6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-HQ-OAR-2018-0225; FRL-XXXX-XX-OAR]

RIN 2060-AT92

Determination Regarding Good Neighbor Obligations for the 2008 Ozone National Ambient Air Quality Standard

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The EPA is proposing to determine that the Cross-State Air Pollution Rule Update for the 2008 ozone National Ambient Air Quality Standards (NAAQS) (CSAPR Update) fully addresses certain states' obligations under Clean Air Act (CAA) section 110(a)(2)(D)(i)(I) regarding interstate pollution transport for the 2008 ozone NAAQS. The CSAPR Update, published on October 26, 2016, promulgated Federal Implementation Plans (FIPs) for 22 states in the eastern U.S. In the final CSAPR Update, based on information available at that time, the EPA could not conclude that the rule fully addressed CAA section 110(a)(2)(D)(i)(I) obligations for 21 of the 22 CSAPR Update states. This action proposes a determination that, based on additional information and analysis, the CSAPR Update fully addresses this CAA provision for the 2008 ozone NAAQS for all remaining CSAPR Update states. Specifically, EPA proposes to determine that there will be no remaining nonattainment or

maintenance receptors in the eastern U.S. in 2023. Therefore, with the CSAPR Update fully implemented, these states are not expected to contribute significantly to nonattainment in, or interfere with maintenance by, any other state with regard to the 2008 ozone NAAQS. In accord with this proposed determination, the EPA proposes to determine that it has no outstanding, unfulfilled obligation under CAA section 110(c)(1) to establish additional requirements for sources in these states to further reduce transported ozone pollution under CAA section 110(a)(2)(D)(i)(I) with regard to the 2008 ozone NAAQS. As a result of this finding, this action proposes minor revisions to the existing CSAPR Update regulations to reflect that the CSAPR Update FIPs fully address CAA section 110(a)(2)(D)(i)(I). The proposed determination would apply to states currently subject to CSAPR Update FIPs as well as any states for which EPA has approved replacement of CSAPR Update FIPs with CSAPR Update SIPs.

DATES: Comments must be received on or before August 31, 2018.

Public Hearing. The EPA will be holding one public hearing on the proposed Determination Regarding Good Neighbor Obligations for the 2008 Ozone National Ambient Air Quality Standard. The hearing will be held to accept oral comments on the proposal. The hearing will be held on August 1, 2018 in Washington D.C. The hearing will begin at 9:00 a.m. (local time) and will conclude at 6:00 p.m. (local time) or two hours after the last registered speaker. The hearing will be held at the Environmental Protection Agency, William Jefferson Clinton East Building, Main Floor Room 1153, 1201 Constitution Avenue, NW, in Washington, D.C. 20460. Because this hearing is being held at a U.S. government facility, individuals planning to attend the hearing should be prepared to show valid picture identification to the security staff in order to gain access to the meeting room. No large signs will be allowed in the building, cameras may

only be used outside of the building, and demonstrations will not be allowed on federal property for security reasons. The EPA website for the rulemaking, which includes the proposal and supporting materials, can be found at https://www.epa.gov/airmarkets/proposed-csapr-close-out.

If you would like to present oral testimony at the public hearing, please register online at https://www.epa.gov/airmarkets/forms/public-hearing-proposed-csapr-close-out or contact Mr. Brian Fisher, U.S. Environmental Protection Agency, Office of Atmospheric Programs, Clean Air Markets Division, (MS 6204-M), 1200 Pennsylvania Avenue, NW, Washington, DC 20460, telephone (202) 343 9633, email address is fisher.brian@epa.gov, no later than 2 business days prior to the public hearing. If using email, please provide the following information: Time you wish to speak (morning, afternoon, evening), name, affiliation, address, email address, and telephone number.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-HQ-OAR-2018-0225, at *http://www.regulations.gov*. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from *Regulations.gov*. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy,

information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *http://www2.epa.gov/dockets/commenting-epa-dockets*.

FOR FURTHER INFORMATION CONTACT: Brian Fisher, Clean Air Markets Division, Office of Atmospheric Programs, U.S. Environmental Protection Agency, MC 6204M, 1200 Pennsylvania Avenue NW, Washington, DC 20460; telephone number: (202) 343-9633; email address: Fisher.Brian@epa.gov.

SUPPLEMENTARY INFORMATION:

Regulated Entities. Entities regulated under the CSAPR Update are fossil fuel-fired boilers and stationary combustion turbines that serve generators producing electricity for sale, including combined cycle units and units operating as part of systems that cogenerate electricity and other useful energy output. Regulated categories and entities include:

Category	NAICS* Code	Examples of potentially regulated industries
Industry	221112	Fossil fuel-fired electric power generation

* North American Industry Classification System

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated. To determine whether your facility is affected by this action, you should carefully examine the applicability provisions in 40 CFR 97.804. If you have questions regarding the applicability of the CSAPR Update to a particular entity, consult the person listed in the FOR FURTHER INFORMATION CONTACT section above.

Outline. The following outline is provided to aid in locating information in this preamble.

I. General Information

Within this document "we," "us," or "our" should be interpreted to mean the U.S. EPA.

Where can I get a copy of this document and other related information?

The EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2018-0225 (available at *http://www.regulations.gov*). Information related to the proposed action and the public hearing is available at the Web site: *https://www.epa.gov/airtransport*.

A. States Covered by this Action

In the CSAPR Update, 81 FR 74504 (Oct. 26, 2016), the EPA promulgated FIPs intended to address 22 eastern states' obligations under CAA section 110(a)(2)(D)(i)(I), also known as the "good neighbor provision," with respect to the 2008 ozone NAAQS. The good neighbor provision requires upwind states to control their emissions that impact air quality problems in downwind states. Based on information available when the CSAPR Update was finalized, the EPA was unable to determine at that time that the FIPs fully addressed good neighbor obligations under this NAAQS for 21 of the 22 states. The EPA has subsequently proposed to approve a draft SIP which, if finalized, would fully address the good neighbor obligation for one of these states, Kentucky. In this action, the EPA proposes to determine that, with CSAPR Update implementation, the 20 remaining states' good neighbor obligations for the 2008 ozone NAAQS are fully addressed. In accord with this determination, the EPA would have no further obligation under CAA section 110(c) to establish requirements for power plants or any other emissions sources in these states to further reduce transported ozone pollution under CAA section 110(a)(2)(D)(i)(I) with regard to this NAAQS.

The two states among the 22 CSAPR Update states that are not covered by this action are Tennessee and Kentucky. With respect to Tennessee, the EPA already determined in the final

CSAPR Update that implementation of the state's emissions budget would fully eliminate the state's significant contribution to downwind nonattainment and interference with maintenance of the 2008 ozone NAAQS because the downwind air quality problems to which the state was linked were projected to be resolved after implementation of the CSAPR Update. 81 FR 74540. With respect to Kentucky, the EPA has proposed in a separate action to approve the state's draft SIP submittal demonstrating that no additional emissions reductions beyond those required by the CSAPR Update are necessary to address the state's good neighbor obligation with respect to the 2008 ozone NAAQS. 83 FR 17123 (April 18, 2018). See Table I.A-1 for a list of states covered by this proposal.

Table I.A-1 States Covered by this Proposed Determination Regarding Good Neighbor Obligations for the 2008 Ozone NAAQS

State
Alabama
Arkansas
Illinois
Indiana
Iowa
Kansas
Louisiana
Maryland
Michigan
Mississippi
Missouri
New Jersey
New York
Ohio
Oklahoma
Pennsylvania
Texas
Virginia
West Virginia
Wisconsin

II. Background and Legal Authority

A. Ground-level Ozone Pollution and Public Health

Ground-level ozone causes a variety of negative effects on human health, vegetation, and ecosystems. In humans, acute and chronic exposure to ozone is associated with premature mortality and a number of morbidity effects, such as asthma exacerbation. In ecosystems, ozone exposure causes visible foliar injury in some plants, decreases growth in some plants, and affects ecosystem community composition.[1]

In this proposed action, consistent with previous rulemakings described in section II.B, the EPA relies on analysis that reflects the regional nature of transported ground-level ozone pollution. Ground-level ozone is not emitted directly into the air, but is a secondary air pollutant created by chemical reactions between nitrogen oxides (NO_X), carbon monoxide (CO), methane (CH_4), and non-methane volatile organic compounds (VOCs) in the presence of sunlight. Emissions from mobile sources, electric generating units (EGUs), industrial facilities, gasoline vapors, and chemical solvents are some of the major anthropogenic sources of ozone precursors. NO_X emissions from the mobile source category lead all sectors and were more than double emissions from the second-highest emitting sector, and accounted from more than half of the national NO_X emissions in 2014.[2] The potential for ground-level ozone formation increases

[1] For more information on the human health and welfare and ecosystem effects associated with ambient ozone exposure, see the EPA's October 2015 Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone (EPA-452/R-15-007) in the docket for this rule and also found in the docket for the 2015 ozone NAAQS, Docket No. EPA-HQ-OAR-2013-0169-0057.

[2] EPA. 2014 National Emissions Inventory (NEI) v2. Released 2/2018 and available at https://www.epa.gov/air-emissions-inventories

during periods with warmer temperatures and stagnant air masses. Therefore, ozone levels are generally higher during the summer months.[3,4] Ground-level ozone concentrations and temperature are highly correlated in the eastern U.S., with observed ozone increases of 2-3 parts per billion (ppb) per degree Celsius reported.[5]

Precursor emissions can be transported downwind directly or, after transformation in the atmosphere, as ozone. Studies have established that ozone formation, atmospheric residence, and transport occur on a regional scale (*i.e.*, hundreds of miles) over much of the eastern U.S. As a result of ozone transport, in any given location, ozone pollution levels are impacted by a combination of local emissions and emissions from upwind sources. Numerous observational studies have demonstrated the transport of ozone and its precursors and the impact of upwind emissions on high concentrations of ozone pollution.[6]

The EPA concluded in several previous rulemakings (summarized in section II.B) that interstate ozone transport can be an important component of peak ozone concentrations during the summer ozone season and that NO_X control strategies are effective for reducing regional-scale ozone transport. Model assessments have looked at impacts on peak ozone concentrations after potential emissions reduction scenarios for NO_X and VOCs for NO_X-limited and VOC-

[3] Rasmussen, D.J. et al. (2011). Ground-level ozone-temperature relationships in the eastern US: A monthly climatology for evaluating chemistry-climate models. Atmospheric Environment 47: 142-153.
[4] High ozone concentrations have also been observed in cold months, where a few areas in the western U.S. have experienced high levels of local VOC and NO_X emissions that have formed ozone when snow is on the ground and temperatures are near or below freezing.
[5] Bloomer, B.J., J. W. Stehr, C.A. Piety, R. J. Salawitch, and R. R. Dickerson (2009). Observed relationships of ozone air pollution with temperature and emissions, Geophys. Res. Lett., 36, L09803.
[6] Bergin, M.S. et al. (2007). Regional air quality: local and interstate impacts of NOx and SO2 emissions on ozone and fine particulate matter in the eastern United States. Environmental Sci & Tech. 41: 4677-4689.

limited areas. For example, Jiang and Fast concluded that NO_X emissions reduction strategies are effective in lowering ozone mixing ratios in urban areas and Liao et al. showed that NO_X reductions result in lower peak ozone concentrations in non-attainment areas in the Mid-Atlantic.[7] Assessments of ozone conducted for the October 2015 Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone (EPA-452/R-15-007) also show the importance of NO_X emissions on ozone formation. This analysis is in the docket for this rule and also can be found in the docket for the 2015 ozone NAAQS regulatory impact analysis, Docket No. EPA-HQ-OAR-2013-0169 (document ID EPA-HQ-OAR-2013-0169-0057).

Studies have found that NO_X emissions reductions can be effective in reducing ozone pollution as quantified by the form of the 2008 ozone standard, 8-hour peak concentrations. Specifically, studies have found that NO_X emissions reductions from EGUs, mobile sources, and other source categories can be effective in reducing the upper-end of the cumulative ozone distribution in the summer on a regional scale.[8] Analysis of air quality monitoring data trends shows reductions in summertime ozone concurrent with implementation of NO_X reduction programs.[9] Gilliland et al. examined the NO_X SIP Call and presented reductions in observed

[7] Jiang, G.; Fast, J.D. (2004). Modeling the effects of VOC and NO_X emission sources on ozone formation in Houston during the TexAQS 2000 field campaign. Atmospheric Environment 38: 5071-5085.
[8] Hidy, G.M. and Blanchard C.L. (2015). Precursor reductions and ground-level ozone in the Continental United States. J. of Air & Waste Management Assn. 65, 10.
[9] Simon, H. et al. (2015). Ozone trends across the United States over a period of decreasing NOx and VOC emissions. Environmental Science & Technology 49, 186-195.

versus modeled ozone concentrations in the eastern U.S. downwind from major NO_X sources.[10] The results showed significant reductions in ozone concentrations (10-25 percent) from observed measurements (CASTNET and AQS)[11] between 2002 and 2005, linking reductions in EGU NO_X emissions from upwind states with ozone reductions downwind of the major source areas.[12] Additionally, Gégo et al. showed that ground-level ozone concentrations were significantly reduced after implementation of the NOx SIP Call.[13]

Mobile sources also account for a large share of the NO_X emissions inventory (*i.e.*, about 7.3 million tons per year in the 2011 base year, which represented more than 50% of continental U.S. NO_X emissions), and the EPA recognizes that emissions reductions achieved from this sector as well can reduce transported ozone pollution. The EPA has national programs that serve to reduce emissions from all contributors to the mobile source inventory (*i.e.*, projected NO_X emissions reductions of about 4.7 million tons per year between the 2011 base year and the 2023 future analytical year). A detailed discussion of the EPA's mobile source emissions reduction programs can be found at www.epa.gov/otaq.

In light of the regional nature of ozone transport discussed herein, and given that NO_X emissions from mobile sources are being addressed in separate national rules, in the CSAPR

[10] Gilliland, A.B. et al. (2008). Dynamic evaluation of regional air quality models: Assessing changes in O_3 stemming from changes in emissions and meteorology. Atmospheric Environment 42: 5110-5123.
[11] CASTNET is the EPA's Clean Air Status and Trends Network. AQS is the EPA's Air Quality System.
[12] Hou, Strickland & Liao. "Contributions of regional air pollutant emissions to ozone and fine particulate matter-related mortalities in eastern U.S. urban areas". Environmental Research, Feb. 2015. Available at https://ac.els-cdn.com/S0013935114004113/1-s2.0-S0013935114004113-main.pdf?_tid=78c88101-fa6e-4e75-a65c-f56746905e7d&acdnat=1525175812_0e62553b83c9ffa1105aa306a478e8bb
[13] Gégo et al. (2007). Observation-based assessment of the impact of nitrogen oxides emissions reductions on O_3 air quality over the eastern United States. J. of Applied Meteorology and Climatology 46: 994-1008.

Update (as in previous regional ozone transport actions) the EPA relied on regional analysis and required regional ozone-season NO_X emissions reductions from EGUs to address interstate transport of ozone.

B. The EPA's Statutory Authority for This Proposed Action

The statutory authority for this proposed action is provided by the CAA as amended (42 U.S.C. 7401 *et seq.*). Specifically, sections 110 and 301 of the CAA provide the primary statutory underpinnings for this rule. The most relevant portions of section 110 are subsections 110(a)(1), 110(a)(2) (including 110(a)(2)(D)(i)(I)), and 110(c)(1).

Section 110(a)(1) provides that states must make SIP submissions "within 3 years (or such shorter period as the Administrator may prescribe) after the promulgation of a national primary ambient air quality standard (or any revision thereof)," and that these SIP submissions are to provide for the "implementation, maintenance, and enforcement" of such NAAQS.[14] The statute directly imposes on states the duty to make these SIP submissions, and the requirement to make the submissions is not conditioned upon the EPA taking any action other than promulgating a new or revised NAAQS.[15]

The EPA has historically referred to SIP submissions made for the purpose of satisfying the applicable requirements of CAA sections 110(a)(1) and 110(a)(2) as "infrastructure SIP" submissions. Section 110(a)(1) addresses the timing and general requirements for infrastructure SIP submissions, and section 110(a)(2) provides more details concerning the required content of

[14] 42 U.S.C. 7410(a)(1).
[15] *See EPA v. EME Homer City Generation, L.P.*, 134 S. Ct. 1584, 1601 (2014).

these submissions. It includes a list of specific elements that "[e]ach such plan" submission must address.[16] All states, regardless of whether the state includes areas designated as nonattainment for the relevant NAAQS, must have SIPs that meet the applicable requirements of section 110(a)(2), including provisions of section 110(a)(2)(D)(i)(I) described later and that are the focus of this rule.

Section 110(c)(1) requires the Administrator to promulgate a FIP at any time within two years after the Administrator: 1) finds that a state has failed to make a required SIP submission; 2) finds a SIP submission to be incomplete pursuant to CAA section 110(k)(1)(C); or 3) disapproves a SIP submission, unless the state corrects the deficiency through a SIP revision that the Administrator approves before the FIP is promulgated.[17]

Section 110(a)(2)(D)(i)(I), also known as the "good neighbor provision," provides the primary basis for this action. It requires that each state SIP shall include provisions sufficient to "prohibit[] . . . any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will — (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any [NAAQS]."[18]

The EPA has previously issued four rules interpreting and clarifying the requirements of section 110(a)(2)(D)(i)(I) for states in the eastern United States. These rules, and the associated

[16] The EPA's general approach to infrastructure SIP submissions is explained in greater detail in individual notices acting or proposing to act on state infrastructure SIP submissions and in guidance. *See, e.g.*, Memorandum from Stephen D. Page on Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and 110(a)(2) (Sept. 13, 2013).
[17] 42 U.S.C. 7410(c)(1).
[18] 42 U.S.C. 7410(a)(2)(D)(i)(I).

court decisions addressing these rules, summarized here, provide important guidance regarding the requirements of section 110(a)(2)(D)(i)(I).

