-approved rules that adopted the CSAPR Update, 81 FR 74504 (October 26, 2016). *See* 82 FR 46674 (October 6, 2017).

emission reductions and notes that the CSAPR NOx ozone season trading programs were adopted into the Alabama SIP on August 31, 2016, and October 6, 2017.[39] Alabama notes that the implementation of the existing SIP-approved regulations and Federal programs provide for a decline in ozone precursor emissions in the State. Alabama also states there are no nonattainment or maintenance areas in Alabama and that ozone precursor emissions would continue to decline in the State.

The State's submission also includes a weight of evidence (WOE) analysis[40] that evaluates data related to Alabama in EPA's 2016v2 emissions modeling platform.[41] The WOE analysis begins by acknowledging that EPA's January 2022 2016v2 modeling platform results indicate that Alabama is predicted to contribute above 0.70 ppb to one predicted nonattainment monitor and one predicted maintenance monitor. The WOE analysis then evaluates meteorological influence, Alabama emission sources, model performance, and the "significance threshold" (in fact, what EPA would refer to as the "contribution threshold"). EPA summarizes the State's qualitative and quantitative analysis below.

Based on this information, Alabama's submission states that emissions from Alabama do not contribute above 1 ppb of the 2015 8-hour ozone NAAQS at any projected nonattainment or maintenance receptors at Step 2 of the 4-Step Framework (using EPA's approach to defining such receptors). ADEM then concludes that emissions from Alabama sources will not significantly contribute to nonattainment or interfere with maintenance of the 2015 8-hour ozone NAAQS in any other State.

1. Alabama's Weight of Evidence Analysis

Alabama's June 21, 2022, submittal includes a WOE analysis of the data related to Alabama in EPA's 2016v2 modeling platform. The analysis begins by acknowledging that

---

[39] *See* 81 FR 59869 (August 31, 2016), 82 FR 46674 (October 6, 2017) (adopting Alabama Administrative Code Rule 335-3-8, "Control of Nitrogen Oxides Emissions" and adopting revisions to Rule 335-3-8 into the SIP).
[40] *See* Attachment A of Alabama's June 21, 2022, 2015 ozone transport SIP submission provided in Docket ID No. EPA-R04-OAR-2021-0841.
[41] EPA notes that Alabama's SIP submission is not organized around EPA's 4-Step Framework for assessing good neighbor obligations, but EPA summarizes the submission using that framework for clarity here.

EPA's modeling shows sources in Alabama contributing greater than one percent of the NAAQS to downwind nonattainment and maintenance receptors at Harris County and Denton County, Texas, respectively, in 2023. Alabama states that EPA's 2016v2 modeling does not establish that Alabama is linked to any receptors in 2023, and the modeling does not identify any downwind linkages greater than one percent in 2026. Alabama states that based on an assessment of all available information and weighing the data by considering the relevance and quality of the information through both qualitative and quantitative analyses, emissions from Alabama do not significantly contribute to downwind nonattainment or maintenance receptors for the 2015 8-hr ozone NAAQS. Below is a summary of Alabama's WOE analysis.

a. *Identifying Maintenance Receptors–Step 1 of 4-Step Framework*

Alabama's analysis suggests that determining significance should be different for nonattainment and maintenance receptors and cites EPA's October 2018 memorandum, which discusses alternative methods to identifying maintenance receptors. Alabama indicates that an approach for identification of maintenance receptors could include relying on the continued decline of emissions in an area out to the attainment date of the receptor. Applying this approach, Alabama asserts that it should be excluded as a significant contributor to the Denton County, Texas receptor because the modeled average concentration is 70.4 ppb and maximum concentration is 72.2 ppb in 2023, and there will be continuing emissions reductions at Alabama point sources, which Alabama asserts are the only emissions it can reasonably control.

b. *Alternative Significant Contribution Threshold–Step 2 of 4-Step Framework*

Alabama points to EPA's 2018 March and August 2018 memoranda and states that the two documents provide for flexibility in determining significance and support Alabama's argument establishing 1 ppb as a sufficient threshold. Alabama goes on to assert that there is precedent for setting a 1 ppb significance threshold for ozone in the PSD permitting program and that since the purpose of the PSD permitting program is to show compliance with the NAAQS, 1 ppb should be consistent for determining future year significance against the ozone NAAQS.

c. *Modeling Performance–Step 2 of 4-Step Framework*

Alabama asserts that a threshold of 0.71 ppb is within the margin of error for the model. Alabama goes on to reference EPA's TSD for the 2016v2 platform modeling and suggests that, considering that there is bias and error in the modeling (ranging from +/- 2.9 to 6.1 ppb in the southeast and +/-7.8 to 9.1 ppb in the south, according to Alabama), the 0.70 ppb threshold could not accurately represent "with true accuracy" impacts hundreds of miles from a downwind receptor.

d. *Meteorological Influence and Back Trajectories–Step 2 of 4-Step Framework*

Alabama's WOE analysis includes Hybrid Single Particle Lagrangian Integrated Trajectory (HYSPLIT) model back trajectory analysis to the Denton County and Harris County, Texas, receptors.[42] This HYSPLIT analysis evaluates back trajectories of 72 hours in time for the 2018–2020 3-year period.[43] Alabama claims that during the period 2018–2020, the HYSPLIT model showed that, for Harris County, air moved over Alabama on only four of 31 exceedance days, and for Denton County, air moved over Alabama on only four of 26 exceedance days. Alabama asserts that of those days, weather patterns do not indicate that upper-level transport of emissions from Alabama would have contributed to concentrations at those monitors. Alabama also asserts that on days when wind flow suggests that Alabama could have contributed to exceedances at the Texas monitors, the air quality index (AQI) indicated good or moderate air quality in Alabama. Alabama thus concludes that, based on the back trajectories, monitored exceedances at the Texas receptors are locally driven. Alabama also notes that the design values for the two Texas monitors have been stagnant, while design values in Alabama continue to trend downward.

e. *Alabama NOx Emission Trends–Step 3 of 4-Step Framework*

---

[42] According to Alabama, the HYSPLIT analysis were generated using EPA's 2015 Ozone Designation Mapping Tool, available at https://www.epa.gov/ozone-designations/ozone-designations-guidance-and-data#:~:text=The%20ozone%20designations%20mapping%20tool,for%20the%202015%20Ozone%20NAAQS.

