ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–HQ–OAR–2018–0225; FRL–9987–86–OAR]

RIN 2060–AT92

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

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action finalizes the Environmental Protection Agency's (EPA) determination that the existing Cross-State Air Pollution Rule Update for the 2008 Ozone National Ambient Air Quality Standards (NAAQS) (CSAPR Update) fully addresses certain states' obligations under the good neighbor provision of the Clean Air Act (CAA) 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 these CAA section obligations for 21 of the 22 CSAPR Update states. As a result, the EPA has an outstanding obligation to fully address the requirements of this Clean Air Act provision for these states. Based on information and analysis that became available after the CSAPR Update was finalized, this action finalizes a determination that the existing CSAPR Update fully addresses the CAA's good neighbor provision for the 2008 ozone NAAQS for all remaining CSAPR Update states. Specifically, EPA is finalizing a determination that 2023 is an appropriate future analytic year to evaluate remaining good neighbor obligations and that, for the purposes of addressing good neighbor obligations, there will be no remaining nonattainment or maintenance receptors with respect to the 2008 ozone NAAQS in the eastern U.S. in that year. Therefore, with the CSAPR Update fully implemented, these remaining CSAPR Update states are not expected to contribute significantly to nonattainment in, or interfere with maintenance of, any other state with regard to the 2008 ozone NAAQS. In accord with this finding, the EPA has no outstanding, unfulfilled obligation to establish additional requirements for emission sources in these states to further reduce transported ozone pollution under the good neighbor provision for the 2008 ozone NAAQS. As a result of this finding, this action finalizes minor revisions to the existing CSAPR Update regulations to reflect that the CSAPR Update FIPs fully address this CAA provision. This determination applies 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 state implementation plans (SIPs).

DATES: This final rule is effective on February 19, 2019.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2018–0225. All documents in the docket are listed on the *www.regulations.gov* website. Although listed in the index, some information may not be publicly available, *e.g.,* CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: David Risley, 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) 343–9177; email address: *Risley.David@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 this final action is available at the website: *https://www.epa.gov/airtransport.*

A. Summary of Proposal in Relation to the Final Determination

On July 10, 2018, the EPA issued its proposed Determination Regarding Good Neighbor Obligations for the 2008 Ozone National Ambient Air Quality Standard. 83 FR 31915 (July 10, 2018). In that action, the agency proposed to determine that the existing CSAPR Update fully addressed certain states' obligations under CAA section 110(a)(2)(D)(i)(I) with respect to the 2008 ozone NAAQS. The proposed determination was based upon a finding that 2023 was a reasonable future analytic year in which to further evaluate air quality with respect to remaining good neighbor obligations, considering relevant attainment dates for the 2008 ozone NAAQS and the time necessary to further mitigate nitrogen oxide (NO_X) emissions through regional assessment of state-of-the-art post-combustion controls within the CSAPR Update region. The agency's analysis of projected 2023 ozone concentrations indicated that there would be no remaining monitors expected to have difficulty attaining or maintaining the 2008 ozone NAAQS, and the EPA therefore proposed to determine that the existing regulation—the CSAPR Update—fully addressed states' obligations under this Clean Air Act provision for this NAAQS. The agency solicited comment on that proposal with the comment period ending on August 31, 2018. The agency also held a public hearing on August 1, 2018. This final action was developed considering comments received on the proposal. Generally, the agency's final action herein remains consistent with the proposal with respect to its determination regarding good neighbor obligations for the 2008 ozone NAAQS and its underlying rationale.

B. States Covered by This Action

In the CSAPR Update, 81 FR 74504 (Oct. 26, 2016), the EPA promulgated FIPs affecting 22 eastern states that at least partially addressed 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 significantly contribute to 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.[1] The EPA has subsequently finalized approval of a SIP that fully addresses the good neighbor obligation for one of these states—Kentucky. 83 FR 33730 (July 17, 2018). Consistent with the EPA's July 2018 proposed determination, in this action, the EPA finalizes a determination 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 has no further obligation under CAA section 110(c) to establish requirements for power plants or any other emission sources in these states to further reduce transported ozone pollution under CAA section 110(a)(2)(D)(i)(I) with regard to this NAAQS. See Table I.A–1 for a list of states covered by this final action.

TABLE I.A–1—STATES COVERED BY THIS FINAL DETERMINATION REGARDING GOOD NEIGHBOR OBLIGATIONS FOR THE 2008 OZONE NAAQS

State	
Alabama	Missouri
Arkansas	New Jersey
Illinois	New York
Indiana	Ohio
Iowa	Oklahoma
Kansas	Pennsylvania
Louisiana	Texas
Maryland	Virginia
Michigan	West Virginia
Mississippi	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.[2]

In this final action, consistent with EPA's proposal and 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 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. The potential for ground-level ozone formation increases 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 affected by a combination of local emissions and

[1] The EPA determined in the final CSAPR Update that implementation of the emissions budget for Tennessee 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.