The NO_X SIP Call, promulgated in 1998, addressed the good neighbor provision for the 1979 1-hour ozone NAAQS.[19] The rule required 22 states and the District of Columbia to amend their SIPs to reduce NO_X emissions that contribute to ozone nonattainment in downwind states. The EPA set an ozone season NO_X budget for each covered state, essentially a cap on ozone season NO_X emissions in the state. Covered states were given the option to participate in a regional cap-and-trade program, known as the NO_X Budget Trading Program (NBP), to achieve a large portion of the reductions. The United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) largely upheld the NO_X SIP Call in *Michigan v. EPA*, 213 F.3d 663 (D.C. Cir. 2000), *cert. denied*, 532 U.S. 904 (2001).

The EPA's next rule addressing the good neighbor provision, Clean Air Interstate Rule (CAIR), was promulgated in 2005 and addressed both the 1997 $PM_{2.5}$ and 1997 ozone NAAQS.[20] CAIR required SIP revisions in 28 states and the District of Columbia to reduce emissions of sulfur dioxide (SO_2) and/or NO_X - important precursors of regionally transported $PM_{2.5}$ (SO_2 and NO_X) and ozone (NO_X). As in the NO_X SIP Call, states were given the option to participate in regional cap-and-trade programs to achieve the reductions. When the EPA promulgated the final CAIR in May 2005, the EPA also issued a national rule, finding that states

[19] 63 FR 57356 (Oct. 27, 1998). As originally promulgated, the NO_x SIP Call also addressed good neighbor obligations under the 1997 8-hour ozone NAAQS, but the EPA subsequently stayed the rule's provisions with respect to that standard. 40 CFR 51.121(q).
[20] 70 FR 25162 (May 12, 2005).

had failed to submit SIPs to address the requirements of CAA section 110(a)(2)(D)(i) with respect to the 1997 $PM_{2.5}$ and 1997 ozone NAAQS. Those states were required by the CAA to have submitted good neighbor SIPs for those standards by July 2000 (*i.e.*, three years after the standards were finalized).[21] These findings of failure to submit triggered a 2-year clock for the EPA to issue FIPs to address interstate transport,[22] and on March 15, 2006, the EPA promulgated FIPs to ensure that the emissions reductions required by CAIR would be achieved on schedule.[23] CAIR was remanded to the EPA by the D.C. Circuit in *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008)*, modified on reh'g*, 550 F.3d 1176. For more information on the legal issues underlying CAIR and the D.C. Circuit's holding in *North Carolina*, refer to the preamble of the original CSAPR.[24]

In 2011, the EPA promulgated the original CSAPR to address the issues raised by the remand of CAIR. CSAPR addressed the two NAAQS at issue in CAIR and additionally addressed the good neighbor provision for the 2006 $PM_{2.5}$ NAAQS.[25] CSAPR required 28 states to reduce SO_2 emissions, annual NO_X emissions, and/or ozone season NO_X emissions that significantly contribute to other states' nonattainment or interfere with other states' abilities to maintain these air quality standards. To align implementation with the applicable attainment deadlines, the EPA promulgated FIPs for each of the 28 states covered by CSAPR. The FIPs implement regional cap-and-trade programs to achieve the necessary emissions reductions. Each

[21] 70 FR 21147 (May 12, 2005). *See* n.14 and main text, *supra*.
[22] *See* n.17 and main text, *supra*.
[23] 71 FR 25328 (April 28, 2006).
[24] 76 FR 48208, 48217 (Aug. 8, 2011).
[25] 76 FR 48208.

state can submit a good neighbor SIP at any time that, if approved by the EPA, would replace the CSAPR FIP for that state.[26] CSAPR was the subject of an adverse decision by the D.C. Circuit in August 2012[27], reversed in April 2014 by the Supreme Court,[28] which largely upheld the rule, including EPA's approach to addressing interstate transport in CSAPR, but remanded to the D.C. Circuit to consider other claims not addressed by the Court. *EPA v. EME Homer City Generation, L.P.*, 134 S. Ct. 1584 (2014). On remand from the Supreme Court, in July 2015 the D.C. Circuit affirmed the EPA's interpretation of various statutory provisions and the EPA's technical decisions. *EME Homer City Generation, L.P. v. EPA*, 795 F.3d 118 (2015) (*EME Homer City II*). However, the court also remanded the rule without vacatur for reconsideration of the EPA's emissions budgets for certain states, which the court found may over-control those states' emissions with respect to the downwind air quality problems to which the states were linked. *Id.* at 129-30, 138. For more information on the legal considerations of CSAPR and the

[26] EPA has already approved SIPs fully replacing the original CSAPR FIPs for Alabama, 81 FR 59869 (Aug. 31, 2016), Georgia, 82 FR 47930 (Oct. 13, 2017), and South Carolina, 82 FR 47936 (Oct. 13, 2017).

[27] On August 21, 2012, the D.C. Circuit issued a decision in *EME Homer City Generation, L.P. v. EPA*, 696 F.3d 7 (D.C. Cir. 2012) (*EME Homer I*), vacating CSAPR. The EPA sought review with the D.C. Circuit *en banc* and the D.C. Circuit declined to consider the EPA's appeal *en banc*. *EME Homer City Generation, L.P. v. EPA*, No. 11-1302 (D.C. Cir. January 24, 2013), ECF No. 1417012 (denying the EPA's motion for rehearing en banc).

[28] On January 23, 2013, the Supreme Court granted the EPA's petition for certiorari. *EPA v. EME Homer City Generation, L.P.*, 133 S. Ct. 2857 (2013) (granting the EPA's and other parties' petitions for certiorari). On April 29, 2014, the Supreme Court issued a decision reversing the D.C. Circuit's *EME Homer City* opinion.

court's decisions in the *EME Homer City* litigation, refer to the preamble of the CSAPR Update.[29]

In 2016, the EPA promulgated the CSAPR Update to address interstate transport of ozone pollution with respect to the 2008 ozone NAAQS. The final rule generally updated the CSAPR ozone season NO_X emissions budgets for 22 states to achieve cost-effective NOx emissions reductions from EGUs within those states.[30] The CSAPR Update implemented these budgets through FIPs requiring sources to participate in a revised CSAPR ozone season NO_X allowance trading program. As under the original CSAPR, each state can submit a good neighbor SIP at any time that, if approved by the EPA, would replace the CSAPR Update FIP for that state.[31] The final CSAPR Update also addressed the remand by the D.C. Circuit of certain states' original CSAPR phase 2 ozone season NO_X emissions budgets in *EME Homer City II*. The CSAPR Update is subject to pending legal challenges in the D.C. Circuit. *Wisconsin v. EPA*, No. 16-1406 (D.C. Cir. filed Nov. 23, 2016). Further information about the CSAPR Update can be found in section II.D of this notice.

Section 301(a)(1) of the CAA also gives the Administrator the general authority to prescribe such regulations as are necessary to carry out functions under the Act.[32] Pursuant to this section, the EPA has authority to clarify the applicability of CAA requirements. In this

[29] 81 FR 74511.
[30] One state, Kansas, was made newly subject to a CSAPR ozone season NO_X requirement by the CSAPR Update. All other CSAPR Update states were already subject to ozone season NO_X requirements under the original CSAPR.
[31] EPA has already approved a SIP fully replacing the CSAPR Update FIP for Alabama. 82 FR 46674 (Oct. 6, 2017).
[32] 42 U.S.C. 7601(a)(1).

action, among other things, the EPA is clarifying the applicability of section 110(a)(2)(D)(i)(I) with respect to the 2008 ozone NAAQS. In particular, the EPA is using its authority under sections 110 and 301 to make a determination that no further enforceable reductions in emissions of NO_X are required under this provision with respect to the 2008 ozone NAAQS for the states covered by this rule. The EPA is making minor revisions to the existing state-specific sections of the CSAPR Update regulations for all states covered by that action other than Kentucky and Tennessee.

C. Good Neighbor Obligations for the 2008 Ozone NAAQS

On March 12, 2008, the EPA promulgated a revision to the NAAQS, lowering both the primary and secondary standards to 75 ppb. *See* National Ambient Air Quality Standards for Ozone, Final Rule, 73 FR 16436 (March 27, 2008). Specifically, the standards require that an area may not exceed 75 ppb using the 3-year average of the fourth highest 24-hour maximum 8-hour rolling average ozone concentration. These revisions of the NAAQS, in turn, triggered a 3-year deadline for states to submit SIP revisions addressing infrastructure requirements under CAA sections 110(a)(1) and 110(a)(2), including the good neighbor provision. Several events affected application of the good neighbor provision for the 2008 ozone NAAQS, including reconsideration of the 2008 ozone NAAQS and legal developments pertaining to the EPA's original CSAPR, which created uncertainty surrounding the EPA's statutory interpretation and

implementation of the good neighbor provision.[33] Notwithstanding these events, EPA ultimately affirmed that states' good neighbor SIPs were due on March 12, 2011.

The EPA subsequently took several actions that triggered the EPA's obligation under CAA section 110(c) to promulgate FIPs addressing the good neighbor provision for several states.[34] First, on July 13, 2015, the EPA published a rule finding that 24 states failed to make complete submissions that address the requirements of section 110(a)(2)(D)(i)(I) related to the interstate transport of pollution as to the 2008 ozone NAAQS. *See* 80 FR 39961 (effective August 12, 2015). The finding action triggered a 2-year deadline for the EPA to issue FIPs to address the good neighbor provision for these states by August 12, 2017. The CSAPR Update finalized FIPs for 13 of these states (Alabama, Arkansas, Illinois, Iowa, Kansas, Michigan, Mississippi, Missouri, Oklahoma, Pennsylvania, Tennessee, Virginia, and West Virginia). The EPA also determined in the CSAPR Update that the Agency had fully satisfied its FIP obligation as to nine additional states identified in the finding of failure to submit (Florida, Georgia, Maine, Massachusetts, Minnesota, New Hampshire, North Carolina, South Carolina, and Vermont). The EPA determined that these states did not contribute significantly to nonattainment in, or interfere with maintenance by, any other state with respect to the 2008 ozone NAAQS. 81 FR 74506.[35] On June 15, 2016 and July 20, 2016, the EPA published additional rules finding that New Jersey and Maryland, respectively, also failed to submit transport SIPs for the 2008 ozone NAAQS. *See* 81

[33] These events are described in detail in section IV.A.2 of the CSAPR Update. 81 FR 74515.
[34] This section of the preamble focuses on SIP and FIP actions for those states addressed in the CSAPR Update. The EPA has also acted on SIPs for other states not mentioned in this action. The memorandum, *Status of 110(a)(2)(D)(i)(I) SIPs for the 2008 Ozone NAAQS*, more fully describes the good neighbor SIP status for the 2008 ozone NAAQS and is available in the docket for this action.
[35] The two remaining states addressed in the findings of failure to submit (California and New Mexico) were not part of the CSAPR Update analysis and are not addressed in this rulemaking.

FR 38963 (June 15, 2016) (effective July 15, 2016); 81 FR 47040 (July 20, 2016) (Maryland, effective August 19, 2016). The finding actions triggered 2-year deadlines for the EPA to issue FIPs to address the good neighbor provision for Maryland by August 19, 2018, and New Jersey by July 15, 2018. The CSAPR Update finalized FIPs for these two states.

In addition to the previously identified finding actions, the EPA also finalized disapproval or partial disapproval actions for SIPs submitted by Indiana, Kentucky, Louisiana, New York, Ohio, Texas, and Wisconsin.[36] These disapprovals triggered the EPA's obligation to promulgate FIPs to implement the requirements of the good neighbor provision for those states within 2 years of the effective date of each disapproval. The EPA promulgated CSAPR Update FIPs for Indiana, Kentucky, Louisiana, New York, Ohio, Texas, and Wisconsin.

As discussed in more detail in the next section, in issuing the CSAPR Update, the EPA did not determine that it had entirely addressed the EPA's outstanding CAA obligations to implement the good neighbor provision with respect to the 2008 ozone NAAQS for 21 of 22 states covered by that rule. Accordingly, the CSAPR Update did not fully satisfy the EPA's obligation to address the good neighbor provision requirements for those states by approving SIPs, issuing FIPs, or some combination of those two actions. The EPA found that the CSAPR

[36] *See* the following actions: Indiana (81 FR 38957, June 15, 2016); Kentucky (78 FR 14681, March 7, 2013); Louisiana (81 FR 53308, August 12, 2016); New York (81 FR 58849, August 26, 2016); Ohio (81 FR 38957, June 15, 2016); Texas (81 FR 53284, August 12, 2016); and Wisconsin (81 FR 53309, August 12, 2016).

Update FIP fully addressed the good neighbor provision for the 2008 ozone NAAQS only with respect to Tennessee.

The EPA notes that it has also already separately proposed an action to fully address Kentucky's good neighbor obligation for the 2008 ozone NAAQS. 83 FR 17123 (Apr. 18, 2018). On May 23, 2017, the U.S. District Court for the Northern District of California issued an order requiring the EPA to take a final action fully addressing the good neighbor obligation for the 2008 ozone NAAQS for Kentucky by June 30, 2018. *See* Order, *Sierra Club v. Pruitt*, No. 3:15-cv-04328 (N.D. Cal. May 23, 2017). On February 28, 2018, Kentucky submitted to the EPA a draft SIP addressing the remaining good neighbor obligation. On May 10, 2018, Kentucky submitted their final SIP to EPA. The EPA proposed to approve the state's draft SIP, 83 FR 17123 (April 18, 2018), and intends to take an appropriate final action that would address this obligation for Kentucky consistent with the court-ordered deadline.

As noted previously, subsequent to the promulgation of the CSAPR Update, the EPA approved a SIP fully replacing the FIP for Alabama. 82 FR 46674 (October 6, 2017). In that SIP approval, the EPA found that the rule partially satisfies Alabama's good neighbor obligation for the 2008 ozone NAAQS. Thus, the EPA continues to have an obligation, stemming from the July 13, 2015 findings notice, to fully address the good neighbor provision requirements for the 2008 NAAQS with respect to Alabama. As previously noted, other states have also submitted SIPs, some of which the EPA has approved and some of which still remain pending. However, these

states are not the subject of this rulemaking and these actions are therefore not described in detail in this section.

Table II.C-1 summarizes the statutory deadline for the EPA to address its FIP obligation under CAA section 110(c) and the event that activated the EPA's obligation for each of the 20 remaining CSAPR Update states addressed in this proposed action. For more information regarding the actions triggering the EPA's FIP obligation and the EPA's action on SIPs addressing the good neighbor provision for the 2008 ozone NAAQS, see the memorandum, *Status of* 110(a)(2)(D)(i)(I) SIPs *for the 2008 Ozone NAAQS*, in the docket for this action.

Table II.C-1 – Events that Activated EPA's Obligation and Statutory FIP Deadlines

State	Type of Action (Federal Register Citation, Publication Date)	Statutory FIP Deadline[37]
Alabama	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
Arkansas	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
Illinois	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
Indiana	SIP disapproval (81 FR 38957, 6/15/2016)	7/15/2018
Iowa	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
Kansas	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
Louisiana	SIP disapproval (81 FR 53308, 8/12/2016)	9/12/2018
Maryland	Finding of Failure to Submit (81 FR 47040, 7/20/2016)	8/19/2018
Michigan	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
Mississippi	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
Missouri	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
New Jersey	Finding of Failure to Submit (81 FR 38963, 6/15/2016)	7/15/2018
New York	SIP disapproval (81 FR 58849, 8/12/2016)	9/26/2018
Ohio	SIP disapproval (81 FR 38957, 6/15/2016)	7/15/2018
Oklahoma	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
Pennsylvania	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
Texas	SIP disapproval (81 FR 53284, 8/12/2016)	9/12/2018
Virginia	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
West Virginia	Finding of Failure to Submit (80 FR 39961, 7/13/2015)	8/12/2017
Wisconsin	Partial SIP disapproval as to prong 2 (81 FR 53309, 8/12/2016)	9/12/2018

[37] The FIP deadline is two years from the effective date of the SIP disapproval or Finding of Failure to Submit, which generally trails the publication date by 30 or 45 days.

D. Summary of the CSAPR Update

On October 16, 2016, the EPA finalized the CSAPR Update. The purpose of the CSAPR Update was to protect public health and welfare by reducing interstate pollution transport that significantly contributes to nonattainment, or interferes with maintenance, of the 2008 ozone NAAQS in the eastern U.S. As discussed in section II.C, the EPA finalized a FIP for each of the 22 states subject to the rule,[38] either having previously found that those states failed to submit a complete good neighbor SIP (15 states) or having issued a final rule disapproving their good neighbor SIP submittals (7 states). For the 22 states covered by the CSAPR Update, the EPA promulgated EGU ozone season NO_X emissions budgets, implemented through a regional allowance trading program, to reduce interstate ozone transport for the 2008 ozone NAAQS during the ozone season (May - September), beginning with the 2017 ozone season.

The EPA aligned its analysis for the CSAPR Update (and implementation of the trading program) with relevant attainment dates for the 2008 ozone NAAQS, consistent with the D.C. Circuit's decision in *North Carolina v. EPA.*[39] The EPA's final 2008 Ozone NAAQS SIP Requirements Rule established the attainment deadline of July 20, 2018 for ozone nonattainment areas classified as Moderate.[40] Because the attainment date falls during the 2018 ozone season,

[38] Alabama, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Missouri, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, Tennessee, Texas, Virginia, West Virginia, and Wisconsin.