[43] *See* Attachment A of Alabama's June 21, 2022, SIP submission in Docket ID No. EPA-R04-OAR-2021-0841.

Alabama reviewed their statewide NOx emissions for point and mobile sources. Alabama indicates that the highest contributor of NOx emissions in the State are from mobile sources but indicated that NOx emissions from this source category have decreased and would continue to decrease nationwide due to turnover in the gasoline and diesel fleets and due to the rise in use of electric vehicles. Alabama asserts that statewide NOx emissions from point sources (EGU and non-EGU) continue to decline and asserts there has been "a precipitous drop in tonnage in our major source emissions inventory." Alabama claims that the 2017 NEI indicates that NOx emissions will "continue to decline" from point sources and "continue to increase" from mobile sources. Alabama asserts that controls on mobile sources should be evaluated first. Lastly, the State acknowledges that the largest NOx emission sources are in the Birmingham area (Jefferson County and Shelby County) and the Mobile area (Mobile County and Escambia County) and, of these sources, the biggest emitters are EGUs. However, Alabama asserts that NOx emissions from EGUs have declined on the order of 80 percent and that an overwhelming majority of these EGUs are already fully controlled.

2. ADEM's Response to Comments

Alabama received two sets of comments during their State public comment period from Alabama Power and Southern Company (jointly referred to as Alabama Power) and from Sierra Club.[44] Alabama's "Reconciliation of Comments Received"[45] states that Alabama Power's comments were generally supportive of [ADEM]'s proposed plan and included additional information which bolsters the Department's reasoning for adopting the plan. The comments did provide some additional information for supporting the proposed plan. Therefore, the Department is making a modification of the proposed plan by adding the following statement: "It is also important to note that the 2016v2 modeling platform does not identify any significant (> 1%) linkages for Alabama in 2026." ADEM acknowledged that Sierra Club submitted adverse

[44] See comments submitted with Alabama's June 21, 2022, 2015 ozone transport SIP package found in Docket ID No. EPA-R04-OAR-2021-0841.
[45] *See* Part C, pdf p. 76, in Alabama's June 21, 2022, SIP submission in Docket ID No. EPA-R04-OAR-2021-0841.

comments opposed to the proposed plan, and stated that "none of the comments led ADEM to conclude that changes to the proposed plan were necessary," but did not address the substance of these comments.

Apart from the statements noted above, the State does not explicitly discuss Alabama Power's or Sierra Club's legal, technical, and policy arguments. Therefore, EPA will treat Alabama's June 21, 2022, ozone transport SIP narrative and WOE analysis as not relying on the legal, technical, or policy arguments provided in comments except as expressly stated by Alabama.

III. EPA's Evaluation of Alabama's 2015 Ozone Interstate Transport SIP Submission

EPA is proposing to find that Alabama's June 21, 2022, SIP submission does not meet Alabama's obligations with respect to prohibiting emissions that contribute significantly to nonattainment or interfere with maintenance of the 2015 8-hour ozone NAAQS in any other State based on EPA's evaluation of the SIP submission using the 4-step interstate transport framework. EPA is therefore proposing to disapprove Alabama's June 21, 2022, submission.

A. Results of EPA's Step 1 and Step 2 Modeling and Findings for Alabama

As described in Section I of this document, EPA performed updated air quality modeling to project design values and contributions for 2023. These data were examined to determine if Alabama contributes at or above the threshold of 1 percent of the 2015 8-hour ozone NAAQS (0.70 ppb) to any downwind nonattainment or maintenance receptor. As shown in Table 1, the data[46] indicate that in 2023, emissions from Alabama contribute greater than 1 percent of the standard to a nonattainment receptor in Harris County, Texas (ID#: 482010055) and a maintenance-only receptor in Denton County, Texas (ID#: 481210034).[47]

[46] The ozone design values and contributions at individual monitoring sites nationwide are provided in the file "2016v2_DVs_state_contributions.xlsx" which is included in Docket ID No. EPA-HQ-OAR-2021-0663.

[47] These modeling results are consistent with the results of a prior round of 2023 modeling using the 2016v1 emissions platform which became available to the public in the fall of 2020 in the Revised CSAPR Update, as noted in Section I of this document. That modeling showed that Alabama had a maximum contribution greater than 0.70 ppb to at least one nonattainment or maintenance-only receptor in 2023. These modeling results are included in the

Table 1: Alabama Linkage Results Based on EPA Updated 2023 Modeling					
Receptor ID	**Location**	**Nonattainment /Maintenance**	**2023 Average Design Value (ppb)**	**2023 Maximum Design Value (ppb)**	**Alabama Contribution (ppb)**
482010055	Harris County, Texas	Nonattainment	71.0	72.0	0.88
481210034	Denton County, Texas	Maintenance	70.4	72.2	0.71

B. Evaluation of Information Provided by Alabama Regarding Step 1

At Step 1 of the 4-step interstate transport framework, Alabama relied on EPA's 2016v2 modeling platform to identify nonattainment and maintenance receptors in 2023. As described in Section I.D. of this document, EPA's 2016v2 modeling platform relies on the most recently available and technically appropriate information. EPA proposes to rely on this modeling to identify nonattainment and maintenance receptors in 2023. That information establishes that there are two receptors to which Alabama is projected to be linked in 2023.

1. Evaluation of Alabama's Approach to Maintenance Receptors

Based on this information, the State attempted to apply an alternative definition of a maintenance receptor utilizing the potential concepts included in the October 2018 memorandum. This memorandum included a description of the approach that EPA has historically used to identify maintenance-only receptors[48] and identified potential alternative ways to define maintenance receptors based on certain criteria suggested in the memorandum, including an evaluation of meteorology conducive to ozone formation, review of ozone monitored concentrations, and precursor emissions trends.

EPA recognized in the October 2018 memorandum that states could potentially, with sufficient justification, establish an approach for addressing maintenance receptors that gives

file "Ozone Design Values And Contributions Revised CSAPR Update.xlsx" in Docket ID No. EPA-HQ-OAR-2021-0663.