[2] 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 action and also found in the docket for the 2015 ozone NAAQS, Docket No. EPA–HQ–OAR–2013–0169–0057.

[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.

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 emission reduction scenarios for NO_X and VOCs for NO_X-limited and VOC-limited areas. For example, Jiang and Fast concluded that NO_X emission 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] [8] 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 action 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 emission 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 emission 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.[9] Analysis of air quality monitoring data trends shows reductions in summertime ozone concurrent with implementation of NO_X reduction programs.[10] Gilliland et al. examined the NO_X SIP Call, discussed in more detail later, and presented reductions in observed versus modeled ozone concentrations in the eastern U.S. downwind from major NO_X sources.[11] The results showed significant reductions in ozone concentrations (10–25 percent) from observed measurements (CASTNET and AQS) [12] between 2002 and 2005, linking reductions in EGU NO_X emissions from upwind states with ozone reductions downwind of the major source areas.[13] Additionally, Gégo et al. showed that ground-level ozone concentrations were significantly reduced after implementation of the NO_X SIP Call.[14] Thus, these studies support the EPA's continued focus on regional and seasonal NOx control strategies to address regional interstate ozone pollution transport.

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

The statutory authority for this final 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 action. 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.[15] 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.[16]

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 these submissions. It includes a list of specific elements that ''[e]ach such plan'' submission must address.[17] 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, that are the focus of this action.

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. This obligation applies unless the state corrects the deficiency through a SIP revision that the Administrator approves before the FIP is promulgated.[18]

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 include provisions sufficient to ''prohibit[ ], consistent with the provisions of this subchapter, 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].'' [19] The EPA

[6] For example, Bergin, M.S. et al. (2007). Regional air quality: local and interstate impacts of NO_X and SO_2 emissions on ozone and fine particulate matter in the eastern United States. Environmental Sci & Tech. 41: 4677–4689.

[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] Liao, K. et al. (2013) Impacts of interstate transport of pollutants on high ozone events over the Mid-Atlantic United States. Atmospheric Environment 84, 100–112.

[9] 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.

[10] Simon, H. et al. (2015). Ozone trends across the United States over a period of decreasing NO_X and VOC emissions. Environmental Science & Technology 49, 186–195.

[11] 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.

[12] CASTNET is the EPA's Clean Air Status and Trends Network. AQS is the EPA's Air Quality System.

[13] 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*.

[14] Gégo et al. (2007). Observation-based assessment of the impact of nitrogen oxides emission reductions on O_3 air quality over the eastern United States. J. of Applied Meteorology and Climatology 46: 994–1008.

[15] 42 U.S.C. 7410(a)(1).

[16] *See EPA* v. *EME Homer City Generation, L.P.*, 134 S. Ct. 1584, 1601 (2014).

[17] 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).

[18] 42 U.S.C. 7410(c)(1).

[19] 42 U.S.C. 7410(a)(2)(D)(i)(I).

often refers to the emission reduction requirements under this provision as ‘‘good neighbor obligations’’ and submissions addressing these requirements as ‘‘good neighbor SIPs.’’

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 court decisions addressing these rules, summarized here, provide important direction 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.[20] 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 ozone season NO_X budgets for each state, and the states were given the option to participate in a regional allowance trading program, known as the NO_X Budget Trading Program (NBP), to achieve all or most of the required emission reductions.[21] 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, the Clean Air Interstate Rule (CAIR), was promulgated in 2005 and addressed both the 1997 fine particulate matter ($PM_{2.5}$) NAAQS and 1997 ozone NAAQS.[22] 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 annual NO_X) and ozone (summer-time NO_X). As in the NO_X SIP Call, states were given the option to participate in regional allowance trading programs to achieve the reductions. When the EPA promulgated the final CAIR in 2005, the EPA also issued findings that states nationwide 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.[23] The 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).[24] These findings of failure to submit triggered a two-year clock for the EPA to issue FIPs to address interstate transport,[25] and on March 15, 2006, the EPA promulgated FIPs to implement the emission reductions required by CAIR.[26] 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.[27]

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.[28] CSAPR, as revised, 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.[29] 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 allowance trading programs to achieve the necessary emission reductions. Each state can submit a good neighbor SIP at any time that, if approved by the EPA, would replace the CSAPR FIP for that state.[30] CSAPR was the subject of an adverse decision by the D.C. Circuit in August 2012.[31] However, this decision was reversed in April 2014 by the Supreme Court,[32] which largely upheld the rule, including EPA's approach to addressing interstate transport in CSAPR. The rule was remanded to the D.C. Circuit to consider other claims not addressed by the Supreme Court. *EPA* v. *EME Homer City Generation, L.P.,* 134 S. Ct. 1584 (2014) (*EME Homer City*). 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 court's decisions in the *EME Homer City* litigation, refer to the preamble of the CSAPR Update.[33]

In 2016, the EPA promulgated the CSAPR Update to address interstate transport of ozone pollution with respect to the 2008 ozone NAAQS.[34] The final rule generally updated the CSAPR ozone season NO_X emissions budgets for 22 states to achieve cost-effective and immediately feasible NO_X emission reductions from EGUs within those states.[35] To align implementation with relevant attainment dates, the CSAPR Update implemented these budgets through FIPs requiring sources to participate in a revised CSAPR ozone season NO_X allowance trading program beginning with the 2017 ozone season. As discussed in more detail later in this preamble, the 2017 deadline was intended to ensure that the emission reductions from the rule would be made prior to the July 20, 2018 moderate attainment deadline. As under the

[20] 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).