[39] 531 F.3d 896, 911-12 (D.C. Cir. 2008) (holding that the EPA must coordinate interstate transport compliance deadlines with downwind attainment deadlines).

[40] 80 FR 12264, 12268 (Mar. 6, 2015); 40 CFR 51.1103. Ozone nonattainment areas are classified as either Marginal, Moderate, Serious, Severe, or Extreme, based on the severity of the air quality problem in the area. Areas with more acute air quality problems are required to implement more stringent control requirements and are provided additional time to attain the NAAQS. See CAA sections 181 and 182, 42 U.S.C. 7511, 7511a.

the 2017 ozone season was the last full season from which data could be used to determine attainment of the NAAQS by the July 20, 2018 attainment date. Therefore, consistent with the court's instruction in *North Carolina*, the EPA established and implemented emissions budgets starting with the 2017 ozone season. 81 FR 74507.

To establish the CSAPR Update emissions budgets, the EPA followed a four-step analytic process that has been used in each of the Agency's regional interstate transport rulemakings. The four-step interstate transport framework is described in more detail in section III.A. To summarize, in step 1, the Agency identified downwind receptors that are expected to have problems attaining or maintaining the NAAQS. In step 2, the EPA examined which upwind states contribute to the nonattainment or maintenance receptors identified in step 1. In step 3, the EPA quantified the upwind emissions that significantly contribute to nonattainment or interfere with maintenance. The EPA quantified significantly contributing emissions from upwind states by evaluating levels of uniform NO_X control stringency, represented by an estimated marginal cost per ton of NO_X reduced. The EPA applied a multi-factor test to evaluate cost, available emissions reductions, and downwind air quality impacts to determine the appropriate level of uniform NO_X control stringency that addressed the impacts of interstate transport on downwind nonattainment or maintenance receptors. The EPA used this multi-factor assessment to gauge the extent to which emissions reductions should be implemented beginning in 2017 and to ensure those reductions do not represent over-control. In step 4, the EPA identified emissions budgets for significantly contributing states that reflected the absence of

significant contribution and provided for implementation of the budgets through an allowance trading program.

The multi-factor test generated a "knee in the curve," i.e., a point at which the cost-effectiveness of the emissions reductions is maximized, so named for the discernable turning point observable in a cost curve. *See* 81 FR 74550. In the CSAPR Update this was at the point where emissions budgets reflected a control stringency with an estimated marginal cost of $1,400 per ton of NO_X reduced. This level of stringency in emissions budgets represented the level at which incremental EGU NO_X reduction potential and corresponding downwind ozone air quality improvements were maximized—relative to other cost levels evaluated—with respect to marginal cost. That is, the ratio of emissions reductions to marginal cost and the ratio of ozone improvements to marginal cost were maximized relative to the other emissions budget levels evaluated. The EPA found that highly cost-effective EGU NO_X reductions were available to make meaningful and timely improvements in downwind ozone air quality to address interstate ozone transport for the 2008 ozone NAAQS for the 2017 ozone season. 81 FR 74508. Further, the agency's evaluation showed that emissions budgets reflecting the $1,400 per ton cost threshold did not over-control upwind states' emissions relative to either the downwind air quality problems to which they were linked or the 1 percent contribution threshold in step 2 that triggered their further evaluation in step 3. *Id.* at 74551-52. As a result, the EPA finalized EGU ozone season NO_X emissions budgets developed using uniform control stringency represented by $1,400 per ton.

To implement the CSAPR Update's emissions reductions, the EPA promulgated FIPs requiring power plants in covered states to participate in the CSAPR NO_X Ozone Season Group

2 allowance trading program starting in 2017.[41] CSAPR's trading programs and the EPA's prior emissions trading programs (*e.g.*, CAIR and the NO_X Budget Trading Program) provide a proven implementation framework for achieving emissions reductions. In addition to providing environmental certainty (*i.e.*, a cap on emissions), these programs also provide regulated sources with flexibility in choosing compliance strategies. By using the CSAPR allowance trading programs, the EPA applied an implementation framework that was shaped by notice and comment in previous rulemakings and reflected the evolution of these programs in response to court decisions and practical experience gained by states, industry, and the EPA.

Based on information available at the time of its promulgation, the EPA was unable to conclude that the CSAPR Update fully addressed most of the covered states' good neighbor obligations for the 2008 ozone NAAQS. 81 FR 74521. Information available at the time indicated that, even with CSAPR Update implementation, several downwind receptors were expected to continue having problems attaining and maintaining this NAAQS and that emissions from upwind states were expected to continue to contribute greater than or equal to 1 percent of the NAAQS to these areas during the 2017 ozone season. *Id.* at 74551-52. Further, the EPA could not conclude at that time whether additional EGU and non-EGU reductions implemented

[41] The ozone season NO_X allowance trading program created under the original CSAPR was renamed the CSAPR NO_X Ozone Season Group 1 Trading Program and now applies only to sources in Georgia. In the CSAPR Update, the EPA found that Georgia did not contribute to interstate transport with respect to the 2008 ozone NAAQS, but the state has an ongoing ozone season NO_X requirement under the original CSAPR.

on a longer timeframe than 2017 would be feasible and cost-effective to address states' good neighbor obligations for this NAAQS.

As noted, the EPA premised its conclusion that the CSAPR Update may not fully address states' good neighbor obligations in part on the Agency's assessment that air quality problems would persist at downwind receptors in 2017 even with CSAPR Update implementation. The EPA's assessment of CSAPR Update implementation using the Air Quality Assessment Tool (AQAT) indicated that certain eastern air quality monitors would continue to have problems attaining and maintaining the 2008 ozone NAAQS in 2017. 81 FR 74550-52. Specifically, projected nonattainment receptors remained in Connecticut, Texas, and Wisconsin, while projected maintenance-only receptors remained in Connecticut, Maryland, Michigan, New York, and Texas.[42] See Table II.C-1 for a list of remaining nonattainment receptors and Table II.C-2 for a list of remaining maintenance-only receptors. (The EPA's approach to defining nonattainment and maintenance-only receptors is explained in section III.C.1 below.)

Table II.C-1. Remaining 2017 Projected Nonattainment Receptors in the Eastern U.S.

Monitor ID	State	County
090019003	Connecticut	Fairfield
090099002	Connecticut	New Haven
480391004	Texas	Brazoria
484392003	Texas	Tarrant
484393009	Texas	Tarrant
551170006	Wisconsin	Sheboygan

Table II.C-2. Remaining 2017 Projected Maintenance-Only Receptors in the Eastern U.S.

Monitor ID	State	County
090010017	Connecticut	Fairfield
090013007	Connecticut	Fairfield

[42] Projected AQAT design values for the $1400/ton policy case are available in Tables D-6 and D-7 of the CSAPR Update "Ozone Transport Policy Analysis Final Rule TSD" (August 2016), Docket ID No. EPA-HQ-OAR-2015-0500-0555.

Monitor ID	State	County
240251001	Maryland	Harford
260050003	Michigan	Allegan
360850067	New York	Richmond
361030002	New York	Suffolk
481210034	Texas	Denton
482010024	Texas	Harris
482011034	Texas	Harris
482011039	Texas	Harris

The EPA's analysis also showed that 21 of the 22 CSAPR Update states would continue to contribute equal to or greater than 1 percent of the 2008 ozone NAAQS to at least one remaining nonattainment or maintenance receptor in 2017.[43] Thus, for those 21 states, the EPA could not, based on information available in the CSAPR Update rulemaking, make an air quality-based conclusion that the CSAPR Update would fully resolve states' good neighbor obligations with respect to the 2008 ozone NAAQS. (For one state, Tennessee, the EPA determined that the CSAPR Update fully resolved its good neighbor obligation.)

Further, it was not feasible for the EPA to complete an emissions control analysis that would otherwise be necessary to evaluate full elimination of each state's significant contribution to nonattainment or interference with maintenance and also ensure that emissions reductions would be achieved by 2017. 81 FR at 74522. Specifically, the EPA was unable to fully consider both non-EGU ozone season NO_X reductions and further EGU reductions that may have been achievable after 2017. *Id*. at 74521. The EPA did not quantify non-EGU stationary source emissions reductions to address interstate ozone transport for the 2008 ozone NAAQS in the

[43] *See* EPA's Air Quality Assessment Tool from the CSAPR Update in the docket for this rulemaking.

CSAPR Update for two reasons. First, the EPA explained that there was greater uncertainty in the EPA's assessment of non-EGU NO_X mitigation potential, and that more time would be required for states and the EPA to improve non-EGU point source data and pollution control assumptions before we could develop emissions reduction obligations based on that data. *Id.* at 74542. Second, the EPA explained that we did not believe that significant, certain, and meaningful non-EGU NO_X reductions were feasible for the 2017 ozone season. *Id.* Many commenters generally agreed with the EPA that non-EGU emissions reductions were not readily available for the 2017 ozone season but some advocated that such reductions should be included as appropriate in future mitigation actions. *Id.* at 74521-22. With respect to EGUs, the EPA concluded that additional control strategies, such as the implementation of new post-combustion controls, would take several years to implement, which was beyond the 2017 ozone season targeted in the CSAPR Update. *Id*. at 74541. Thus, the EPA could not make an emissions reduction-based conclusion that the CSAPR Update would fully resolve states' good neighbor obligations with respect to the 2008 ozone NAAQS because the reductions required by the CSAPR Update were EGU-only and because the EPA focused the policy analysis for the CSAPR Update on reductions available by the beginning of the 2017 ozone season.

Finally, in promulgating the CSAPR Update, the EPA stated its belief that it was beneficial to implement, without further delay, EGU NO_X reductions that were achievable in the near term, particularly before the Moderate area attainment date of 2018. Notwithstanding that additional reductions may be required to fully address the states' interstate transport obligations, the EGU NO_X emissions reductions implemented by the final rule were needed for upwind states to eliminate their significant contribution to nonattainment or interference with maintenance of

the 2008 ozone NAAQS and to assist downwind states with ozone nonattainment areas that are required to attain the standard by July 20, 2018.

As a result of the remaining air quality problems and the limitations on the EPA's analysis, for all but one of the 21 states at issue, the EPA did not determine in the CSAPR Update that the CSAPR Update fully addressed those states' downwind air quality impacts under the good neighbor provision for the 2008 ozone NAAQS. *Id.* at 74521. For one state, Tennessee, the EPA determined in the final CSAPR Update that Tennessee's emissions budget fully eliminated the state's significant contribution to downwind nonattainment and interference with maintenance of the 2008 ozone NAAQS because the downwind air quality problems to which the state was linked were projected to be resolved with implementation of the CSAPR Update. *Id.* at 74552.

III. Proposed Determination Regarding Good Neighbor Obligations for the 2008 Ozone NAAQS

As described in section II.D, in the CSAPR Update the EPA promulgated FIPs intended to address the good neighbor provision for the 2008 ozone NAAQS, but could not at that time determine that those FIPs fully address 2008 ozone NAAQS good neighbor obligations for 21 of the 22 CSAPR Update states, based on information available when the rule was finalized. As a result, the CSAPR Update did not fully satisfy the EPA's obligation to issue FIPs or approve SIPs to address those states' good neighbor obligations for the 2008 ozone NAAQS. In this notice, the EPA proposes to determine that, based on additional information and analysis, the CSAPR Update fully addresses 20 of these states' good neighbor obligations for the 2008 ozone NAAQS. In particular, the EPA proposes to determine that there will be no remaining

nonattainment or maintenance receptors in the eastern U.S. in 2023. Therefore, after the CSAPR Update is implemented, these states are not expected to contribute significantly to nonattainment in, or interfere with maintenance by, any other state with regard to the 2008 ozone NAAQS. The obligation as to the remaining state (Kentucky) is currently being addressed in a separate action.

A. Analytic Approach

The Agency is evaluating its determination regarding CSAPR Update states' remaining good neighbor obligations for the 2008 ozone NAAQS by applying the same approach used in previous federal actions addressing regional interstate transport of ozone pollution, including the CSAPR Update which addressed the same NAAQS at issue in this rulemaking. Each of these rulemakings followed the same four-step interstate transport framework to quantify and implement emissions reductions necessary to address the interstate transport requirements of the good neighbor provision.[44] These steps are summarized in the following four paragraphs.

Step 1: Identify downwind air quality problems relative to the 2008 ozone NAAQS. The EPA has historically identified downwind receptors with air quality problems using air quality modeling projections and, where appropriate, considering monitored ozone data for a future compliance year. In the CSAPR Update, the agency relied on modeled and monitored data to identify not only those receptors expected to be in nonattainment with the ozone NAAQS, but

[44] With respect to the 2015 ozone NAAQS, the EPA recently provided information to states to inform their development of SIPs to address CAA section 110(a)(2)(D)(i)(I). In a memorandum dated March 27, 2018, the Agency noted that, in developing their own rules, states have flexibility to follow the familiar 4-step transport framework (using the EPA's analytical approach or somewhat different analytical approaches within these steps) or alternative frameworks, so long as their chosen approach has adequate technical justification and is consistent with the requirements of the CAA.

also those receptors that may have difficulty maintaining the NAAQS, notwithstanding clean monitored data or projected attainment.

Step 2: Determine which upwind states are "linked" to these identified downwind air quality problems and thereby warrant further analysis to determine whether their emissions violate the good neighbor provision. In the CSAPR Update, the EPA identified such upwind states as those modeled to contribute to a downwind receptor at or above an air quality threshold equivalent to one percent of the 2008 ozone NAAQS.

Step 3: For states linked to downwind air quality problems, identify upwind emissions on a statewide basis that significantly contribute to nonattainment or interfere with maintenance of a standard in any area. In all of the EPA's prior rulemakings addressing interstate ozone pollution transport, the Agency identified and apportioned emissions reduction responsibility among multiple upwind states linked to downwind air quality problems by considering feasible NO_X control strategies and using cost-based and air quality-based criteria to evaluate regionally uniform NO_X control strategies that were then used to quantify the amount of a linked upwind state's emissions, if any, that significantly contribute to nonattainment or interfere with maintenance in another state.

Step 4: For upwind states that are found to have emissions that significantly contribute to nonattainment or interfere with maintenance of the NAAQS downwind, implement the necessary emissions reductions within the state. In the CSAPR Update, the EPA implemented the necessary emissions reductions from upwind states found to have good neighbor obligations by requiring EGUs in those states to participate in the CSAPR NO_X Ozone Season Group 2 Trading

Program, which is very similar to the allowance trading programs used to implement the emissions reductions quantified in the original CSAPR and other earlier rules.[45]

Because this action is evaluating outstanding obligations that remain with respect to the 2008 ozone NAAQS, the EPA believes it is reasonable to apply the same framework used in the CSAPR Update in this proposed action.

Within this four-step interstate transport framework, the EPA only proceeds to step four, in which it requires sources in upwind states to implement enforceable emissions limitations, if: (1) downwind air quality problems are identified in at step 1; (2) an upwind state is linked to a downwind air quality problem at step 2; *and* (3) sources in the linked upwind state are identified as having emissions that significantly contribute to nonattainment and interfere with maintenance of the NAAQS considering cost- and air-quality-based factors. For the reasons described in the following paragraphs, the EPA believes this approach is a reasonable interpretation of the good neighbor provision.

The good neighbor provision instructs the EPA and states to apply its requirements "consistent with the provisions of" title I of the CAA. The EPA is therefore interpreting the requirements of the good neighbor provision, and the elements of its four-step interstate transport framework, to apply in a manner consistent with the designation and planning requirements in title I that apply in downwind states. *See North Carolina*, 531 F.3d at 912 (holding that the good neighbor provision's reference to title I requires consideration of both procedural and substantive provisions in title I). The EPA notes that this consistency instruction follows the requirement that

[45] Affected sources have participated in EPA-administered allowance trading programs under both SIPs and FIPs.

plans "contain adequate provisions prohibiting" certain emissions in the good neighbor provision. The following paragraphs will therefore explain how the EPA's interpretation of the circumstances under which the good neighbor provision requires that plans "prohibit" emissions through enforceable measures is consistent with the circumstances under which downwind states are required to implement emissions control measures in nonattainment areas.

For purposes of this analysis, the EPA notes specific aspects of the title I designations process and attainment planning requirements for the ozone NAAQS that provide particularly relevant context for evaluating the consistency of the EPA's approach to the good neighbor provision in upwind states. The EPA notes that this discussion is not intended to suggest that the specific requirements of designations and attainment planning apply to upwind states pursuant to the good neighbor provision, but rather to explain why the EPA's approach to interpreting the good neighbor approach is reasonable in light of relevant, comparable provisions found elsewhere in title I. In particular, these provisions demonstrate that the EPA's approach is consistent with other relevant provisions of title I with respect to what data is considered in the EPA's analysis and when states are required to implement enforceable measures.