[48] *See* Section I.D., of this document for a discussion of EPA's approach to identify maintenance receptors.

independent significance to prong 2 in some manner different than EPA's approach. In addition, the October 2018 memorandum identified two potential concepts that states could use to identify maintenance receptors: (1) States may, in some cases, eliminate a site as a maintenance receptor if the site is currently measuring clean data, or (2) in some cases, use a design value from the base period that is not the maximum design value. For either of these alternative methods, to adequately consider areas struggling to meet the NAAQS, EPA also indicated that it expects states to include with their SIP demonstration a technical analysis showing that the following three criteria are met:

- Meteorological conditions in the area of the monitoring site were conducive to ozone formation during the period of clean data or during the alternative base period design value used for projections;[49]
- Ozone concentrations have been trending downward at the site since 2011 (and ozone precursor emissions of NOx and VOC have also decreased); and
- Emissions are expected to continue to decline in the upwind and downwind states out to the attainment date of the receptor.

EPA's October 2018 memorandum explained that the intent of the analysis is to demonstrate that monitoring sites that would be identified as maintenance receptors under EPA's historical approach could nonetheless be shown to be very unlikely to violate the NAAQS in the future analytic year.

However, Alabama's WOE analysis provides limited supporting information to show that the Denton County, Texas, maintenance receptor is unlikely to violate the NAAQS in 2023. Regarding the first criterion, ADEM does not identify any periods of clean data for the Denton

[49] *See* Attachment A of EPA's October 2018 memorandum to assess whether particular summers had ozone-conducive or unconducive meteorology within the 10-year period 2008 through 2017. The memorandum states that meteorological conditions including temperature, humidity, winds, solar radiation, and vertical mixing affect the formation and transport of ambient ozone concentrations. The memorandum suggests generally that above-average temperatures are an indication that meteorology is conducive to ozone formation and below average temperatures indicate that conditions are unconducive to ozone formation. Within a particular summer season, the degree that meteorology is conducive for ozone formation can vary from region to region and fluctuate with time within a particular region.

County, Texas, maintenance receptor for which meteorological conditions could be assessed to determine whether particular summers had ozone-conducive or unconducive meteorology during a period of clean data. Alabama also does not attempt to discuss or consider how meteorological factors identified in the October 2018 memorandum (such as temperature, humidity, solar radiation, vertical mixing, and/or other meteorological indicators such as cooling-degree days) confirm whether conditions affecting the monitor may have been conducive to ozone formation, nor did ADEM identify a specific calendar timeframe.

With respect to the second criterion, ADEM's submission does not establish that there is a downward ozone design value trend for the Denton monitor. Furthermore, EPA does not observe any consistent downward trend for the 3-year average of the 4th highest daily maximum 8-hour ozone concentration at the Denton County receptor from 2011 through 2021.[50] The available information in the submittal (see pdf p. 145) shows that DVs at this receptor are flat or increasing.

With respect to the third criterion, ADEM alludes to expected emissions reductions from fully controlled EGUs in Alabama for NOx for point sources, fleet turnover of gas and diesel mobile sources in coming years, a rise in the use of electric vehicles, and existing SIP-approved and Federal regulations of point sources and mobile sources. However, the State does not quantify the NOx emission reduction potential of existing controlled EGUs, fleet turnover of mobile sources, increase in electric vehicles, or current regulations for point and mobile sources such that their downwind contribution is addressed.[51] Additionally, while the State does make

[50] See measured 2015 8-hour ozone design values from Table 6 - "Monitor Trends" in the file O3_DesignValues_2019_2021_FINAL_05_25_22 at https://www.epa.gov/air-trends/air-quality-design-values.
[51] EPA accounts for, and projects whether, receptors may have trouble attaining the NAAQS through the use of projected maximum design values in the relevant analytic year. Further, EPA's modeling of the relevant analytic year also already accounts for projected emissions trends of the upwind state (among others) and may (and often does) identify a linkage to areas that may struggle to maintain the NAAQS despite an overall declining emissions trend. This is not surprising. First, most maintenance receptors in EPA's projections are currently measuring nonattainment, meaning that, despite projecting improved air quality in the future analytic year, the receptor location is currently, and may continue to be, near the level of the NAAQS. Second, ozone levels are influenced by meteorological variability and thus high ozone levels may persist despite declining emissions as a result of recurring or worsening ozone-conducive atmospheric conditions (e.g., higher temperatures).

summary statements, Alabama does not provide details to demonstrate why or how NOx emissions from sources in Alabama or Texas are expected to continue to decline through the next attainment date for the Dallas-Fort Worth-Arlington, Texas, area.

Alabama's analysis supporting the use of an alternative definition for a maintenance receptor is insufficient. Furthermore, EPA does not observe any consistent downward trend for the 3-year average of the 4th highest daily maximum 8-hour ozone concentration at the Denton County receptor from 2011 through 2021. Thus, under the terms of the October 2018 memorandum, Alabama's SIP submission does not adequately establish a basis for eliminating the Denton County monitoring site as a maintenance receptor.

C. Evaluation of Information Provided by Alabama Regarding Step 2

In this action, EPA proposes to rely on the Agency's most recently available modeling to identify upwind contributions and "linkages" to downwind air quality problems in 2023 using a threshold of 1 percent of the NAAQS. *See* Section I.D of this document for a general explanation of the use of 1 percent of the NAAQS. EPA evaluates Alabama's use of an alternative threshold of 1 ppb in Section III.C.3. of this document below. As shown in Table 1 of this document, updated EPA modeling identifies Alabama's maximum contribution to downwind nonattainment and maintenance receptors as greater than 1 percent of the standard (i.e., 0.70 ppb). Therefore, the State is linked to a downwind air quality problem at Steps 1 and 2 in 2023.[52] Alabama acknowledges EPA's 2016v2 updated modeling platform's projected contributions to nonattainment and maintenance receptors in 2023, but concludes Alabama does not contribute above 1 ppb of the NAAQS at any monitors that are projected to be in nonattainment or maintenance, and argues that is an acceptable threshold to use. EPA proposes to disapprove Alabama's SIP submission based on EPA's finding that the State is linked to receptors in 2023

[52] Alabama states in its submission that EPA's 2016v2 modeling platform does not identify any significant linkages for Alabama to downwind receptors, greater than one percent of ozone NAAQS in 2026. EPA agrees that this is what the 2016v2 modeling shows; however, that does not diminish the conclusion that a linkage does exist in the relevant analytic year for the next attainment date, which is 2023.

using the one percent threshold, and the State's arguments in support of using a 1 ppb threshold are not approvable.

1. Evaluation of Alabama's Analysis of 2016v2 Modeling Platform Performance

The Alabama SIP submission states that EPA's 2016v2 modeling platform cannot account for a 0.71 ppb threshold which Alabama claims is within the margin of error for the model, asserting that when considering the magnitude of the so-called margin of error, the small threshold could not accurately account for impacts hundreds of miles away to a downwind receptor. (EPA interprets these statements as relating to the one-percent threshold, which is 0.70 ppb for the 2015 ozone NAAQS.) Alabama's WOE analysis cites EPA's Modeling TSD, "Air Quality Modeling for the 2016v2 Emissions Platform Technical Support Document: Appendix A," which Alabama claims identifies that there is bias and error in the modeling ranging from +/- 2.9 to 6.1 ppb in the Southeast region (which includes Alabama, Georgia, Florida, South Carolina, North Carolina, and Virginia) and +/-7.8 to 9.1 ppb in the South region (which includes Texas, Louisiana, Mississippi, Arkansas, Oklahoma, and Kansas).

Alabama misunderstands the meaning of the terms and figures provided by EPA in this TSD and conflates two different concepts: model bias and model error. For days with maximum daily average 8-hour (MDA8) concentrations greater than or equal to 60 ppb, EPA's TSD found average bias was -2.9 ppb in the Southeast region and -7.8 ppb in the South region, whereas average error was 6.1 ppb in the Southeast and 9.1 ppb in the South. Model bias can be positive or negative, but model error is always a positive value. Thus, EPA's TSD identifies model bias of -2.9 and -7.8 ppb and model error of 6.1 ppb and 9.1 ppb in the Southeast and South regions, respectively. In other words, EPA found that the model tended to under-predict actual ozone levels at monitoring sites in these regions. Note that EPA evaluates linkages using the multi-day average contribution from each upwind state to each downwind receptor based on daily contributions from the State to the receptor for the days with the highest model-predicted future year concentrations. The modeled data are intended to represent future year ozone

concentrations and contributions associated with ozone conducive meteorological conditions and transport patterns typical for high ozone episodes at the receptor. In this regard, base year model performance statistics that are derived from measured and modeled data strictly paired in space and time are not useful as the sole measure for gauging the ability of the model to adequately estimate future year average contributions on the order of 0.70 ppb on high ozone days representative of the magnitude of measured concentrations at the receptor. Further, with respect to model "error," as explained in EPA's TSD, the performance of our modeling is within the generally accepted performance parameters for modeling of this type.[53] Finally, while EPA concedes that its modeling cannot perfectly project air quality levels and contributions in a future year, EPA has successfully applied its CAMx modeling platform across many CAA regulatory actions and continues to find the modeling reliable for purposes of the Step 1 and Step 2 analyses of the 4-Step Framework. If EPA were unable to draw reasonable conclusions from the results of its future-year modeling projections at ppb intervals smaller than 6.1 or 9.1 ppb, it would effectively mean the Agency is incapable of making virtually any conclusions with respect to interstate ozone transport, which would frustrate the purposes of the Act. EPA must implement its statutory mandates in the face of uncertainty unless that uncertainty is "so profound that it precludes…reasoned judgment." *Wisconsin*, 938 F.3d at 319; *see also EME Homer City v. EPA*, 795 F.3d 118, 135 (D.C. Cir. 2015) ("We will not invalidate EPA's predictions solely because there might be discrepancies between those predictions and the real world."). We do not believe the modeling, our evaluation of that modeling, or the record overall prevents the Agency from rendering a reasonable judgment that Alabama contributes above 1 percent of the NAAQS at the two receptors in Texas in 2023 based on the 2016v2 modeling. *See Sierra Club v. EPA*, 939 F.3d 649, 686-87 (5th Cir. 2019) (upholding EPA's modeling in the face of complaints regarding an alleged "margin of error," noting challengers face a "considerable burden" in overcoming a

[53] *See* Air Quality Modeling Technical Support Document, Appendix A, in Docket ID No. EPA-HQ-OAR-2021-0663.

"presumption of regularity" afforded "the EPA's choice of analytical methodology") (citing *BCCA Appeal Grp. v. EPA*, 355 F.3d 817, 832 (5th Cir. 2003)).

2. Evaluation of Alabama's Consideration of an Alternative Significant Contribution Threshold

In their June 21, 2022, SIP submission, Alabama states that EPA's March and August 2018 memoranda allow for flexibility to determine significance and establish a significance level of 1 ppb as a sufficient threshold. Alabama then determines that the threshold should be set at 1 ppb to support their conclusion that Alabama would not be linked to any projected downwind nonattainment or maintenance receptors. *See* Section II.B of this document. Alabama does not argue in its submittal that 1 percent of the NAAQS would *not* be an appropriate threshold for upwind contribution to the Texas receptors. Alabama's submission instead asserts that the State is not linked at Step 2 because the March and August 2018 memoranda identified a 1 ppb threshold as a sufficient threshold.

EPA proposes to find that Alabama's reliance on an alternative contribution threshold of 1 ppb at Step 2 is not approvable. EPA acknowledges that the August 2018 memorandum generally recognized that a 1 ppb threshold may be appropriate for states to use, but also made clear that this guidance would be applied under the facts and circumstances of each SIP submittal.[54] However, Alabama did not provide a technical analysis to sufficiently justify use of an alternative 1 ppb threshold at the linked, downwind monitors. Alabama's SIP submission simply states that ADEM agrees with EPA's rationale set out in the August 2018 memorandum that the amount of upwind collective contribution captured with the 1 percent and 1 ppb thresholds was generally comparable. But the guidance anticipated that states would evaluate whether the alternative threshold was appropriate under their specific facts and circumstances,

[54] *See* August 2018 memorandum at 1.

not that the use of the alternative threshold would be automatically approvable.[55] With respect to the assertion that 1 ppb was generally comparable to 1 percent, Alabama does not provide discussion or analysis containing information specific to the State or a receptor analysis for the affected monitors, as anticipated in the August 2018 memorandum, to evaluate whether the alternative threshold was appropriate to apply with respect to the monitors to which Alabama was linked. Such state-specific information is necessary to thoroughly evaluate the state-specific circumstances that could support approval.