First, areas are initially designated attainment or nonattainment for the ozone NAAQS based on actual measured ozone concentrations. CAA section 107(d) (noting that an area shall be designated attainment where it "meets" the NAAQS and nonattainment where it "does not meet" the NAAQS). Therefore, a designation of nonattainment does not in the first instance depend on what specific factors have influenced the measured ozone concentrations or whether such levels are due to enforceable emissions limits. If an area measures a violation of the relevant ozone NAAQS, then the area is designated nonattainment. In cases where the ozone nonattainment area

is classified as Moderate or higher, the responsible state is required to develop an attainment plan, which generally includes the application of various enforceable control measures to sources of emissions located in the nonattainment area, consistent with the requirements in Part D of title I of the Act.[46] *See generally* CAA section 182, 42 U.S.C. 7511a. If, however, an area measures compliance with the ozone NAAQS, the area is designated attainment, and sources in that area generally are not subject to any new enforceable control measures under Part D.[47]

Similarly, in determining the boundaries of an ozone nonattainment area, the CAA requires the EPA to consider whether "nearby" areas "contribute" to ambient air quality in the area that does not meet the NAAQS. 42 U.S.C. 7407(d). For each monitor or group of monitors indicating a violation of the ozone NAAQS, the EPA assesses information related to five factors, including current emissions and emissions-related data from the areas near the monitor(s), for the purpose of establishing the appropriate geographic boundaries for the designated ozone nonattainment areas. A nearby area may be included within the boundary of the ozone nonattainment area only after assessing area-specific information, including an assessment of whether current emissions from that area contribute to the air quality problem identified at the violating monitor.[48] If such a determination is made, sources in the nearby area are also subject

[46] Areas classified as Marginal nonattainment areas are required to submit emissions inventories and implement a nonattainment new source review permitting program, but are not generally required to implement controls at existing sources. *See* CAA section 182(a), 42 U.S.C. 7511a(a).
[47] Clean Air Act section 184 contains the exception to this general rule: states that are part of the Ozone Transport Region are required to provide SIPs that include specific enforceable control measures, similar to those for nonattainment areas, that apply to the whole state, even for areas designated attainment for the ozone NAAQS. *See generally* 42 U.S.C. 7511c.
[48] *See* Attachment 2 to *Area Designations for the 2008 Ozone National Ambient Air Quality Standards.* Memorandum from Robert J. Meyers, Principal Deputy Assistant Administrator, US EPA to Regional Administrators. December 4, 2008. Available at https://archive.epa.gov/ozonedesignations/web/pdf/area_designations_for_the_2008_revised_ozone_naaqs.pdf.

to the applicable Part D control requirements. However, if the EPA determines that the nearby area does not contribute to the measured nonattainment problem, then the nearby area is not part of the designated nonattainment area and sources in that area are not subject to such nonattainment control requirements.

The EPA's historical approach to addressing the good neighbor provision via the four-step interstate transport framework, and the approach the EPA proposes to continue to apply here, is consistent with these title I requirements. That is, in steps 1 and 2 of the framework, the EPA evaluates whether there is a downwind air quality problem (either nonattainment or maintenance), and whether an upwind state impacts the downwind area such that it contributes to and is therefore "linked" to the downwind area. The EPA's determination at step 1 of the good neighbor analysis that it has not identified any downwind air quality problems to which an upwind state could contribute is analogous to the EPA's determination in the designation analysis that an area should be designated attainment. Similarly, EPA's determination at step 2 of the good neighbor analysis that, while it has at step 1 identified downwind air quality problems, an upwind state does not sufficiently impact the downwind area such that the state is "linked," is analogous to the EPA's determination in the designation analysis that a nearby area does not contribute to a NAAQS violation in another area. Thus, under the good neighbor provision, the EPA determines at step 1 or 2, as appropriate, that the upwind state will not significantly contribute to nonattainment or interfere with maintenance in the downwind area. *See, e.g.*, 81 FR 74506 (determining that emissions from 14 states do not significantly contribute to nonattainment or interfere with maintenance of the 2008 ozone NAAQS); 76 FR 48236 (finding that states whose contributions to downwind receptors are below the air quality

threshold do not significantly contribute to nonattainment or interfere with maintenance of the relevant NAAQS). Under such circumstances, sources in the upwind state are not obligated to implement any control measures under the good neighbor provision, which is consistent with the fact that sources located in attainment areas generally are not required to implement the control measures found in Part D of the Act. *Cf. EME Homer City II*, 795 F.3d at 130 (determining that CSAPR ozone-season NO_X budgets for 10 states were invalid based on determination that modeling showed no future air quality problems); 81 FR 74523-24 (removing three states from CSAPR ozone season NO_X program based on determination that states are not linked to any remaining air quality problems for the 1997 ozone NAAQS).

The EPA acknowledges one distinction between the good neighbor and designation analyses: the good neighbor analysis relies on *future-year* projections of emissions to calculate ozone concentrations and upwind state contributions, compared to the designation analysis's use of *current* measured data. As described in more detail later, this approach is a reasonable interpretation of the term "will" in the good neighbor provision, *see North Carolina*, 531 F.3d at 913-14, and interpreting language specific to that provision does not create an impermissible inconsistency with other provisions of title I. Moreover, the EPA's use of future-year modeling in the good neighbor analysis to identify downwind air quality problems and linked states is consistent with its use of current measured data in the designations process. The EPA's future-year air quality projections consider a variety of factors, including current emissions data, anticipated future control measures, economic market influences, and meteorology. Many of these same factors, *e.g.*, current control measures, economic market influences, and meteorology, can affect the NO_X emissions levels and consequent measured ozone concentrations that inform

the designations process. Like the factors that affect measured ozone concentrations used in the designations process, not all of the factors influencing the EPA's modeling projections are or can be enforceable limitations on emissions or ozone concentrations. However, the EPA believes that consideration of these factors contributes to a reasonable estimate of anticipated future ozone concentrations. *See EME Homer City II*, 795 F.3d at 135 (declining to invalidate EPA's modeling projections "solely because there might be discrepancies between those predictions and the real world"); *Chemical Manufacturers Association v. EPA*, 28 F.3d 1259, 1264 (D.C. Cir. 1994) ("a model is meant to simplify reality in order to make it tractable"). Thus, the EPA believes that consideration of these factors in its future-year modeling projections used at steps 1 and 2 of the good neighbor analysis is reasonable and consistent with the use of measured data in the designation analysis.[49]

The EPA notes that there is a further distinction between the section 107(d) designations provision and the good neighbor provision in that the latter provision uses different terms to describe the threshold for determining whether emissions in an upwind state should be regulated ("contribute significantly") as compared to the standard for evaluating the impact of nearby areas in the designations process ("contribute"). Thus, at step 3 of the good neighbor analysis the EPA evaluates additional factors, including cost and air-quality considerations, to determine whether emissions from a linked upwind state do or would violate the good neighbor provision. Only if the EPA at step 3 determines that the upwind state's emissions do or would violate the good

[49] The EPA also notes that the consideration of projected *actual* emissions in the future analytic year — as opposed to allowable levels — is also consistent with the statute's instruction that states (or EPA in the states' stead) prohibit emissions that "will" impermissibly impact downwind air quality. This term is reasonably interpreted to mean that the EPA should evaluate anticipated emissions (what sources *will* emit) rather than potential emissions (what sources *could* emit).

neighbor provision will it proceed to step 4, at which point emissions in the upwind state must be controlled so as to address the identified violation, analogous to the trigger for the application of Part D requirements to sources located in designated nonattainment areas. The EPA interprets the good neighbor provision to not require it or the upwind state to proceed to step 4 and implement any enforceable measures to "prohibit" emissions unless it identifies a violation of the provision at step 3. *See, e.g.*, 76 FR 48262 (finding at step 3 that the District of Columbia is not violating the good neighbor provision, and therefore will not at step 4 be subject to any control requirements in CSAPR, because no cost-effective emissions reductions were identified).

B. Selection of a Future Analytic Year

In this action, consistent with historical practice, the EPA focuses its analysis on a future year in light of the forward-looking nature of the good neighbor obligation in section 110(a)(2)(D)(i)(I). Specifically, the statute requires that states prohibit emissions that "will" significantly contribute to nonattainment or interfere with maintenance of the NAAQS in any other state. The EPA reasonably interprets this language as permitting states and the EPA in implementing the good neighbor provision to prospectively evaluate downwind air quality problems and the need for further upwind emissions reductions. In the EPA's prior regional transport rulemakings, the Agency generally evaluated whether upwind states "will" significantly contribute to nonattainment or interfere with maintenance based on projections of air quality in the future year in which any emissions reductions would be expected to go into effect. Thus, when the EPA finalized the NO_X SIP Call in 1998, it used the anticipated 2007 full compliance year for its analysis, and when the EPA finalized CAIR in 2005, it used the years 2009 and 2010, anticipated compliance years for the 1997 ozone and 1997 $PM_{2.5}$ NAAQS,

respectively. 63 FR 57377; 70 FR 25241. The D.C. Circuit affirmed the EPA's interpretation of "will" in CAIR, finding the EPA's consideration of future projected air quality (in addition to current measured data) to be a reasonable interpretation of an ambiguous term. *North Carolina*, 531 F.3d at 913-14. The EPA applied the same approach in finalizing CSAPR in 2011 and the CSAPR Update in 2016 by evaluating air quality in 2012 and 2017, respectively. 76 FR 48211; 81 FR 74537. Thus, consistent with this precedent, a key decision that informs the application of the interstate transport framework is selecting a future analytic year. In determining the appropriate future analytic year for purposes of assessing remaining interstate transport obligations for the 2008 ozone NAAQS, the EPA considered two primary factors: (1) the applicable attainment dates; and (2) the timing to feasibly implement new NO_X control strategies, which are discussed in the following two sections. The EPA proposes to determine that these factors collectively support the use of 2023 as the future analytic year for this proposed action.

1. Attainment Dates for the 2008 Ozone NAAQS

First, the EPA considers the downwind attainment dates for the 2008 ozone NAAQS. In *North Carolina*, the D.C. Circuit held that emissions reductions required by the good neighbor provision should be evaluated considering the relevant attainment dates of downwind nonattainment areas impacted by interstate transport. 531 F.3d at 911-12 (holding that the EPA must consider downwind attainment dates when establishing interstate transport compliance deadlines). Many areas currently have attainment dates of July 20, 2018 for areas classified as Moderate, but, as noted earlier, the 2017 ozone season was the last full season from which data could be used to determine attainment of the NAAQS by the July 20, 2018 attainment date.

Given that the 2017 ozone season has now passed, it is not possible to achieve additional emissions reductions by the Moderate area attainment date. It is therefore necessary to consider what subsequent attainment dates should inform the EPA's analysis. The next attainment dates for the 2008 ozone NAAQS will be July 20, 2021, for nonattainment areas classified as Serious, and July 20, 2027, for nonattainment areas classified as Severe.[50] Because the various attainment deadlines are in July, which is in the middle of the ozone monitoring season for all states, data from the calendar year prior to the attainment date (*e.g.*, data from 2020 for the 2021 attainment date and from 2026 for the 2027 attainment date) are the last data that can be used to demonstrate attainment with the NAAQS by the relevant attainment date. Therefore, the EPA considers the control strategies that could be implemented by 2020 and 2026 in assessing the 2021 and 2027 attainment dates in its subsequent analysis. The EPA has also considered that, in all cases, the statute provides that areas should attain as expeditiously as practicable.[51]

2. Feasibility of Control Strategies To Reduce Ozone Season NO_X

Second, the EPA considers the timeframes that may be required to implement further emissions reductions as expeditiously as practicable. Generally, NO_X emissions levels are expected to decline in the future through the combination of the implementation of existing local, state, and federal emissions reduction programs and changing market conditions for generation

[50] While there are no areas (outside of California) that are currently designated as Serious or Severe for the 2008 ozone NAAQS, the CAA requires that the EPA reclassify to Serious any Moderate nonattainment areas that fail to attain by their attainment date of July 20, 2018. Similarly, if any area fails to attain by the Serious area attainment date, the CAA requires that the EPA reclassify the area to Severe.
[51] *See* CAA section 181(a)(1), 42 U.S.C. 7511(a)(1).

technologies and fuels.[52] This is an important consideration because the U.S. Supreme Court and the D.C. Circuit Court have both held that the EPA may not over-control: it may not require emissions reductions (at step 3 of the good neighbor framework) from a state that are greater than necessary to achieve attainment and maintenance of the NAAQS in all of the downwind areas to which that state is linked.[53] In particular, in *EME Homer City II*, the D.C. Circuit determined that the CSAPR phase 2 ozone-season NOx budgets for ten states were invalid because EPA's modeling showed that the downwind air quality problems to which these states were linked would be resolved by 2014, when the phase 2 budgets were scheduled to be implemented. 795 F.3d at 129-30. Therefore, because new controls cannot be implemented feasibly for several years, and at that later point in time air quality will likely be better due to continued phase-in of existing regulatory programs, changing market conditions, and fleet turnover, it is reasonable for the EPA to evaluate air quality (at step 1 of the good neighbor framework) in a future year that is aligned with feasible control installation timing in order to ensure that the upwind states continue (at step 2) to be linked to downwind air quality problems when any potential emissions reductions (identified at step 3) would be implemented (at step 4) and to ensure that such reductions do not over-control relative to the identified ozone problem.

The EPA's analysis of the feasibility of NO_X control strategies reflects the time needed to plan for, install, test, and place into operation new EGU and non-EGU NO_X reduction strategies regionally—*i.e.*, across multiple states. This regional analytic approach is consistent with the

[52] Annual Energy Outlook 2018. *Electricity Supply, Disposition, Prices, and Emissions.* Reference Case. Department of Energy, Energy Information Administration. Available at https://www.eia.gov/outlooks/aeo/data/browser/#/?id=8-AEO2018&cases=ref2018&sourcekey=0

[53] *EPA v. EME Homer City Generation, L.P.*, 134 S. Ct. at 1600-01; *EME Homer City II*, 795 F.3d at 127.

regional nature of interstate ozone pollution transport as described in section II.A. The Agency adopted this approach for this proposal based on previous interstate ozone transport analyses showing that where eastern downwind ozone problems are identified, multiple upwind states typically are linked to these problems.[54] Specifically of relevance to this action, as discussed in section II.C, the EPA's assessment of CSAPR Update implementation found that 21 states continued to contribute greater than or equal to 1% of the 2008 ozone NAAQS to identified downwind nonattainment or maintenance receptors in multiple downwind states in 2017. Thus, to reasonably address these ozone transport problems, the EPA must identify and apportion emissions reduction responsibility across multiple upwind states. In other words, the EPA's analysis should necessarily be regional, rather than focused on individual linkages. Where such an analysis is needed for multiple states, the inquiry into the availability and feasibility of control options is necessarily considerably more complicated than for a single state or sector.

Further, the feasibility of new emissions controls should be considered with regard to multiple upwind source categories to ensure that the Agency properly evaluates NO_X reduction potential and cost-effectiveness from all reasonable control measures (including those that are or may be available outside of the EGU sector). NO_X emissions come from multiple anthropogenic source categories, such as mobile sources, electric utilities, resource extraction industries, and industrial and commercial facilities. As noted in section II.A, the EPA has historically addressed mobile source emissions through national rulemakings. Moreover, mobile source emissions are already decreasing because of sector-specific standards related to fuels, vehicle fuel economy, pollution controls, and repair and replacement of the existing fleet. Programs such as the Tier 3

[54] 81 FR 74538.

vehicle emissions standards are already being phased in between now and 2023. That rule was finalized in 2014 with a phase-in schedule of 2017-2025 reflecting fleet turnover. Thus, another reason that in this proposed action the EPA has focused on stationary sources is that emissions reductions from those sources could likely be implemented more quickly than would result from any attempt to effect additional reductions from mobile sources beyond those described.

Among stationary sources, EGUs in the eastern U.S. have been the primary subject of regulation to address interstate ozone pollution transport and have made significant financial investments to achieve emissions reductions. While the EPA continues to evaluate control feasibility for EGUs in its analysis, the EPA's recent analyses indicate that non-EGU source categories, which the EPA has not made subject to new regulations to address interstate ozone transport since the NO_X SIP Call, may also be well-positioned to cost-effectively reduce NO_X relative to EGUs.[55] Accordingly, the EPA's assessment of control feasibility focuses on both EGU and non-EGU sources.

a. EGUs

First, the EPA presents its feasibility assessment of NO_X control strategies for EGUs. In establishing the CSAPR Update EGU ozone season NO_X emissions budgets, the Agency quantified the emissions reductions achievable from all NO_X control strategies that were feasible to implement in less than one year and cost-effective at a marginal cost of $1,400 per ton of NO_X removed.[56] These EGU NO_X control strategies were: optimizing NO_X removal by existing,

[55] See Assessment of Non-EGU NO_X Emission Controls, Cost of Controls, and Time for Compliance Final TSD from the CSAPR Update in the docket for this rulemaking.
[56] The CSAPR Update was signed on September 7, 2016—approximately 8 months before the beginning of the 2017 ozone season on May 1.

operational selective catalytic reduction (SCR) controls; turning on and optimizing existing idled SCR controls; installing state-of-the-art NO_X combustion controls; and shifting generation to existing units with lower-NO_X emissions rates within the same state. 81 FR 74541. The Agency believes that the resulting CSAPR Update emissions budgets are being appropriately implemented under the CSAPR NO_X Ozone Season Group 2 allowance trading program. Preliminary data for the 2017 ozone season (the first CSAPR Update compliance period) indicate that power plant ozone season NO_X emissions across the 22 state CSAPR Update region were reduced by 77,420 tons (or 21%) from 2016 to 2017.[57] As a result, total 2017 ozone season NO_X emissions from covered EGUs across the 22 CSAPR Update states were approximately 294,478 tons,[58] well below the sum of states' emissions budgets established in the CSAPR Update of 316,464 tons. Accordingly, for the purposes of this proposed determination, the EPA considers the turning on and optimizing of existing SCR controls and the installation of combustion controls to be NO_X control strategies that have already been appropriately evaluated and implemented in the final CSAPR Update.