Alabama's SIP also claims there is precedent for setting a 1 ppb "significance" threshold for ozone in the PSD permitting program. However, the State's implementation plan submission does not elaborate on this assertion. EPA has provided guidance identifying a 1.0 ppb 8-hour ozone NAAQS significant impact level (SIL) for use by PSD permitting authorities.[56] The PSD program applies in areas that are designated attainment or unclassifiable for the NAAQS,[57] and a SIL is a screening tool used to determine whether a PSD permit applicant is required to perform a comprehensive, cumulative modeling analysis that involves evaluating the impact of the new facility in addition to impacts from other existing sources in the area. Good neighbor analysis for the ozone NAAQS, by contrast, addresses the degree of significant contribution to nonattainment and interference with maintenance of the NAAQS resulting at downwind receptors from the collective contribution of many upwind sources. This fundamental difference in purpose between SIL thresholds and the interstate transport contribution threshold used under

---

[55] As an example of the type of analysis that EPA anticipated states might conduct under the guidance, in one instance, EPA itself attempted to conduct a state- and receptor-specific analysis that could support approval of the use of a 1 ppb threshold. *See* Air Plan Approval; Iowa; Infrastructure State Implementation Plan Requirements for the 2015 Ozone National Ambient Air Quality Standard, 85 FR 12232 (March 2, 2020). The Agency received adverse comment on this proposed approval and has subsequently formally withdrawn the proposed approval. *See* 87 FR 9477 (February 22, 2022).

[56] See Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program, April 17, 2018, available at *https://www.epa.gov/sites/default/files/2018-04/documents/sils_policy_guidance_document_final_signed_4-17-18.pdf*.

[57] Pursuant to section 107(d) of the CAA, EPA must designate areas as either "nonattainment," "attainment," or "unclassifiable." During initial designations for the ozone NAAQS, EPA has designated most areas that do not meet the definition of nonattainment as "unclassifiable/attainment" or "attainment/unclassifiable." This category includes areas that have air quality monitoring data meeting the NAAQS and areas that do not have monitors but for which EPA has no evidence that the areas may be violating the NAAQS or contributing to a nearby violation.

CAA section 110(a)(2)(D)(i)(I) has been recognized since at least the 2005 Clean Air Interstate Rule.[58] Further, it is not correct to conflate the use of the term "significance," as used in the SIL guidance, with the term "contribution," which is the appliable statutory term that EPA applies at Step 2 of the 4-step interstate transport framework. ("Significance" within the 4-step framework is evaluated at Step 3 through a multifactor analysis for those states that are determined to "contribute" to downwind receptors at Steps 1 and 2. *See* Section I.D.4. of this document). Given the fundamentally different statutory objectives and context, EPA disagrees with Alabama's contention that the SIL guidance is applicable in the good neighbor context.

Given the absence of technical analysis to support the use of a 1 ppb threshold under the facts and circumstances relevant to Alabama and its linked receptors, EPA proposes that the use of 1 ppb as a contribution threshold is not approvable. As discussed in Section I.D.3.of this document above, EPA no longer intends to dedicate resources to supplement State submittals with insufficient analysis in this regard and also has identified other policy and programmatic concerns with attempting to recognize alternative thresholds at Step 2 or otherwise deviating from its historical, consistent practice of applying a threshold of 1 percent of the NAAQS. EPA views the 1 percent of NAAQS threshold as the more appropriate threshold, as explained elsewhere in this document.[59] EPA's experience with the alternative Step 2 thresholds is further discussed in Section I.D.3. of this document.

3. Evaluation of Alabama's Analysis of Meteorological Influence and HYSPLIT Back Trajectories

---

[58] *See* 70 FR at 25191, May 12, 2005 ("The implication of the [SIL] thresholds cited by the commenters is not that single-source contributions below these levels indicate the absence of a contribution. Rather, these thresholds address whether further, more comprehensive, multi-source review or analysis of appropriate control technology and emissions offsets are required of the source. *A source with estimated impacts below these levels is recognized as still affecting the airshed and is subject to meeting applicable control requirements, including best available control technology, designed to moderate the source's impact on air quality*.") (emphasis added).

[59] EPA notes the explanation for how the 1 percent contribution threshold was originally derived is available in the 2011 CSAPR rulemaking. *See* 76 FR 48208, 48237–38, August 8, 2011. Further, in the CSAPR Update, EPA re-analyzed the threshold for purposes of the 2008 ozone NAAQS and determined it was appropriate to continue to apply this threshold. *See* 81 FR 74504, 74518–19, October 26, 2016.

Alabama's WOE analysis includes a HYSPLIT model back trajectory analysis to the Denton County and Harris County, Texas, receptors.[60] This HYSPLIT analysis evaluates back trajectories of 72 hours in time, for the 2018–2020 3-year period.[61] Alabama used these HYSPLIT back trajectories to emphasize the local nature of the ozone precursor emissions at the two Texas receptors.[62] However, the information provided by Alabama is not adequate to support approval of the State's implementation plan submittal on this basis.

Alabama asserts that on days when wind flow suggests that could have contributed to exceedances at the Texas monitors, the AQI indicated good or moderate air quality in Alabama. Alabama explains that in the HYSPLIT model for Harris County, during 2018-2020, only four of 31 exceedance days showed air that moved over Alabama, and in Denton County, during the same period, only three of 26 exceedance days showed air that moved over Alabama. Alabama asserts that of those days, weather patterns do not indicate that upper-level transport of emissions from Alabama would have contributed to concentrations at those monitors. Alabama thus concludes that, based on the back trajectories, monitored exceedances at the Texas receptors are locally driven. Alabama also notes that the design values for the two Texas monitors have been stagnant, while design values in Alabama continue to trend downward.