In the CSAPR Update, the EPA also identified one EGU NO_X control strategy that was considered feasible to implement within one year but was not cost-effective at a marginal cost of $1,400 per ton of NO_X removed: specifically, turning on existing idled selective non-catalytic reduction (SNCR) controls. In the CSAPR Update, the EPA identified a marginal cost of $3,400 per ton as the level of uniform control stringency that represents turning on and fully operating

[57] https://ampd.epa.gov/ampd/ (Data current as of March 1, 2018).
[58] *Id.*

idled SNCR controls.[59] However, the CSAPR Update finalized emissions budgets using $1,400 per ton control stringency, finding that this level of stringency represented the control level at which incremental EGU NO_X reductions and corresponding downwind ozone air quality improvements were maximized with respect to marginal cost. In finding that use of the $1,400 control cost level was appropriate, the EPA established that the more stringent emissions budget level reflecting $3,400 per ton (representing turning on idled SNCR controls) yielded fewer additional emissions reductions and fewer air quality improvements relative to the increase in control costs. In other words, based on the CSAPR Update analysis, establishing emissions budgets at $3,400 per ton, and therefore developing budgets based on operation of idled SNCR controls, was not determined to be cost-effective for addressing good neighbor provision obligations for the 2008 ozone NAAQS. 81 FR 74550. The EPA believes that the strategy of turning on and fully operating idled SNCR controls was appropriately evaluated in the CSAPR Update with respect to addressing interstate ozone pollution transport for the 2008 ozone NAAQS. Accordingly, in this proposal the EPA is not further assessing this control strategy for purposes of identifying an appropriate future analytic year.

As mentioned previously, the EPA evaluated shifting generation from EGUs with higher NO_X-emissions rates to EGUs with lower NO_X-emissions rates as a means of reducing emissions in the context of the CSAPR Update. Shifting generation is a NO_X control strategy that occurs on a time- and cost-continuum, in contrast to the relatively discrete price-points and installation timeframes that can be identified for combustion and post-combustion controls. Therefore, in

[59] *See* EGU NO_X Mitigation Strategies Final Rule TSD (docket ID EPA-HQ-OAR-2015-0500-0554, available at www.regulations.gov and https://www.epa.gov/sites/production/files/2017-05/documents/egu_nox_mitigation_strategies_final_rule_tsd.pdf) (NO_X Mitigation Strategies TSD).

the CSAPR Update, the EPA identified the discrete cost thresholds used to evaluate upwind states' good neighbor obligations based on its evaluation of combustion and post-combustion controls, and secondarily examined the amount of generation shifting that would result at the same cost threshold associated with the particular control technology. Quantifying NO_X reductions from shifting generation anticipated at the same cost thresholds relative to the control technologies being considered (*e.g.*, restarting idled SCR controls) helped ensure that the emissions reductions associated with the control strategies could be expected to occur. In other words, had the agency excluded consideration of generation shifting in calculating emissions budgets, generation shifting would have nonetheless occurred as a compliance strategy, but the consequence would have been a smaller amount of emissions reduction than what the agency knew to be achievable and cost-effective at the selected cost threshold. Thus, although potential emissions reductions resulting from generation shifting were factored into the final budgets, this compliance strategy did not drive the EPA's identification of cost thresholds analyzed in the rule.

For the same reasons, the EPA does not find it appropriate to evaluate generation shifting, in isolation from viable combustion or post-combustion control assessments, for purposes of selecting a future analytic year. If the EPA were to choose an earlier analytic year based on the ability of upwind sources to implement some level of generation shifting within that timeframe, before other specific control technologies could be implemented, this would have the consequence of limiting the EPA's analysis and the amount of emissions reductions that would be considered cost-effective and therefore subject to regulation under the good neighbor provision, relative to a more robust analysis that considers other emissions controls available within defined timeframes. Further, due to continued lower cost natural gas prices and price

projections, significant shifting from higher emitting coal sources to lower emitting gas sources (relative to historical generation levels) is occurring and expected to continue to occur by 2023 due to market drivers. Thus, there may be limited opportunity for the sources to implement further emissions reductions through generation shifting over the next 5 years. Given the indeterminate implementation timeframes for generation shifting and the EPA's historical consideration of this strategy as a secondary factor in quantifying emissions budgets, the EPA believes the most reasonable approach for selecting a future analytic year is to focus on the timeframe in which specific control technologies other than generation shifting can be implemented.[60]

For these reasons, for purposes of identifying an appropriate future analytic year, the EPA is focusing its assessment of EGUs in this action on controls that were deemed to be infeasible to install for the 2017 ozone season rather than reassessing controls previously analyzed for cost-effective emissions reductions in the CSAPR Update. In establishing the CSAPR Update emissions budgets, the EPA identified but did not analyze the following two EGU NO_X control strategies in establishing the CSAPR Update emissions budgets because implementation by 2017 was not considered feasible: (1) installing new SCR controls; and (2) installing new SNCR controls. In the CSAPR Update, EPA observed that EGU SCR post-

[60] Because the EPA is not in this proposal evaluating additional generation shifting possibilities, it does not at this time need to revisit the question whether it is within the EPA's authority or otherwise proper to consider generation shifting in implementing the good neighbor provision. The EPA is aware that this has been an issue of contention in the past, and stakeholders have raised serious concerns regarding this issue. *See, e.g.*, 81 FR at 74545 (responding to comments); CSAPR Update Rule—Response to Comment, at 534-50 (EPA-HQ-OAR-2015-0500-0572) (summarizing and responding to comments). The EPA may revisit this question in addressing good neighbor requirements for other NAAQS but is not soliciting comment at this time on this issue with regard to the 2008 ozone NAAQS.

combustion controls can achieve up to 90 percent reduction in EGU NO_X emissions. In 2017, these controls were in widespread use by EGUs in the east. EPA also observed that SNCR controls can be effective at reducing NO_X emissions and can achieve up to a 25 percent emissions reduction from EGUs (with sufficient reagent). In 2017, these controls were also used across the power sector. In the 22-state CSAPR Update region, approximately 62 percent of coal-fired EGU capacity is equipped with SCR controls and 12 percent is equipped with SNCR controls.[61]

Installing new SCR or SNCR controls for EGUs generally involves the following steps: conducting an engineering review of the facility; advertising and awarding a procurement contract; obtaining a construction permit; installing the control technology; testing the control technology; and obtaining or modifying an operating permit.[62] Because installing these post-combustion controls—SCR or SNCR—involve the same steps and many of the same considerations, the timing of their feasible regional development is described together in the following paragraphs. However, the EPA notes differences between these control technologies with respect to the potential viability of achieving cost-effective regional NO_X reductions from EGUs. As described above, SCR controls generally achieve greater EGU NO_X reduction efficiency (up to 90%) than SNCR controls (up to 25%). Resulting in part from this disparity in NO_X reduction efficiency, when considering both control costs and NO_X reduction potential in developing cost per ton analysis for the CSAPR Update, the EPA found new SCR controls to be

[61] National Electric Energy Data System v6 (NEEDS). EPA. Available at https://www.epa.gov/airmarkets/national-electric-energy-data-system-needs-v6.
[62] Final Report: Engineering and Economic Factors Affecting the Installation of Control Technologies for Multipollutant Strategies, EPA-600/R-02/073 (Oct. 2002), *available at* https://nepis.epa.gov/Adobe/PDF/P1001G0O.pdf.

more cost-effective at removing NO_X. Specifically, the EPA found that new SCR controls could generally reduce EGU emissions for $5,000 per ton of NO_X removed whereas new SNCR controls could generally reduce EGU emissions at a higher cost of $6,400 per ton of NO_X removed.[63] In other words, the greater NO_X reduction efficiency for SCR controls translates into greater cost-effectiveness relative to SNCR controls. The general cost-effectiveness advantage is consistent with observed installation patterns where SCR controls (62% of coal-fired capacity) are more prevalent across the east relative to SNCR (12% of coal-fired capacity).

For SCR, the total time associated with navigating necessary steps is estimated to be up to 39 months for an individual power plant installing SCR on more than one boiler.[64] However, more time is needed when considering installation timing for new SCR controls across the Eastern EGU fleet addressed in this action. As described in the subsequent paragraphs, EPA determined that a minimum of 48 months is a reasonable time period to allow for the coordination of outages, shepherding of labor and material supply, and identification of retrofit projects. This timeframe would facilitate multiple power plants with multiple boilers to conduct all stages of post-combustion and combustion control project planning, installation, and operation.

Scheduled curtailment, or planned outage, for pollution control installation would be necessary to complete either SCR or SNCR projects. Given that peak demand and rule compliance would both fall in the ozone season, sources would likely try to schedule installation

[63] NO_X Mitigation Strategies TSD.
[64] Engineering and Economic Factors Affecting the Installation of Control Technologies for Multipollutant Strategies. EPA Final Report. Table 3-1. Available at https://archive.epa.gov/clearskies/web/pdf/multi102902.pdf.

projects for the "shoulder" seasons (*i.e.*, the spring and/or fall seasons), when electricity demand is lower than in the summer, reserves are higher, and ozone season compliance requirements are not in effect. If multiple units were under the same timeline to complete the retrofit projects as soon as feasible from an engineering perspective, this could lead to bottlenecks of scheduled outages as each unit attempts to start and finish its installation in roughly the same compressed time period. Thus, any compliance timeframe that would assume installation of new SCR or SNCR controls should encompass multiple shoulder seasons to accommodate scheduling of curtailment for control installation purposes and better accommodate the regional nature of the program.

In addition to the coordination of scheduled curtailment, an appropriate compliance timeframe should accommodate the additional coordination of labor and material supply necessary for any fleet-wide mitigation efforts. The total construction labor for a SCR system associated with a 500-megawatt (MW) EGU is in the range of 300,000 to 500,000 man-hours, with boilermakers accounting for approximately half of this time.[65] SNCR installations, while generally having shorter individual project timeframes of 10 to 13 months from bid solicitation to startup, share similar labor and material resources and the timing of SNCR installation planning is therefore linked to the timing of SCR installation planning. In recent industry surveys, one of the largest shortages of union craft workers was for boilermakers. This shortage of skilled boilermakers is expected to rise due to an anticipated nine percent increase in boilermaker labor demand growth by 2026, coupled with expected retirements and

[65] *Id.*

comparatively low numbers of apprentices joining the workforce.[66] The shortage of and demand for skilled labor, including other craft workers critical to pollution control installation, is pronounced in the manufacturing industry. The Association of Union Constructors conducted a survey of identified labor shortages and found that boilermakers were the second-most frequently reported skilled labor market with a labor shortage.[67] Moreover, recovery efforts from the natural disasters of Hurricanes Harvey and Irma and wildfires in 2017 are expected to further tighten the labor supply market in manufacturing in the near term.[68] The EPA determined that these tight labor market conditions within the relevant manufacturing sectors, combined with fleet-level mitigation initiatives, would likely lead to some sequencing and staging of labor pool usage, rather than simultaneous construction across all efforts. This sector-wide trend supports SCR and SNCR installation timeframes for a fleet-wide program that exceeds the demonstrated single-unit installation timeframe.

In addition to labor supply, NO_X post-combustion control projects also require materials and equipment such as steel and cranes. Sheet metal workers, necessary for steel production, are also reported as having well above an average supply-side shortage of labor.[69] This, coupled with growth in steel demand estimated at three percent in 2018 suggests that there may be a

[66] Occupational Outlook Handbook. Bureau of Labor Statistics. Available at https://www.bls.gov/ooh/construction-and-extraction/boilermakers.htm.
[67] Union Craft Labor Supply Survey. The Association of Union Constructors. Exhibit 4-2 at page 29. Available at https://www.tauc.org/files/2017_TAUC_UNION_CRAFT_LABOR_SUPPLY_REVISEDBC_FINAL.pdf.
[68] Skilled Wage Growth Less Robust, Worker Shortage Still an Issue. Industry Week. October 23, 2017. Available at http://www.industryweek.com/talent/skilled-wage-growth-less-robust-worker-shortage-still-issue.
[69] Union Craft Labor Supply Survey. The Association of Union Constructors. Exhibit 4-2 at page 29. Available at https://www.tauc.org/files/2017_TAUC_UNION_CRAFT_LABOR_SUPPLY_REVISEDBC_FINAL.pdf.

constricted supply of steel needed for installation of new post-combustion controls.[70] Similarly, cranes are critical for installation of SCRs, components of which must be lifted hundreds of feet in the air during construction. Cranes are also facing higher demand during this period of economic growth, with companies reporting a shortage in both equipment and manpower.[71,72] The tightening markets in relevant skilled labor, materials, and equipment, combined with the large number of installations that could be required fleet-wide under a regional air pollution transport program, necessitates longer installation time-tables relative to what has been historically demonstrated at the unit-level.

The time lag observed between the planning phase and in-service date of SCR operations in certain cases also illustrates that site-specific conditions sometimes lead to installation times of four years or longer. For instance, SCR projects for units at the Ottumwa power plant (Iowa), Columbia power plant (Wisconsin), and Oakley power plant (California) were all in the planning phase in 2014. By 2016, these projects were under construction with estimated in-service dates of 2018.[73] Similarly, individual SNCR projects can exceed their estimated 10 through 13-month construction time frame. For example, projects such as SNCR installation at the Jeffrey power plant (Kansas) were in the planning phase in 2013, but not in service until 2015.[74] Completed projects, when large in scale, also illustrate how timelines can extend beyond the bare minimum

[70] Worldsteel Short Range Outlook. October 16, 2017. Available at https://www.worldsteel.org/media-centre/press-releases/2017/worldsteel-Short-Range-Outlook-2017-2018.html.
[71] *See, e.g.*, Seattle Has Most Cranes in the Country for 2nd Year in a Row — and Lead is Growing. Seattle Times. July 11, 2017. Available at https://www.seattletimes.com/business/real-estate/seattle-has-most-cranes-in-the-country-for-2nd-year-in-a-row-and-lead-is-growing/.
[72] See RLB Crane Index, January 2018 in the docket for this action.
[73] 2014 EIA Form 860. Schedule 6. Environmental Control Equipment.
[74] 2013 EIA Form 860, Schedule 6, Environmental Control Equipment.

necessary for a single unit when the project is part of a larger air quality initiative involving more than one unit at a plant. For instance, the Big Bend Power Station in Florida completed a multi-faceted project that involved adding SCRs to all four units as well as converting furnaces, over-fire air changes, and making windbox modifications. The time from the initial planning stages to completion was a decade.[75]

While individual unit-level SCR and SNCR projects can average 39 and 10 months, respectively, from bid to startup, a comprehensive and regional emissions reduction effort also requires more time to accommodate the labor, materials, and outage coordination for these two types of control strategies. Because these post-combustion control strategies share similar resource inputs and are part of regional emissions reduction programs rather than unit-specific technology mandates, the timeframes for one type are inherently linked to the other type. This means that SNCR projects cannot be put on an early schedule in light of their reduced construction timing without impacting the availability of resources for the manufacture and installation of SCRs and thus the potential start dates of those projects.

In short, given the market and regulatory circumstances in which EPA evaluated this effort, our analysis shows that four years would be an expeditious timeframe to coordinate the planning and completion of any mitigation efforts necessary in this instance.

b. Non-EGU Control Technologies

The EPA is also evaluating the feasibility of implementing NO_X control technologies for non-EGUs in its assessment of an appropriate future analytic year. While the EPA did not

[75] *Big Bend's Multi-Unit SCR Retrofit*. Power Magazine. March 1, 2010. Available at http://www.powermag.com/big-bends-multi-unit-scr-retrofit/.

regulate non-EGUs in the CSAPR Update, the rule did evaluate the feasibility of NO_X controls on non-EGUs in the eastern United States to assess whether any such controls could be implemented in time for the 2017 ozone season. The EPA noted that there was greater uncertainty in the assessment of non-EGU point-source NO_X mitigation potential as compared to EGUs, and therefore explained that more time was required for states and the EPA to improve non-EGU point source data, including data on existing control efficiencies, additional applicable pollution control technologies, and installation times for those control technologies. 81 FR 74542. A significant factor influencing uncertainty was that the EPA lacked sufficient information on the capacity and experience of suppliers and major engineering firms' supply chains to determine if they would be able to install the required pollution controls for non-EGU sources in time for the 2017 ozone season. Further, using the best information available to the EPA at that time, the EPA found that there were more non-EGU point sources than EGU sources and that these sources on average emit less NO_X than EGUs. The implication was that there were more individual sources that could be controlled, but relatively fewer emissions reductions available from each source when compared to the number of EGUs and emissions reductions available from EGUs. Considering these factors, the EPA found that it was substantially uncertain whether significant aggregate NO_X mitigation would be achievable from non-EGU point sources to address the 2008 ozone NAAQS by the 2017 ozone season. *Id.*

Although the EPA determined that there were limited achievable emissions reductions available from non-EGUs by the 2017 ozone season, the EPA acknowledged that it may be appropriate to evaluate potential non-EGU emissions reductions achievable on a timeframe after the 2017 ozone season to assess upwind states' full good neighbor obligation for the 2008 ozone

NAAQS. 81 FR 74522. In particular, the EPA's preliminary assessment indicated that there may be emissions reductions achievable from non-EGUs at marginal costs lower than the costs of remaining NO_X control strategies available for EGUs. Accordingly, in assessing an appropriate future analytic year, the EPA is also considering the potential implementation timeframes for NOx emissions reductions available for non-EGUs. In evaluating potential non-EGU emissions reductions in the CSAPR Update, the EPA included preliminary estimates of installation times for some non-EGU NO_X control technologies in a technical support document entitled Assessment of Non-EGU NO_X Emission Controls, Cost of Controls, and Time for Compliance Final Technical Support Document (henceforth, "Final Non-EGU TSD"). These preliminary estimates were based on research from a variety of information sources, including:

- *Typical Installation Timelines for NOx Emissions Control Technologies on Industrial Sources, Institute of Clean Air Companies*, December 2006 (all sources except cement kilns and reciprocating internal combustion engines (RICE));[76]
- *Cement Kilns Technical Support Document for the NOx FIP*, US EPA, January 2001;[77] and
- *Availability and Limitations of NOx Emission Control Resources for Natural Gas-Fired Reciprocating Engine Prime Movers Used in the Interstate Natural Gas*

[76] Institute of Clean Air Companies. Typical Installation Timelines for NOx Emissions Control Technologies on Industrial Sources, December 2006. Available at https://c.ymcdn.com/sites/icac.site-ym.com/resource/resmgr/ICAC_NOx_Control_Installatio.pdf.
[77] US EPA. Cement Kilns Technical Support Document for the NOx FIP. January 2001. Available at https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0500-0094.