As an initial matter, the images supplied by ADEM showing a map of the south-central and southeast United States with ozone concentration gradients on specific days do not reveal any information that would call into question the results of EPA's photochemical grid modeling. These images purport to show that on days when there are high ozone levels at the receptor areas in Dallas and Houston, or in the days preceding those high-ozone events, ozone concentrations in the State of Alabama were relatively low. However, it has long been understood that ozone concentrations in downwind areas are affected not by the transport of ozone per se from upwind

---

[60] According to Alabama, the HYSPLIT analysis were generated using EPA's 2015 Ozone Designation Mapping Tool, available at https://www.epa.gov/ozone-designations/ozone-designations-guidance-and-data#:~:text=The%20ozone%20designations%20mapping%20tool,for%20the%202015%20Ozone%20NAAQS.
[61] *See* Attachment A of Alabama's June 21, 2022, SIP submission in Docket ID No. EPA-R04-OAR-2021-0841.
[62] *See* id.

areas, but from ozone formed downwind from the ozone-precursor emissions, such as NOx, in the upwind state. Thus, it is not at all unusual that an upwind source area could have relatively low ozone levels in the days preceding a high ozone event at a downwind receptor area; sources and other emissions activities in that State nonetheless may be emitting ozone-precursor emissions in amounts sufficient to contribute ozone above one percent of the NAAQS to the high-ozone event that occurs at the downwind receptor.[63]

Further, ADEM uses HYSPLIT back trajectories to purport to demonstrate that air parcels transporting from Alabama do not transect Alabama for a long enough period of time to have a meaningful impact at the downwind receptor. But once again, the data supplied by the State do not call into question the results of EPA's photochemical grid modeling. First, the back trajectories supply limited information, showing only the pathway of air currents that reach a receptor area during a high-ozone event. They do not display emissions levels in the areas traversed by and transported by those air currents. Further, the figures provided by ADEM establish that air parcels do in fact move over Alabama during meteorological patterns that result in high ozone levels at downwind receptors. In addition, the vectors of the back trajectories only show the center line of air flow. In other words, the breadth of the air currents represented by the back trajectory is much wider than the single line displayed in the images, and thus, a broader parcel of air covering a wider region can assume to be transported based on the line displayed. Thus, the back trajectories supplied by ADEM do not provide compelling evidence that EPA's photochemical grid modeling is unreliable.

D. Evaluation of Information Provided by Alabama Regarding Step 3

At Step 3 of the 4-step interstate transport framework, a State's emissions are further evaluated, in light of multiple factors, including air quality and cost considerations, to determine

---

[63] *See* Moghani, M., The effects of transport, climate, and emissions on ozone pollution in the U.S. University of Delaware Press, 2020. https://udspace.udel.edu/handle/19716/27961; Atkinson, R., "Atmospheric chemistry of VOCs and NOx. Atmospheric Environment 34 (2000) 2063-2101; National Research Council 1991. Rethinking the Ozone Problem in Urban and Regional Air Pollution. Washington, DC. The National Academies Press. http://doi.org/10.17226/1889.

what, if any, emissions significantly contribute to nonattainment or interfere with maintenance and, thus, must be eliminated under CAA section 110(a)(2)(D)(i)(I).

To effectively evaluate which emissions in the State should be deemed "significant" and therefore prohibited, states generally should prepare an accounting of sources and other emissions activity for relevant pollutants and assess potential, additional emissions reduction opportunities and resulting downwind air quality improvements. EPA has consistently applied this general approach (i.e., Step 3 of the 4-step interstate transport framework) when identifying emissions contributions that the Agency has determined to be "significant" (or interfere with maintenance) in each of its prior Federal, regional ozone transport rulemakings, and this interpretation of the statute has been upheld by the Supreme Court. *See EME Homer City*, 572 U.S. 489, 519 (2014). While EPA has not directed states that they must conduct a Step 3 analysis in precisely the manner EPA has done in its prior regional transport rulemakings, State implementation plans addressing the obligations in CAA section 110(a)(2)(D)(i)(I) must prohibit "any source or other type of emissions activity within the State" from emitting air pollutants which will contribute significantly to downwind air quality problems. Thus, states must complete something similar to EPA's analysis (or an alternative approach to defining "significance" that comports with the statute's objectives) to determine whether and to what degree emissions from a State should be "prohibited" to eliminate emissions that will "contribute significantly to nonattainment in or interfere with maintenance of" the NAAQS in any other State. Alabama does not include such an analysis in its SIP submission.

Alabama's SIP submission does not contain a Step 3 analysis regarding future emissions reduction opportunities beyond pointing to NOx emission reductions from SIP-approved and Federal measures. Alabama's submission cursorily evaluates NOx emissions from point and mobile source categories from the 2017 NEI and suggests a steep decline in the major source emissions inventory. This includes an assertion that NOx emissions from EGUs have declined on the order of 80 percent and that an overwhelming majority of these EGUs are already fully

controlled. However, these claims are not supported in the submittal with any specific timeframe or baseline from which the asserted decline in point source or mobile source emissions have been measured, or a quantitative demonstration that explains how or why the asserted decline in NOx emission would be sufficient to eliminate Alabama's significant contribution. Alabama does not include a comprehensive accounting of facilities in the State and does not include a sufficient analysis of potential NOx emissions control technologies, their associated costs, estimated emissions reductions, and downwind air quality improvements for the purpose of identifying what additional emission controls may be necessary to eliminate their significant contribution.

Alabama's SIP also argues that the highest NOx emissions in the State are from mobile sources, not point sources, suggesting that ozone is created and remains locally in Alabama rather than transported to downwind states. However, these claims are not supported by any evidence. The State's back trajectories do not provide any technical demonstration that supports the claim that NOx emissions, specifically mobile emissions, remain local (see Section III.C. of this document).

Further, Alabama asserts that since mobile source emissions are the "highest" source category of emissions in the State, they should be evaluated first for purposes of interstate transport. However, the State conducted no such analysis of methods or control techniques that could be used to reduce mobile source emissions in the State, instead insinuating that it cannot "reasonably" control mobile source emissions.[64] States do have options, however, to reduce emissions from certain aspects of their mobile source sectors, and to the extent the State is attributing its contribution to out of State receptors to its mobile sources, it could have conducted an analysis of possible programs or measures that could achieve emissions reductions from those

[64] *See* Alabama's WOE Analysis in the June 21, 2022, submittal (pdf p. 106), stating that "Alabama point source NOx emissions [are] the only emissions that Alabama can reasonably control."

sources. (For example, a general list of types of transportation control measures can be found in CAA section 108(f).[65]

Alabama provides information related to programs that potentially reduced NOx emissions in the State, such as SIP-approved and State regulations, Federal programs (including the CSAPR Update), and turnover in gasoline and diesel fleets and the rise in electric vehicles. Alabama thus determined that the SIP contains adequate provisions to prohibit emissions that will significantly contribute to nonattainment or interfere with maintenance of the 2015 8-hour ozone NAAQS in any other State. However, the State does not analyze total ozone precursors that continue to be emitted from sources and other emissions activity within the State, nor does ADEM quantify the NOx emission reduction potential of SIP-approved regulations or Federal programs or on-the-way measures for 2023 or consider the cost-effectiveness of potential additional emissions controls, the total emissions reductions that may be achieved by requiring these controls, or the air quality impacts such emissions reductions would have on the downwind receptors to which Alabama is linked. Identifying a range of on-the-books emissions control measures that have been or may be enacted at the State or local level, without analysis of the impact of those measures on the downwind receptors, is not a sufficient analysis. Additionally, EPA's modeling already takes account of on-the-book measures. Despite these existing emissions controls, the State is projected in the most recently available modeling to be linked to at least one downwind nonattainment receptor and one maintenance receptor. The State was therefore obligated at Step 3 to assess *additional* control measures using a multifactor analysis.

Among the Federal programs referenced in Alabama's submission was the CSAPR Update NOx ozone season Group 2 trading program for the 2008 ozone standard, which ADEM adopted into the Alabama SIP.[66] This reference suggests that Alabama may have intended to

---

[65] In making this observation, EPA is not suggesting that mobile source emissions reductions are necessarily required to address Alabama's good neighbor obligations, but merely pointing out that if the State itself attributes the problem to mobile sources, then it is reasonable to expect that further analysis of such control strategies would be explored.

[66] *See* 81 FR 59869 (August 31, 2016), 82 FR 46674 (October 6, 2017) (adopting Alabama Administrative Code Rule 335-3-8, "Control of Nitrogen Oxides Emissions" and adopting revisions to Rule 335-3-8 into the SIP).

rely on its EGUs being subject to the CSAPR Update (which reflected a stringency at the nominal marginal cost threshold of $1,400/ton (in 2011 dollars) for the 2008 8-hour ozone NAAQS) to argue that it has already implemented all cost-effective emissions reductions at EGUs.

EPA does not support the concept that reliance on the CSAPR Update is appropriate to conclude that no further emissions reductions are necessary under Step 3 for the 2015 8-hour ozone NAAQS. Relying on the CSAPR Update's (or any other CAA program's) determination of cost-effectiveness without further Step 3 analysis is not approvable. Cost-effectiveness must be assessed in the context of the specific CAA program; assessing cost-effectiveness in the context of ozone transport should reflect a more comprehensive evaluation of the nature of the interstate transport problem, the total emissions reductions available at several cost thresholds, and the air quality impacts of the reductions at downwind receptors. While EPA has not established a benchmark cost-effectiveness value for 2015 8-hour ozone NAAQS interstate transport obligations, it is reasonable to expect control measures or strategies to address interstate transport under this NAAQS to reflect higher marginal control costs because the 2015 8-hour ozone NAAQS is a more stringent and more protective air quality standard. As such, the marginal cost threshold of $1,400/ton for the CSAPR Update (which addresses the 2008 ozone 8-hour NAAQS and is in 2011 dollars) is not an appropriate cost threshold and cannot be approved as a benchmark to use for interstate transport SIP submissions for the 2015 8-hour ozone NAAQS. In addition, the updated EPA modeling captures all existing CSAPR trading programs in the baseline, and that modeling confirms that these control programs were not sufficient to eliminate Alabama's linkage at Steps 1 and 2 under the 2015 8-hour ozone NAAQS (even acknowledging that the CSAPR Update provisions have been adopted into Alabama's SIP). The State was therefore obligated at Step 3 to assess *additional* control measures using a multifactor analysis.

As mentioned above, the 2016v2 modeling on which Alabama has relied in its June 2022 submittal indicates sources in Alabama are linked to downwind air quality problems for the 2015 ozone standard. Alabama's SIP submittal does not include an accounting of emissions sources and activity in the State along with an analysis of potential NOx emissions control technologies, their associated costs, estimated emissions reductions, and downwind air quality improvements. Nor does Alabama present an alternative approach to assess which of its emissions should be deemed "significant." EPA proposes to find that Alabama's analysis is insufficient to support the State's claim that its SIP adequately prohibits emissions within Alabama in a manner sufficient to address the State's interstate transport obligations for the 2015 8-hour ozone. Therefore, EPA proposes to disapprove Alabama's August 20, 2018, interstate transport SIP submission on the separate, additional basis that the SIP submittal did not assess additional emissions control opportunities.

E. Evaluation of Information Provided by Alabama Regarding Step 4

Step 4 of the 4-step interstate transport framework calls for development of permanent and federally enforceable control strategies to achieve the emissions reductions determined to be necessary at Step 3 to eliminate significant contribution to nonattainment or interference with maintenance of the NAAQS. As mentioned in Section III.D. of this document, Alabama's SIP submission did not contain an evaluation of additional emissions control opportunities (or establish that no additional controls are required), thus no information was provided at Step 4. As a result, EPA proposes to disapprove Alabama's August 20, 2018, submittal on the separate, additional basis that the State has not developed permanent and enforceable emissions reductions necessary to meet the obligations of CAA section 110(a)(2)(d)(i)(I).

The previous section explained why EPA views Alabama's analysis at Step 3 as insufficient to demonstrate that the emissions reductions it asserts have occurred or may occur are sufficient to address the State's interstate transport obligations. At Step 4, EPA finds that ADEM has also not provided SIP revisions that would ensure the reductions it claims to rely on

are rendered permanent and enforceable. As just one example, while Alabama stated that mobile source emissions would decline as use of electric vehicles grows, the State cited to no State program or enforceable measures to implement such an emissions-reduction strategy. *See Committee for a Better Arvin v. EPA*, 786 F.3d 1169, 1175-76 (9th Cir. 2015) (holding that measures relied on by a State to meet CAA requirements must be included in the SIP). As a result, EPA proposes to disapprove Alabama's June 21, 2022, submittal on the separate, additional basis that the State has not developed permanent and enforceable emissions reductions necessary to meet the obligations of CAA section 110(a)(2)(d)(i)(I).