Transmission Industry, Innovative Environmental Solutions Inc., July 2014 (prepared for the INGAA Foundation).[78]

The EPA's analysis in the Final Non-EGU TSD focused on potential control technologies within the range of costs considered in the final CSAPR Update for EGUs, or those controls available at a marginal cost of $3,400 per ton (2011 dollars) of NOx reduced or less. The EPA's analysis did not evaluate implementation timeframes or potential emissions reductions available from controls at higher cost thresholds. *See* Final Non-EGU TSD at 18. This focus excluded some emissions source groups with emissions reduction potential at a marginal cost greater than $3,400 per ton, including: industrial/commercial/institutional boilers using SCR and low-NOx burners (LNB); and catalytic cracking units, process heaters, and coke ovens using LNB and flue gas recirculation. However, while emissions reduction potential from these source groups is uncertain, the timeframe for these control technologies would be subject to similar considerations and limitations discussed in the following paragraphs.

Among the control technologies that were evaluated in the Final Non-EGU TSD, the EPA identified six categories of common control technologies available for different non-EGU emissions source categories. *Id*. at 19. For four of the technology categories (SNCR, SCR, LNB, and mid-kiln firing), the EPA preliminarily estimated that such controls for non-EGUs could be installed in approximately 1 year or less in some unit-specific cases. Installation time estimates presented in the Final Non-EGU TSD begin with control technology bid evaluation (bids from

[78] INGAA Foundation. Availability and Limitations of NOx Emission Control Resources for Natural Gas-Fired Reciprocating Engine Prime Movers Used in the Interstate Natural Gas Transmission Industry, Innovative Environmental Solutions Inc., July 2014. Available at http://www.ingaa.org/Foundation/Foundation-Reports/NOx.aspx.

vendors) and end with the startup of the control technology.[79] *See* Final Non-EGU TSD at 20. For the other two technology categories (biosolid injection technology (BSI) and OXY-firing), as well as one emissions source category (RICE), the EPA had no installation time estimates or uncertain installation time estimates. For example, the EPA found that the use of BSI is not widespread, and therefore the EPA does not have reliable information regarding the time required to install the technology on cement kilns. The installation timing for OXY-firing is similarly uncertain because the control technology is installed only at the time of a furnace rebuild, and such rebuilds occur at infrequent intervals of a decade or more.

For those categories for which preliminary estimates were available, as noted in the Final Non-EGU TSD, the single-unit installation time estimates provided do not account for additional important considerations in assessing the full amount of time needed for installation of NO_X control measures at non-EGUs; those considerations include time, labor, and materials needed for programmatic adoption of measures and time required for installing controls on multiple sources in a few to several non-EGU sectors across the region.

The preliminary estimates of installation time shown in the Final Non-EGU TSD are for installation at a single source and do not account for the time required for installing controls to achieve sector-wide compliance. When considering installation of control measures on sources regionally and across non-EGU sectors, the time for full sector-wide compliance is uncertain, but it is likely longer than the installation times shown for control measures as mentioned above for

[79] In this document, we present different installation time estimates for SCRs for EGUs and non-EGUs. These installation times are not inconsistent because: (i) the EGU time estimate of 39 months mentioned above is based on multi-boiler installation and factors in a pre-vendor bid engineering study consideration; and (ii) the non-EGU SCR installation time estimates are based on single-unit installation and do not factor in pre-vendor bid evaluation.

individual sources in the Final Non-EGU TSD. As discussed earlier with respect to EGUs, regional, sector-wide compliance could be slowed down by limited vendor capacity, limited available skilled labor for manufacturers such as boilermakers (who produce steel fabrications, including those for pollution control equipment), availability of raw materials and equipment (*e.g.*, cranes) for control technology construction, and bottlenecks in delivery and installation of control technologies. Some of the difficulties with control technology installation as part of regional, sector-wide compliance at non-EGUs, such as availability of skilled labor and materials, could also have an impact on monitor installation at such sources. EPA currently has insufficient information on vendor capacity and limited experience with suppliers of control technologies and major engineering firms, which results in uncertainty in the installation time estimates for non-EGU sectors. In summary, there is significant uncertainty regarding the implementation timeframes for various NOx control technologies for non-EGUs. While the EPA has developed preliminary estimates for some potential control technologies, these estimates do not account for additional considerations such as the impacts of sector- and region-wide compliance. For purposes of this analysis, the EPA believes that it is reasonable to assume that it is likely that an expeditious timeframe for installing sector- or region-wide controls on non-EGU sources may collectively require four years or more.

3. Focusing on 2023 for Analysis

As discussed in section III.B, the EPA weighed several factors to identify an appropriate future analytic year for evaluating interstate transport obligations for the 2008 ozone NAAQS. First, the EPA identified the relevant attainment dates to guide the EPA's consideration as 2021 and 2027, respectively the Serious and Severe area attainment dates for the 2008 ozone NAAQS.

Second, the EPA identified and analyzed the feasibility and timing needed for installing additional NOx emissions controls. As discussed in section III.B.2, the EPA believes it is appropriate to assume that planning for, installing, and commencing operation of new controls, regionally, for EGUs and non-EGUs would take up to 48 months, and possibly more in some cases, following promulgation of a final rule requiring appropriate emissions reductions. This period of time reflects, among other considerations, the time needed to regionally develop new post-combustion SCR projects—systems that continue to represent the engineering gold-standard in terms of reducing NO_X from the U.S. power sector.

To determine how this feasibility assessment should influence potential compliance timeframes, the EPA believes it is appropriate to consider the anticipated date of promulgation of a rule that would set any appropriate emissions reduction requirements, since regulated entities cannot be expected or required to take action to comply with a rule prior to its promulgation. The EPA, therefore, considered the timeframe in which a future rulemaking that might require such emissions reductions would likely be finalized.

The EPA is subject to several statutory and court-ordered deadlines to issue FIPs (or, alternatively, to fully approve a SIP) to address the requirements of the good neighbor provision for the 2008 ozone NAAQS for several states. An August 12, 2017 statutory deadline has passed for the EPA to act with respect to 13 states.[80] The EPA also has several upcoming statutory deadlines in 2018 and 2019 to address these requirements for eight other CSAPR Update states.[81]

[80] 80 FR 39961 (finding that states failed to make complete submissions that address the requirements of section 110(a)(2)(D)(i)(I) related to the interstate transport of pollution as to the 2008 ozone NAAQS).
[81] The EPA has deadlines to promulgate FIPs for Indiana (81 FR 38957), Ohio (81 FR 38957) and New Jersey (81 FR 38963) by July 15, 2018; for Maryland (81 FR 47040) by August 19, 2018; for Louisiana

The timeframe for the EPA's action to resolve the obligation as to five of those states is the subject of litigation in the United States District Court for the Southern District of New York. The EPA is subject to court-ordered deadlines to sign and disseminate a proposed action fully addressing the good neighbor obligations under the 2008 ozone NAAQS for those five states by no later than June 29, 2018, and to promulgate a final action addressing these requirements by December 6, 2018.[82] As noted earlier, the EPA is also subject to a court-ordered deadline of June 30, 2018, for the EPA to address these requirements for Kentucky,[83] which the EPA intends to address in a separate rulemaking. Considering the EPA's conclusion that four years is an expeditious timeframe for implementation of any of the control strategies considered herein, compliance is likely not feasible until the 2023 ozone season. In other words, 48 months from a final rule promulgated in December 2018 would be December 2022, after which the next ozone season begins in May 2023. Considering the time necessary to implement the controls calculated from a realistic timeframe in which EPA expects to promulgate a final rule requiring such controls, the EPA believes that such reductions on a variety of sources across the region are unlikely to be implemented for a full ozone season until 2023.

Finally, consistent with the court's holding in *North Carolina*, the Agency considers this timing in light of upcoming attainment dates for the 2008 ozone NAAQS. While 2023 is later than the next attainment date for nonattainment areas classified as Serious (*i.e.*, July 20, 2021),

(81 FR 53308), Texas (81 FR 53284) and Wisconsin (81 FR 53309) by September 12, 2018; and for New York (81 FR 58849) by September 26, 2018.

[82] Order, *New York v. Pruitt*, No. 1:18-cv-00406-JGK (S.D.N.Y. June 12, 2018).

[83] Order, *Sierra Club v. Pruitt*, No. 3:15-cv-04328 (N.D. Cal. May 23, 2017).

for the reasons discussed above the EPA does not believe it is realistically possible that substantial emissions control requirements could be promulgated and implemented by that Serious area attainment date. Rather, the most expeditious timeframe in which additional control strategies could be implemented at both EGUs and non-EGUs is four years after promulgation of a final rule requiring appropriate emissions reductions. At the same time, the EPA does not believe that it should generally take longer than 2023 to install emissions controls on a regional basis, based on the analysis above. Therefore, there is no basis to postpone all emissions reductions to the next attainment date after 2023, which is for nonattainment areas classified as Severe (*i.e.*, July 20, 2027). Accordingly, the EPA believes implementation of additional emissions reductions by 2023 is the earliest feasible timeframe that could be reasonably required of EGU and non-EGU sources that would be potentially subject to control requirements. Although this year does not precisely align with a particular attainment date, it reflects the year that is as expeditious as practicable for region-wide implementation, while also taking into account the relevant attainment dates.

Given the current stage of the 2008 ozone implementation cycle, the EPA's feasibility analysis set forth above, the relevant attainment dates, and the courts' holdings in *North Carolina* and *EME Homer City II*, the EPA believes that 2023 is the most appropriate year for all states covered in this action, to assess downwind air quality and to evaluate any remaining requirements under the good neighbor provision for the 2008 ozone NAAQS. The EPA is requesting comment on the use of 2023 as a reasonable year for this assessment.

C. Air Quality Analysis

In this section, the Agency describes the air quality modeling performed consistent with step 1 of the framework described in section III.A, to identify locations where it expects nonattainment or maintenance problems with respect to the 2008 ozone NAAQS in the 2023 analytic year. This section includes information on the air quality modeling platform used in support of the proposed determination with a focus on the base year and future base case emissions inventories. The May 2018 Air Quality Modeling Technical Support Document (AQM TSD) in the docket for this rule contains more detailed information on the air quality modeling for 2023 used to support this rulemaking.

The EPA provided an opportunity to comment on the air quality modeling platform and air quality modeling results that are used in this proposed determination when it published a Notice of Data Availability (82 FR 1733) on January 6, 2017, which provided the preliminary modeling results for the 2023 analytic year. Specifically, in the NODA the EPA requested comment on the data and methodologies related to the 2011 and 2023 emissions and the air quality modeling to project 2023 ozone concentrations and ozone contributions. While the EPA issued this NODA to provide information to states for the 70 ppb 2015 ozone NAAQS, the modeling approaches and future year projection methods were also applicable for the 75 ppb 2008 ozone NAAQS. In fact, commenters explicitly commented on these methods with respect to the 2008 ozone NAAQS. The EPA considered comments received on the NODA in the development of air quality modeling analysis used in this proposed determination.

The modeling results presented here were originally released to the public with an accompanying memorandum on October 27, 2017.[84]

1. Definition of Nonattainment and Maintenance Receptors

In this action, the EPA is continuing to apply the CSAPR Update approach to identifying nonattainment and maintenance receptors for the 2008 ozone NAAQS in the 2023 analytic year. The EPA here describes the analytical approach pursued in the CSAPR and CSAPR update with regard to the good neighbor requirement for the 2008 ozone NAAQS. For consistency's sake, the analysis and discussion underlying and presented in this proposal adheres to that analytical approach. However, as noted previously, EPA has identified a number of potential flexibilities in identifying downwind air quality problems for states developing good neighbor SIPs for the 2015 ozone NAAQS.[85] However, the EPA finds that it is reasonable to use the same methodology that was used to identify upwind states' good neighbor obligations under the CSAPR Update because this rule addresses interstate transport with respect to the same NAAQS and the same states as the ones at issue in that action.[86]

[84] Memorandum from Stephen D. Page, Director, Office of Air Quality Planning and Standards, to Regional Air Division Directors, Regions 1-10, Supplemental Information on the Interstate Transport State Implementation Plan Submissions for the 2008 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I) (Oct. 27, 2017), *available at* https://www.epa.gov/airmarkets/october-2017-memo-and-supplemental-information-interstate-transport-sips-2008-ozone-naaqs.

[85] See supra note 43. These potential flexibilities include: evaluation of alternative methodologies to give independent meaning to the term "interfere with maintenance under CAA section 110(a)(2)(D)(i)(I); identification of maintenance receptors at risk of exceeding the NAAQS using an approach that does not rely on the projection of maximum design values; assessment of current and projected emissions reductions and whether downwind areas have considered and/or utilized available mechanisms for regulatory relief; and consideration of model performance.

[86] 81 FR 74533.

To give independent effect to both the "contribute significantly to nonattainment" and the "interfere with maintenance" prongs of section 110(a)(2)(D)(i)(I) for the 2008 ozone NAAQS, consistent with the D.C. Circuit's opinion in *North Carolina*, the EPA separately identified downwind areas expected to be in nonattainment of the 2008 ozone NAAQS and downwind areas expected to have problems maintaining the 2008 ozone NAAQS.

Specifically, the EPA has identified as *nonattainment* receptors those monitors that both currently measure nonattainment based on measured 2014-2016 design values[87] and that the EPA projects will be in nonattainment for the 2008 ozone NAAQS in 2023 (*i.e.*, are projected to have average design values that exceed the NAAQS).

The EPA has identified *maintenance* receptors as those receptors that would have difficulty maintaining the relevant NAAQS in a scenario that accounts for 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-year period. The 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. The 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. Therefore, the maximum design value gives a reasonable projection of future air quality at the receptor under a

[87] The ozone design value at a particular monitoring site is the 3-year average of the annual 4th highest daily maximum 8-hour ozone concentration at that site. *See* 40 CFR Part 50, Appendix P.

scenario in which such conditions do, in fact, reoccur. The projected maximum design value is used to identify downwind areas where emissions from upwind states could therefore interfere with the area's ability to maintain the NAAQS. For this proposal, the EPA assesses the magnitude of the maximum projected design value for 2023 at each receptor in relation to the 2008 ozone NAAQS. Where that value exceeds the NAAQS, the EPA determines that 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 II*.[88] That is, monitoring sites with a maximum projected design value that exceeds the NAAQS in 2023 are considered to have a maintenance problem in 2023.[89]

Maintenance-only receptors therefore include those sites where the projected maximum design value exceeds the NAAQS, but the projected average design value is at or below the NAAQS. In addition, those sites that are currently measuring clean data (*i.e.*, are at or below the 2008 ozone NAAQS), but are projected to be in nonattainment based on the average design value (and that, by definition, are projected to have a maximum design value above the standard) are also identified as maintenance-only receptors. Unlike nonattainment receptors, the EPA did not consider current clean monitored data to disqualify a receptor from being identified as a maintenance receptor in order to account for the possibility that certain areas would fail to maintain the NAAQS in the future, even though they may be currently attaining the NAAQS.

[88] *See* 795 F.3d at 136.

[89] All nonattainment receptors also, by definition, meet EPA's criteria for identifying maintenance receptors—*i.e.*, in addition to currently measuring nonattainment and having projected average design values that exceed the NAAQS, the receptors also would have difficulty maintaining the NAAQS accounting for variability in air quality at the receptor. The EPA refers to maintenance receptors that are not also nonattainment receptors as "maintenance-only" receptors.

North Carolina, 531 F.3d at 910-11 (finding that failure to give independent significance to the maintenance prong "provides no protection for downwind areas that, despite EPA's predictions, still find themselves struggling to meet NAAQS due to upwind interference").

For further details regarding the EPA's identification of receptors in the CSAPR Update, *see* 81 FR 74526.

2. Overview of Air Quality Modeling Platform

The EPA performed nationwide photochemical modeling for 2023 to identify nonattainment and maintenance receptors relevant for the 2008 ozone NAAQS. For this proposed rule, the EPA performed air quality modeling for two emissions scenarios: (1) a 2011 base year; and (2) the 2023 analytic year (*i.e.*, a business-as-usual scenario in 2023: one without any additional interstate ozone transport requirements beyond those imposed by the CSAPR Update).

The 2011 base year has previously been used to support the CSAPR Update proposal and final rule. The EPA chose to continue using 2011 as the base year because when EPA's analyses commenced, 2011 was the most recent emissions modeling platform available that included future year projected inventories, as are needed for transport analyses. Using 2011 as a base year also remains appropriate from the standpoint of good modeling practice. The meteorological conditions during the summer of 2011 were generally conducive for ozone formation across much of the U.S., particularly the eastern U.S. As described in the AQM TSD, the EPA's guidance for ozone attainment demonstration modeling, hereafter referred to as the modeling guidance, recommends modeling a time period with meteorology conducive to ozone formation

for purposes of projecting future year design values.[90] The EPA therefore believes that meteorological conditions and emissions during the summer of 2011 provide an appropriate basis for projecting 2023 ozone concentrations.

For this proposal, the EPA used the Comprehensive Air Quality Model with Extensions (CAMx) version 6.40[91] to simulate pollutant concentrations for the 2011 base year and the 2023 future year scenarios. This version of CAMx was the most recent publicly available version of this model at the time that the EPA performed air quality modeling for this proposed rule. CAMx is a grid cell-based, multi-pollutant photochemical model that simulates the formation and fate of ozone and fine particles in the atmosphere. The CAMx model applications were performed for a modeling region (*i.e.*, modeling domain) that covers the contiguous 48 United States, the District of Columbia, and adjacent portions of Canada and Mexico using grid cells with a horizontal resolution of 12 km x 12 km. A map of the air quality modeling domain is provided in the AQM TSD.

The 2011-based air quality modeling platform includes 2011 base year emissions, 2023 future year projections of these emissions, and 2011 meteorology for air quality modeling with CAMx. In the remainder of this section, the EPA provides an overview of the 2011 and 2023 emissions inventories and the methods for identifying nonattainment and maintenance receptors along with a list of 2023 baseline nonattainment and maintenance receptors in the U.S.

[90] U.S. Environmental Protection Agency, 2014. Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze, Research Triangle Park, NC, *available at*http://www.epa.gov/ttn/scram/guidance/guide/Draft_O3-PM-RH_Modeling_Guidance-2014.pdf.

[91] CAMx v6.40 was the most recent public release version of CAMx at the time the EPA updated its modeling in fall 2017. Comprehensive Air Quality Model with Extensions version 6.40 User's Guide. Ramboll Environ, December 2016, *available at* http://www.camx.com/.

To ensure the reliability of its modeling results, the EPA conducted an operational model performance evaluation of the 2011 modeling platform by comparing the 8-hour daily maximum ozone concentrations predicted during the May through September ozone season to the corresponding measured concentrations in 2011. This evaluation generally followed the approach described in the modeling guidance. Details of the model performance evaluation are described in the AQM TSD. The model performance results indicate that the 8-hour daily maximum ozone concentrations predicted by the 2011 CAMx modeling platform generally reflect the corresponding magnitude of observed 8-hour ozone concentrations on high ozone days in the 12-km U.S. modeling domain. These results provide confidence in the ability of the modeling platform to provide a reasonable projection of expected future year ozone concentrations and contributions.

3. Emissions Inventories

The EPA developed emissions inventories for this rule, including emissions estimates for EGUs, non-EGU point sources, stationary nonpoint sources, onroad mobile sources, nonroad mobile sources, wildfires, prescribed fires, and biogenic emissions. The EPA's air quality modeling relies on this comprehensive set of emissions inventories because emissions from multiple source categories are needed to model ambient air quality and to facilitate comparison of model outputs with ambient measurements.

To prepare the emissions inventories for air quality modeling, the EPA processed the emissions inventories using the Sparse Matrix Operator Kernel Emissions (SMOKE) Modeling System version 3.7 to produce the gridded, hourly, speciated, model-ready emissions for input to the CAMx air quality model. Additional information on the development of the emissions

inventories and on datasets used during the emissions modeling process for this proposed rule is provided in the October 2017 Technical Support Document "Additional Updates to Emissions Inventories for the Version 6.3, 2011 Emissions Modeling Platform for the Year 2023" (Proposed Rule Emissions Modeling TSD).[92]

The emissions inventories, methodologies, and data used for the air quality modeling for this proposed rule incorporate public comments received on the January 2017 NODA. The updates resulting from comments received on this NODA are documented in the Proposed Rule Emissions Modeling TSD. The emissions inventories for this proposed rule were the result of several iterations of comments on the data and methods used in the 2011 emissions modeling platform. The initial modeling platform based on the 2011 National Emissions Inventory (NEI) was released for public comment in November 2013 through a NODA (78 FR 70935). Future year inventories for 2018 were released shortly thereafter through a separate NODA in January 2014 (79 FR 2437). Updated inventories for 2011 and the year 2017 were released for public comment in August 2015 through a notice prior to the proposed CSAPR Update. 80 FR 46271. The comments were incorporated into inventories used for the proposal modeling in this action. During 2016, the comments received on the proposal inventories were incorporated into the final CSAPR Update inventories for years 2011 and 2017. 81 FR 74527. In late 2016, inventories for

[92] This TSD is also available in the docket for this proposed rule and at https://www.epa.gov/air-emissions-modeling/additional-updates-2011-and-2023-emissions-version-63-platform-technical.

the year 2023 were developed using methods similar to those of the CSAPR Update, and the resulting inventories were released in the January 2017 NODA described above.[93]

The EPA emissions data representing the year 2011 supports air quality modeling of a base year from which future air quality could be forecasted. The 2011 emissions inventories used in the air quality modeling were based on the inventories released with the January 2017 NODA with updates incorporated as a result of comments on the NODA and as a result of improved data and methods that became available after the NODA modeling was completed. The future base case scenario modeled for 2023 includes a representation of changes in activity data and of predicted emissions reductions from on-the-books actions, including planned emissions control installations and promulgated federal measures that affect anthropogenic emissions.[94] The emissions inventories for air quality modeling include sources that are held constant between the base and future years, such as biogenic emissions and emissions from agricultural, wild and prescribed fires.[95] The emissions inventories used for Canada were received from Environment and Climate Change Canada in April 2017 and were provided for the years 2013 and 2025. This

[93] Technical support documents are available for each iteration of the inventories on EPA's emissions modeling website: https://www.epa.gov/air-emissions-modeling/2011-version-6-air-emissions-modeling-platforms.

[94] Biogenic emissions and emissions from wildfires and prescribed fires were held constant between 2011 and 2023 since: (1) these emissions are tied to the 2011 meteorological conditions; and (2) the focus of this rule is on the contribution from anthropogenic emissions to projected ozone nonattainment and maintenance.

[95] As recommended in the modeling guidance, the acceptability of model performance was judged by considering the 2011 CAMx performance results in light of the range of performance found in recent regional ozone model applications. These other modeling studies represent a wide range of modeling analyses that cover various models, model configurations, domains, years and/or episodes, and chemical mechanisms. Overall, the ozone model performance results for the 2011 CAMx simulations are within the range found in other recent peer-reviewed and regulatory applications. The model performance results, as described in the AQM TSD, demonstrate that the predictions from the 2011 modeling platform correspond to measured data in terms of the magnitude, temporal fluctuations, and spatial differences for 8-hour daily maximum ozone.

was the first time that future year projected inventories for Canada were provided directly by Environment and Climate Change Canada and the new inventories are thought to be an improvement over inventories projected by EPA. The EPA used the Canadian emissions inventories without adjusting the emissions to the represented year because the EPA lacks specific knowledge regarding Canadian emissions trends and because the interval of years (*i.e.*, 12) was the same as that used for the U.S. modeling which relied on 2011 to 2023 interval. For Mexico, inventory data was based on a 2023 run of MOVES-Mexico. For area, nonroad, and point source emissions in Mexico, EPA used the Inventario Nacional de Emisiones de Mexico using 2018 and 2025 data projections to interpolate 2023 estimates.

The modeled annual NO_X and SO_2 emissions for EGUs for the year 2011 are based primarily on data from continuous emissions monitoring systems (CEMS), with other EGU pollutants estimated using emissions factors and annual heat input data reported to the EPA. For EGUs without CEMS, the EPA used data submitted to the NEI by the states. The modeled 2011 inventories include some updates to 2011 EGU stack parameters and emissions made in response to comments on the January 2017 NODA. For more information on the details of how the 2011 EGU emissions were developed and prepared for air quality modeling, see the Proposed Rule Emissions Modeling TSD.

As summarized in the October memo, and described in detail in the Proposed Rule Emissions Modeling TSD, the EPA projected future 2023 baseline EGU emissions using an approach that is consistent with the EGU projections that the EPA used in the CSAPR Update, specifically using the EGU projection methodology used to develop the "budget-setting base

case." 81 FR 74543.[96] The EGU projection begins with 2016 reported SO_2 and NO_X data for units reporting under the Acid Rain and CSAPR programs under 40 CFR part 75. These were the most recent ozone season data available at the time of the EPA's analysis. The EPA first held these observed emissions levels constant for its 2023 estimates, but then made some unit-specific adjustments to emissions to account for upcoming retirements, post-combustion control retrofits, coal-to-gas conversions, combustion controls upgrades, new units, CSAPR Update compliance, state rules, and Best Available Retrofit Technology (BART) requirements under the regional haze program of the CAA.[97] The resulting estimated EGU emissions values are therefore based on the latest reported operational data combined with known and anticipated fleet and pollution controls changes. For emissions from EGUs not reporting under 40 CFR part 75, the EPA largely relied on unadjusted 2011 NEI data for its 2023 assumptions.[98] Additional details are provided in the Proposed Rule Emissions Modeling TSD.

The 2011 non-EGU point source emissions in the 2011 base case inventory generally match those in the 2011 NEI version 2.[99] Prior to air quality modeling, the emissions inventories must be processed into a format that is appropriate for the air quality model to use. Details on the development and processing of the emissions for 2011 and on the development of the 2023 non-EGU emissions inventories are available in the Proposed Rule Emissions Modeling TSD.

[96] Also see the Ozone Transport Policy Analysis Final Rule Technical Support Document. EPA. August 2016. Available at https://www.epa.gov/sites/production/files/2017-05/documents/ozone_transport_policy_analysis_final_rule_tsd.pdf
[97] The EPA uses the U.S. EIA Form 860 as a source for upcoming controls, retirements, and new units.
[98] Available at https://www.epa.gov/air-emissions-modeling/2011-version-63-platform.
[99] For more information on the 2011 National Emissions Inventory version 2, see https://www.epa.gov/air-emissions-inventories/2011-national-emissions-inventory-nei-technical-support-document.

Projection factors and percent reductions used in this proposal to estimate 2023 emissions inventories reflect comments received through the January 2017 NODA, along with emissions reductions due to national and local rules, control programs, plant closures, consent decrees and settlements. The Proposed Rule Emissions Modeling TSD contains details on the factors used and on their respective impacts on the emissions inventories.

A recent and important methodological update to the emissions inventory implemented after the release of the January 2017 NODA is a revised methodology for estimating point and nonpoint 2023 emissions from the oil and gas sector. The projection factors used in the updated 2023 oil and gas emissions inventory incorporate state-level factors based on historical growth from 2011-2015 and region-specific factors that represent projected growth from 2015 to 2023. The 2011-2015 state-level factors were based on historical state oil and gas production data published by the U.S. Department of Energy's Energy Information Administration (EIA), while the 2015-2023 factors are based on projected oil and gas production in EIA's 2017 Annual Energy Outlook (AEO) Reference Case without the Clean Power Plan for the six EIA supply regions. The 2017 AEO was the latest available at the time the modeling was performed. Details on the revised methodology that the EPA used to project oil and gas emissions to 2023, as well as changes to the base year 2011 and future year 2023 emissions inventories for other sectors, can be found in the Proposed Rule Emissions Modeling TSD.

The EPA developed the onroad mobile source emissions using the EPA's Motor Vehicle Emissions Simulator, version 2014a (MOVES2014a)**.** The agency computed these emissions within SMOKE by multiplying the MOVES-based emissions factors with the activity data appropriate to each year of modeling. MOVES2014a reflects projected changes to fuel usage and

onroad mobile control programs finalized as of March 2014. Impacts of rules that were in effect in 2011 are reflected in the 2011 base year emissions at a level that corresponds to the extent to which each rule had penetrated the fleet and fuel supply by that year. Local control programs such as the California Low Emission Vehicle (LEV) III program, also implemented in states other than California, are included in the onroad mobile source emissions. Activity data for onroad mobile sources, such as the vehicle miles traveled in 2023, were projected for future year using trends identified in AEO 2016.

The commercial marine category 3 vessel ("C3 marine") emissions in the 2011 base case emissions inventory for this rule are equivalent to those in the 2011NEIv2 with the inclusion of updated emissions for California. These emissions reflect reductions associated with the Emissions Control Area proposal to the International Maritime Organization control strategy (EPA-420-F-10-041, August 2010); reductions of NO_X, VOC, and CO emissions for new C3 engines that went into effect in 2011; and fuel sulfur limits that went into effect as early as 2010. The cumulative impacts of these rules through 2023 are incorporated in the 2023 projected emissions for C3 marine sources. An update made for this modeling was to treat the larger C3 marine sources with plume rise in the modeling, thereby putting the emissions into model layers higher than ground-level. This was done because the ships have stacks that release emissions higher than the 20-meter threshold for the ground-level layer in the air quality model. The height at which the emissions are inserted into the model impacts how the emissions are transported within the model. The emissions from the smaller category 1 (C1) and category 2 (C2) vessels are still released into the ground-level layer of the model.

To develop the nonroad mobile source emissions inventories other than C3 marine for the modeling platform, the EPA used monthly, county, and process level emissions output from the National Mobile Inventory Model (NMIM) (http://www.epa.gov/otaq/nmim.htm). The nonroad mobile emissions control programs include reductions to locomotives, diesel engines, and marine engines, along with standards for fuel sulfur content and evaporative emissions. A comprehensive list of control programs included for mobile sources is available in the Proposed Rule Emissions Modeling TSD.

The emissions for stationary nonpoint sources in the 2011 base case emissions inventory are largely consistent with those in the 2011NEIv2. 2023 estimates were projected using a variety of factors, including AEO 2017 projections for 2023 and state projection factors using EIA data from 2011-2015. For more information on the nonpoint sources in the 2011 base case inventory, see the Proposed Rule Emissions Modeling TSD and the 2011NEIv2 TSD. Based on comments from the January 2017 NODA, where states provided the EPA with information about projected control measures or changes in nonpoint source emissions, the EPA incorporated that information into its projections. These changes were limited and are discussed in the Proposed Rule Emissions Modeling TSD.

4. Air Quality Modeling To Identify Nonattainment and Maintenance Receptors

The following summarizes the procedures for projecting future-year 8-hour ozone average and maximum design values to 2023 to determine nonattainment and maintenance receptors. Consistent with the EPA's modeling guidance, the agency uses the air quality modeling results in a "relative" sense to project future concentrations. That is, the ratios of future year model predictions to base year model predictions are used to adjust ambient ozone design

values up or down depending on the relative (percent) change in model predictions for each location. The modeling guidance recommends using measured ozone concentrations for the 5-year period centered on the base year as the air quality data starting point for future year projections. This average design value is used to dampen the effects of inter-annual variability in meteorology on ozone concentrations and to provide a reasonable projection of future air quality at the receptor under "average" conditions. Because the base year for this rule is 2011, the EPA is using the base period 2009-2013 ambient ozone design value data to project 2023 average design values in a manner consistent with the modeling guidance.

The approach for projecting future ozone design values involved the projection of an average of up to three design value periods, which include the years 2009-2013 (design values for 2009-2011, 2010-2012, and 2011-2013). The 2009-2011, 2010-2012, and 2011-2013 design values are accessible at www.epa.gov/airtrends/values.html. The average of the three design values creates a "5-year weighted average" value. The 5-year weighted average values were then projected to 2023. To project 8-hour ozone design values, the agency used the 2011 base year and 2023 future base-case model-predicted ozone concentrations to calculate relative response factors (RRFs) for the location of each monitoring site. The RRFs were then applied to actual monitored data, *i.e.*, the 2009-2013 average ozone design values (to generate the projected average design values) and the individual design values for 2009-2011, 2010-2012, and 2011-2013 (to generate potential maximum design values). Details of this approach are provided in the Proposed Rule AQM TSD.

The EPA considers projected design values that are greater than or equal to 76.0 ppb to be violating the 2008 ozone NAAQS in 2023. As noted previously, nonattainment receptors are

those sites that have projected average design values greater than the 2008 ozone NAAQS and are also violating the NAAQS based on the most recent measured air quality data. Therefore, as an additional step, for those sites that are projected to be violating the NAAQS based on the average design values in 2023, the EPA examined the most recent measured design value data to determine if the site was currently violating the NAAQS. For this proposal, the agency examined ambient data for the 2014-2016 period, which are the most recent available, certified measured design values at the time of this rule.

As discussed above, maintenance-only receptors include both: (1) those sites with projected average and maximum design values above the NAAQS that are currently measuring clean data; and (2) those sites with projected average design values below the level of the NAAQS, but with projected maximum design values of 76.0 ppb or greater.

In projecting these future year design values, the EPA applied its own modeling guidance,[100] which recommends using model predictions from the "3 x 3" array of grid cells surrounding the location of the monitoring site to calculate the relative response factors and identify future areas of nonattainment. In addition, in light of comments on the January 2017 NODA and other analyses, the EPA also projected 2023 design values based on a modified version of this approach for those monitoring sites located in coastal areas. In brief, in the alternative approach, the EPA eliminated from the design value calculations those modeling data in grid cells not containing a monitoring site that are dominated by water (*i.e.*, more than 50

[100] U.S. Environmental Protection Agency, 2014. Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, $PM_{2.5}$, and Regional Haze. http://www.epa.gov/ttn/scram/guidance/guide/Draft_O3-PM-RH_Modeling_Guidance-2014.pdf

percent of the land use in the grid cell is water).[101] For each individual monitoring site, the EPA is providing the base period 2009-2013 average and maximum design values, 2023 projected average and maximum design values based on both the "3 x 3" approach and the alternative approach affecting coastal sites, and 2014-2016 measured design values. As discussed further below, under both the 3x3 approach and the alternative approach all monitoring sites in the Eastern U.S. are modeled to be clean for the 2008 ozone NAAQS in 2023. Thus, according to the EPA's findings, there will be no remaining nonattainment or maintenance receptors in the eastern U.S. in 2023.

Tables III.C-1 and III.C-2 contain the ambient 2009-2013 base period average and maximum 8-hour ozone design values, the 2023 projected baseline average and maximum design values, and the ambient 2014-2016 design values for the air quality monitors that were identified in the CSAPR Update as having remaining problems attaining or maintaining the 2008 ozone NAAQS in 2017, even with CSAPR Update implementation. Table III.C-1 contains data for the monitors identified as remaining nonattainment receptors in 2017 in the CSAPR Update and Table III.C-2 contains data for the monitors identified as remaining maintenance-only receptors in 2017 in the CSAPR Update.[102] The design values for all monitoring sites in the contiguous U.S. are provided in the docket. According to the EPA's findings, there are no remaining nonattainment or maintenance receptors in the eastern U.S. in 2023.