IV. Conclusion for Alabama

Based on EPA's evaluation of Alabama's SIP submission and after consideration of updated EPA modeling using the 2016-based emissions modeling platform, EPA is proposing to find that Alabama's June 21, 2022, SIP submission addressing CAA section 110(a)(2)(D)(i)(I) does not meet the State's interstate transport obligations because it fails to contain the necessary provisions to eliminate emissions that will contribute significantly to nonattainment or interfere with maintenance of the 2015 8-hour ozone NAAQS in any other State.

V. Proposed Action

EPA is proposing to disapprove the 2015 ozone good neighbor interstate transport SIP revision from Alabama, dated June 21, 2022. If EPA finalizes this disapproval, EPA will continue to be subject to an obligation to promulgate a FIP to address the relevant interstate transport requirements, which was triggered by the finding of failure to submit published on June 22, 2022. However, under the CAA, a good neighbor SIP disapproval does not start a mandatory sanctions clock.

VI. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

The proposed action is not a significant regulatory action and was therefore not submitted to the Office of Management and Budget for review.

B. Paperwork Reduction Act (PRA)

The proposed action does not impose an information collection burden under the PRA because it does not contain any information collection activities.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA (5 U.S.C. 601 et seq.). This action merely proposes to disapprove a SIP submission as not meeting the CAA.

D. Unfunded Mandates Reform Act (UMRA)

The proposed action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. This proposed action imposes no enforceable duty on any State, local, or tribal governments or the private sector.

E. Executive Order 13132: Federalism

The proposed action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

The proposed action does not have tribal implications as specified in Executive Order 13175. The proposed action does not apply on any Indian reservation land, any other area where EPA or an Indian tribe has demonstrated that a tribe has jurisdiction, or non-reservation areas of Indian country. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that EPA has reason to believe may disproportionately affect children, per the definition of "covered regulatory action" in section 2-202 of the Executive Order. This proposed action is not subject to Executive Order 13045 because it merely proposes to disapprove a SIP submission from Alabama as not meeting the CAA.

H. Executive Order 13211, Actions That Significantly Affect Energy Supply, Distribution or Use

The proposed action is not subject to Executive Order 13211, because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

This proposed rulemaking does not involve technical standards.

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

EPA believes the human health or environmental risk addressed by this proposed action will not have potential disproportionately high and adverse human health or environmental effects on minority, low-income or indigenous populations. This proposed action merely proposes to disapprove a SIP submission as not meeting the CAA.

K. CAA Section 307(b)(1)

Section 307(b)(1) of the CAA governs judicial review of final actions by EPA. This section provides, in part, that petitions for review must be filed in the D.C. Circuit: (i) when the agency action consists of "nationally applicable regulations promulgated, or final actions taken, by the Administrator," or (ii) when such action is locally or regionally applicable, if "such action is based on a determination of nationwide scope or effect and if in taking such action the Administrator finds and publishes that such action is based on such a determination." For locally

or regionally applicable final actions, the CAA reserves to EPA complete discretion whether to invoke the exception in (ii).[67]

If EPA takes final action on this proposed rulemaking, the Administrator intends to exercise the complete discretion afforded to him under the CAA to make and publish a finding that the final action (to the extent a court finds the action to be locally or regionally applicable) is based on a determination of "nationwide scope or effect" within the meaning of CAA section 307(b)(1). Through this rulemaking action (in conjunction with a series of related actions on other SIP submissions for the same CAA obligations), EPA interprets and applies section 110(a)(2)(d)(i)(I) of the CAA for the 2015 8-hour ozone NAAQS based on a common core of nationwide policy judgments and technical analysis concerning the interstate transport of pollutants throughout the continental U.S. In particular, EPA is applying here (and in other proposed actions related to the same obligations) the same, nationally consistent 4-step framework for assessing good neighbor obligations for the 2015 8-hour ozone NAAQS. EPA relies on a single set of updated, 2016-base year photochemical grid modeling results of the year 2023 as the primary basis for its assessment of air quality conditions and contributions at Steps 1 and 2 of that framework. Further, EPA proposes to determine and apply a set of nationally consistent policy judgments to apply the 4-step framework. EPA has selected a nationally uniform analytic year (2023) for this analysis and is applying a nationally uniform approach to nonattainment and maintenance receptors and a nationally uniform approach to contribution threshold analysis.[68] For these reasons, the Administrator intends, if this proposed action is finalized, to exercise the complete discretion afforded to him under the CAA to make and

[67] In deciding whether to invoke the exception by making and publishing a finding that an action is based on a determination of nationwide scope or effect, the Administrator takes into account a number of policy considerations, including his judgment balancing the benefit of obtaining the D.C. Circuit's authoritative centralized review versus allowing development of the issue in other contexts and the best use of agency resources.

[68] A finding of nationwide scope or effect is also appropriate for actions that cover states in multiple judicial circuits. In the report on the 1977 Amendments that revised section 307(b)(1) of the CAA, Congress noted that the Administrator's determination that the "nationwide scope or effect" exception applies would be appropriate for any action that has a scope or effect beyond a single judicial circuit. *See* H.R. Rep. No. 95-294 at 323, 324, reprinted in 1977 U.S.C.C.A.N. 1402-03.

publish a finding that this action is based on one or more determinations of nationwide scope or effect for purposes of CAA section 307(b)(1).[69]

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Ozone.

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

Dated: October 17, 2022.

Daniel Blackman,
Regional Administrator,
Region 4.

[FR Doc. 2022-22892 Filed: 10/24/2022 8:45 am; Publication Date: 10/25/2022]

[69] EPA may take a consolidated, single final action on all of the proposed SIP disapproval actions with respect to obligations under CAA section 110(a)(2)(D)(i)(I) for the 2015 8-hour ozone NAAQS. Should EPA take a single final action on all such disapprovals, this action would be nationally applicable, and EPA would also anticipate, in the alternative, making and publishing a finding that such final action is based on a determination of nationwide scope or effect.