[101] A model grid cell is identified as a "water" cell if more than 50 percent of the grid cell is water based on the 2006 National Land Cover Database. Grid cells that meet this criterion are treated as entirely over water in the Weather Research Forecast (WRF) modeling used to develop the 2011 meteorology for EPA's air quality modeling.

[102] The EPA recognizes that the modeling results indicate a substantial projected improvement in ozone air quality (compared to current measured ozone levels) at several locations, including three monitors in Connecticut located near the sea—*i.e.*, on the order of 10 – 12 ppb.

The EPA solicits public comment on the reliability of the modeling data, including any information which may support or not support these results.

Table III.C-1. Base Period, Current (2014-2016), and 2023 Projected Design Values (ppb) for Monitors Identified As Remaining Nonattainment Receptors in 2017 in the CSAPR Update.[103,104]

Monitor ID	State	County	2009-2013 Avg	2009-2013 Max	2014-2016	2023en "3x3" Avg	2023en "3x3" Max	2023en "No Water" Avg	2023en "No Water" Max
090019003	Connecticut	Fairfield	83.7	87	85	72.7	75.6	73.0	75.9
090099002	Connecticut	New Haven	85.7	89	76	71.2	73.9	69.9	72.6
480391004	Texas	Brazoria	88.0	89	75	74.0	74.9	74.0	74.9
484392003	Texas	Tarrant	87.3	90	73	72.5	74.8	72.5	74.8
484393009	Texas	Tarrant	86.0	86	75	70.6	70.6	70.6	70.6
551170006	Wisconsin	Sheboygan	84.3	87	79	70.8	73.1	72.8	75.1

Table III.C-2. Base Period, Current (2014-2016), and 2023 Projected Design Values (ppb) for Monitors Identified as Remaining Maintenance-Only Receptors in 2017 in the CSAPR Update.

Monitor ID	State	County	2009-2013 Avg	2009-2013 Max	2014-2016	2023en "3x3" Avg	2023en "3x3" Max	2023en "No Water" Avg	2023en "No Water" Max
090010017	Connecticut	Fairfield	80.3	83	80	69.8	72.1	68.9	71.2
090013007	Connecticut	Fairfield	84.3	89	81	71.2	75.2	71.0	75.0
240251001	Maryland	Harford	90.0	93	73	71.4	73.8	70.9	73.3
260050003	Michigan	Allegan	82.7	86	75	69.0	71.8	69.0	71.7
360850067	New York	Richmond	81.3	83	76	71.9	73.4	67.1	68.5
361030002	New York	Suffolk	83.3	85	72	72.5	74.0	74.0	75.5
481210034	Texas	Denton	84.3	87	80	69.7	72.0	69.7	72.0
482010024	Texas	Harris	80.3	83	79	70.4	72.8	70.4	72.8
482011034	Texas	Harris	81.0	82	73	70.8	71.6	70.8	71.6
482011039	Texas	Harris	82.0	84	67	71.8	73.6	71.8	73.5

[103] From 40 CFR 50.15(b): "The 8-hour primary and secondary ambient air quality standards are met at an ambient air quality monitoring site when the 3-year average of the annual fourth-highest daily maximum 8-hour average O_3 concentration is less than or equal to 0.075 ppm, as determined in accordance with appendix P to this part."

[104] From section 2.2 of appendix P to 40 CFR part 50: "The computed 3-year average of the annual fourth-highest daily maximum 8-hour average O_3 concentrations shall be reported to three decimal places (the digits to the right of the third decimal place are truncated, consistent with the data handling procedures for the reported data)."

5. Pollutant Transport from Upwind States

Although the EPA has conducted nationwide contribution modeling for 2023, the EPA does not believe this information is necessary for evaluating remaining good neighbor obligations for the 2008 ozone NAAQS downwind because there are no ozone monitoring sites in the Eastern U.S. that are expected to have problems attaining or maintaining the 2008 ozone NAAQS in 2023. Nonetheless, the results of EPA's state-by-state ozone contribution modeling were released in a memorandum on March 27, 2018 and are also available in the docket for this action.[105] The EPA notes that, while the air quality modeling did identify potential remaining problem receptors in California in 2023, none of EPA's prior analysis nor its current contribution modeling have linked any of the CSAPR Update states in the eastern U.S. to any of those potential remaining problem receptors. Therefore, the EPA does not believe there is a need to further evaluate the contributions of the 20 CSAPR Update states to any downwind receptors identified in EPA's 2017 modeling conducted for the CSAPR Update.

D. Proposed Determination

The EPA proposes to determine that, with CSAPR Update implementation, 20 eastern states' good neighbor obligations for the 2008 ozone NAAQS are fully addressed.[106] The states

[105] 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). EPA Memorandum to Regional Air Division Directors. March 27, 2018. Available at https://www.epa.gov/sites/production/files/2018-03/documents/transport_memo_03_27_18_1.pdf.

[106] See Table III.D-1 for a list of states covered by this proposal. EPA has also already separately proposed to approve Kentucky's draft SIP submittal demonstrating that the CSAPR Update is a full remedy for Kentucky's good neighbor obligation for the 2008 ozone NAAQS. 83 FR 17123 (Apr. 18, 2018).

covered by this action are listed in table III.D-1. The EPA's proposed determination is based on proposed findings that: (1) 2023 is a reasonable future analytic year for evaluating ozone transport problems with respect to the 2008 ozone NAAQS; and (2) that interstate ozone transport air quality modeling projections for 2023 indicate that no further air quality problems will remain in the east in 2023.

As a result, the EPA proposes to conclude that, after implementation of the CSAPR Update, none of the states analyzed will significantly contribute to nonattainment or interfere with maintenance of the 2008 ozone NAAQS in downwind states, and therefore that the CSAPR update fully addresses those states' good neighbor obligations with respect to that NAAQS. In accord with this determination, the EPA has no remaining obligation issue FIPs nor are states required to submit SIPs that would establish additional requirements for sources in these states to further reduce transported ozone pollution with regard to the 2008 ozone NAAQS.

As explained in more detail in section III.B, the EPA's selection of 2023 as a reasonable future analytic year is supported by an assessment of attainment dates for the 2008 ozone NAAQS and feasibility for control strategies to reduce NO_X in CSAPR Update states. The EPA's NO_X control strategy feasibility assessment prioritizes NO_X control strategies in CSAPR Update states that would be additional to those strategies that were already quantified into CSAPR Update emissions budgets. The EPA believes that 2023 is an appropriate future analytic year, taking into consideration relevant attainment dates, because it is the first ozone season for which significant new controls to reduce NO_X could be feasibly installed across the CSAPR Update region, and thus represents the timeframe that is as expeditious as practicable for upwind states to implement additional emissions reductions. Furthermore, as described in section III.C,

the EPA's analysis of step 1 for the 2023 analytic year indicates that there are no monitoring sites in the east that are projected to have nonattainment or maintenance problems with respect to the 2008 ozone NAAQS in 2023. Together, these findings lead to EPA's proposed determination that—with CSAPR Update implementation—CSAPR Update states are not expected to significantly contribute to nonattainment or interfere with maintenance of the 2008 ozone NAAQS in downwind states in 2023.

As a result of this proposed determination, the EPA proposes to find that the promulgation of the CSAPR Update for these states fully satisfies the requirements of the good neighbor provision for the 2008 ozone NAAQS, and therefore also satisfies the Agency's obligation pursuant to CAA section 110(c) for these states. Accordingly, the EPA would have no remaining obligation to issue FIPs nor are the states required to submit SIPs that would further reduce transported ozone pollution, beyond the existing CSAPR Update requirements, with regard to the 2008 ozone NAAQS.

Table III.D-1 States Covered by the Proposed Determination Regarding Good Neighbor Obligations for the 2008 Ozone NAAQS

State Name
Alabama
Arkansas
Illinois
Indiana
Iowa
Kansas
Louisiana
Maryland
Michigan
Mississippi
Missouri
New Jersey
New York

Ohio
Oklahoma
Pennsylvania
Texas
Virginia
West Virginia
Wisconsin

Consistent with this proposed determination, this action also proposes minor revisions to the existing state-specific sections of the CSAPR Update regulations for states other than Kentucky and Tennessee. The revisions will remove the current statements indicating that the CSAPR Update FIP for each such state only partially addresses the state's good neighbor obligation under CAA section 110(a)(2)(D)(i)(I) for the 2008 ozone NAAQS. Because states can replace the CSAPR Update FIPs with SIPs, these revisions will also mean that a SIP that is approved through notice-and-comment rulemaking to fully replace the CSAPR Update FIP for one of these states would also fully address the state's good neighbor obligation for this NAAQS. In particular, the EPA proposes to find that the Agency's previous approval of Alabama's CSAPR Update SIP fully satisfies the state's good neighbor obligation for the 2008 ozone NAAQS. Thus, Alabama would have no obligation to submit any additional SIP revision addressing this obligation.

The EPA seeks comments on this proposal, including the legal, technical, and policy decisions informing the EPA's proposed determination that the CSAPR Update fully addresses the good neighbor obligation with respect to the 2008 ozone NAAQS for 20 eastern states. Note that the EPA in this proposal is not reconsidering or reopening the determinations made in the CSAPR Update, which was finalized in 2016, regarding the obligations of upwind states

pursuant to the good neighbor provision for the 2008 ozone NAAQS. Those determinations have already been subject to notice and comment rulemaking processes, and the FIPs promulgated in that action are already being implemented. The analysis conducted in this action does not reconsider any analysis conducted or determinations made in that action. Thus, the EPA is not requesting comment on any of the legal, technical, or policy decisions informing that the CSAPR Update.

IV. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at *http://www2.epa.gov/laws-regulations/laws-and-executive-orders*.

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

This action is a significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. Any changes made in response to OMB recommendations have been documented in the docket.

B. Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

This action is not expected to be subject to Executive Order 13771 because this proposed rule is expected to result in no more than *de minimis* costs.

C. Paperwork Reduction Act

This action does not impose any new information collection burden under the Paperwork Reduction Act. The OMB has previously approved the information collection activities

contained in the existing regulations and has assigned OMB control number 2060-0667. The minor revisions to the FIP provisions proposed in this action would have no impact on monitoring, recordkeeping, and reporting requirements for affected EGUs in the CSAPR NO_X Ozone Season Group 2 Trading Program.

D. Regulatory Flexibility Act

I certify that this action will not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden, or otherwise has a positive economic effect on the small entities subject to the rule. This action makes a minor modification to existing CSAPR Update FIPs and does not impose new requirements on any entity. The EPA has therefore concluded that this action will have no net regulatory burden for all directly regulated small entities.

E. Unfunded Mandates Reform Act

This action does not contain any unfunded mandate as described in the Unfunded Mandates Reform Act, 2 U.S.C. 1531-1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments or the private sector. This action simply updates the existing CSAPR Update FIPs to establish that no further federal regulatory requirements are necessary.

F. Executive Order 13132: Federalism

This 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. This action simply updates the existing CSAPR Update FIPs to establish that no further federal regulatory requirements are necessary.

G. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments, on the relationship between the federal government and Indian tribes, or on the distribution of power and responsibilities between the federal government and Indian tribes. This action simply updates the existing CSAPR Update FIPs to establish that no further federal regulatory requirements are necessary. Thus, Executive Order 13175 does not apply to this action. Consistent with the EPA Policy on Consultation and Coordination with Indian Tribes, the EPA consulted with tribal officials while developing the CSAPR Update. A summary of that consultation is provided in the preamble for the CSAPR Update, 81 FR 74584 (October 26, 2016).

H. Executive Order 13045: Protection of Children from Environmental Health and Safety Risks

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the 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 action is not subject to Executive Order 13045 because it

simply updates the existing CSAPR Update FIPs to establish that no further federal regulatory requirements are necessary.

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

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. This action simply updates the existing CSAPR Update FIPs to establish that no further federal regulatory requirements are necessary.

J. National Technology Transfer Advancement Act

This rulemaking does not involve technical standards.

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

The EPA believes that this action is not subject to Executive Order 12898 because it does not establish an environmental health or safety standard. This action simply updates the existing CSAPR Update FIPs to establish that no further federal regulatory requirements are necessary. Consistent with Executive Order 12898 and the EPA's environmental justice policies, the EPA considered effects on low-income populations, minority populations, and indigenous peoples while developing the CSAPR Update. The process and results of that consideration are described in the preamble for the CSAPR Update, 81 FR 74585 (October 26, 2016).

L. Determinations Under Section 307(b)(1) and (d)

Section 307(b)(1) of the CAA indicates which Federal Courts of Appeal have venue for petitions of review of final actions by EPA. This section provides, in part, that petitions for review must be filed in the Court of Appeals for the District of Columbia Circuit if (i) the agency action consists of "nationally applicable regulations promulgated, or final action taken, by the Administrator," or (ii) such action is locally or regionally applicable, but "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."

The EPA proposes to find that any final action related to this rulemaking is "nationally applicable" or, in the alternative, is based on a determination of "nationwide scope and effect" within the meaning of section 307(b)(1). Through this rulemaking action, the EPA is interpreting section 110 of the CAA, a statutory provision that applies to all states and territories in the United States. In addition, the proposed rule addresses emissions impacts and sources located in 20 States, which are located in multiple EPA Regions and federal circuits. The proposed rule is also based on a common core of factual findings and analyses concerning the transport of pollutants between the different states. Courts have found similar actions to be nationally applicable.[107] Furthermore, EPA intends this interpretation and approach to be consistently implemented nationwide with respect to section 110(a)(2)(D)(i)(I) for the 2008 ozone NAAQS.

[107] *See, e.g., Texas v. EPA*, 2011 U.S. App. LEXIS 5654 (5th Cir. 2011) (finding SIP call to 13 states to be nationally applicable and thus transferring the case to the U.S. Court of Appeals for the D.C. Circuit in accordance with CAA section 307(b)(1)); *W. Va. Chamber of Commerce v. Browner*, No. 98 1013, 1998 U.S. App. LEXIS 30621, at *24 (4th Cir. 1998) (finding the NO_X SIP Call to be nationally applicable based on "the nationwide scope and interdependent nature of the problem, the large number of states, spanning most of the country, being regulated, the common core of knowledge and analysis involved in formulating the rule, and the common legal interpretation advanced of section 110 of the Clean Air Act"). *Cf*. Judgment, *Cedar Falls Utilities v. EPA*, No. 16-4504 (8th Cir. Feb. 22, 2017) (transferring petition to review CSAPR Update to D.C. Circuit).

For these reasons, the Administrator proposes to determine that any final action related to this proposal is nationally applicable or, in the alternative, is based on a determination of nationwide scope and effect for purposes of section 307(b)(1). Thus, pursuant to section 307(b) any petitions for review of any final actions regarding the rulemaking must be filed in the Court of Appeals for the District of Columbia Circuit within 60 days from the date any final action is published in the Federal Register.

In addition, pursuant to sections 307(d)(1)(C) and 307(d)(1)(V) of the CAA, the Administrator proposes to determine that this action is subject to the provisions of section 307(d). CAA section 307(d)(1)(B) provides that section 307(d) applies to, among other things, "the promulgation or revision of an implementation plan by the Administrator under CAA section 110(c)." 42 U.S.C. 7407(d)(1)(B). Under section 307(d)(1)(V), the provisions of section 307(d) also apply to "such other actions as the Administrator may determine." 42 U.S.C. 7407(d)(1)(V). The Agency has complied with procedural requirements of CAA section 307(d) during the course of this rulemaking.

Determination Regarding Good Neighbor Obligations for the 2008 Ozone National Ambient Air Quality Standard

List of Subjects in 40 CFR Part 52

Environmental protection, Administrative practice and procedure, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen oxides, Ozone, Particulate matter, Regional haze, Reporting and recordkeeping requirements, Sulfur dioxide.

Dated: June 29, 2018

E. Scott Pruitt,
Administrator

For the reasons stated in the preamble, part 52 of chapter I of title 40 of the *Code of Federal Regulations* is proposed to be amended as follows:

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

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

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

§§ 52.54, 52.184, 52.731, 52.789, 52.840, 52.882, 52.984, 52.1084, 52.1186, 52.1284, 52.1326, 52.1584, 52.1684, 52.1882, 52.1930, 52.2040, 52.2283, 52.2440, 52.2540, and 52.2587 [Amended]

■ 2. Part 52 is amended by removing the text ", provided that because the CSAPR FIP was promulgated as a partial rather than full remedy for an obligation of the State to address interstate air pollution, the SIP revision likewise will constitute a partial rather than full remedy for the State's obligation unless provided otherwise in the Administrator's approval of the SIP revision" from the second sentence in each of the following paragraphs:

a. Section 52.54(b)(2);

b. Section 52.184(b);

c. Section 52.731(b)(2);

d. Section 52.789(b)(2);

e. Section 52.840(b)(2);

f. Section 52.882(b)(1);

g. Section 52.984(d)(2);

h. Section 52.1084(b)(2);

i. Section 52.1186(e)(2);

j. Section 52.1284(b);

k. Section 52.1326(b)(2);

l. Section 52.1584(e)(2);

m. Section 52.1684(b)(2);

n. Section 52.1882(b)(2);

o. Section 52.1930(b);

p. Section 52.2040(b)(2);

q. Section 52.2283(d)(2);

r. Section 52.2440(b)(2);

s. Section 52.2540(b)(2); and

t. Section 52.2587(e)(2).