[21] ‘‘Allowance Trading'' sometimes referred to as ‘‘cap and trade'' is an approach to reducing pollution that has been used successfully to protect human health and the environment. Allowance trading programs have two key components: Emissions budgets (the sum of which provide a cap on emissions), and tradable allowances equal to the budgets that authorize allowance holders to emit a specific quantity (*e.g.,* one ton) of the pollutant. This approach ensures that the environmental goal is met while the tradable allowances provide flexibility for individual participants to establish and follow their own compliance path. Because allowances can be bought and sold in an allowance market, these programs are often referred to as ‘‘market-based.''

[22] 70 FR 25162 (May 12, 2005).

[23] 70 FR 21147 (April 25, 2005).

[24] *See* n.14 and main text, *supra.*

[25] *See* n.17 and main text, *supra.*

[26] 71 FR 25328 (April 28, 2006).

[27] 76 FR 48208, 48217 (Aug. 8, 2011).

[28] 76 FR 48208.

[29] CSAPR was revised by several rulemakings after its initial promulgation in order to revise certain states' budgets and to promulgate FIPs for five additional states addressing the good neighbor obligation for the 1997 ozone NAAQS. 76 FR 80760 (Dec. 27, 2011); 77 FR 10324 (Feb. 21, 2012); 77 FR 34830 (June 12, 2012).

[30] The 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); South Carolina, 82 FR 47936 (Oct. 13, 2017); and Indiana (signed Nov. 27, 2018; publication in the **Federal Register** forthcoming).

[31] 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 City 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).

[32] 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).

[33] 81 FR 74511.

[34] 81 FR 74504.

[35] 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.

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.[36] 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. argued Oct. 3, 2018). 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.[37] Pursuant to this section, the EPA has authority to clarify the applicability of CAA requirements. In this 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 this action.

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 0.075 ppm (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 the timely 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.[38] Notwithstanding these events, the 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.[39] 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). This finding triggered a two-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), requiring their participation in a NO_X emission trading program. The EPA also determined in the CSAPR Update that the agency had no further FIP obligation as to nine additional states identified in the finding of failure to submit because 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.[40 41] 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 FR 38963 (June 15, 2016) (New Jersey, effective July 15, 2016); 81 FR 47040 (July 20, 2016) (Maryland, effective August 19, 2016). The finding actions triggered two-year deadlines for the EPA to issue FIPs to address the good neighbor provision for Maryland by August 19, 2018, and for New Jersey by July 15, 2018. The CSAPR Update also finalized FIPs for these two states.

In addition to these findings, the EPA finalized disapproval or partial disapproval actions for good neighbor SIPs submitted by Indiana, Kentucky, Louisiana, New York, Ohio, Texas, and Wisconsin.[42] These disapprovals triggered the EPA's obligation to promulgate FIPs to implement the requirements of the good neighbor provision for those states within two years of the effective date of each disapproval. The EPA promulgated CSAPR Update FIPs for each of these states.

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 under section 110(c) 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 Update FIP fully addressed the good neighbor provision for the 2008 ozone NAAQS only with respect to Tennessee.

The EPA notes that it has separately finalized an action to fully address Kentucky's good neighbor obligation for the 2008 ozone NAAQS. 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.), ECF No. 73. On May 10, 2018, Kentucky submitted a final SIP to EPA, which the agency finalized approval of consistent with the court-ordered deadline. 83 FR 33730 (July 17, 2018).

Subsequent to the promulgation of the CSAPR Update, the EPA approved SIPs fully replacing the CSAPR Update FIPs for Alabama, 82 FR 46674 (October 6, 2017), and Indiana (signed November 27, 2018; publication in the **Federal Register** forthcoming). In those SIP approvals and consistent with the conclusions of the CSAPR Update, the EPA found that the SIPs partially satisfy

[36] EPA has already approved SIPs fully replacing the CSAPR Update FIPs for Alabama, 82 FR 46674 (Oct. 6, 2017), and Indiana (signed Nov. 27, 2018; publication in the **Federal Register** forthcoming).

[37] 42 U.S.C. 7601(a)(1).

[38] These events are described in detail in section IV.A.2 of the CSAPR Update. 81 FR 74515.

[39] 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, ''Final Action, 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.

[40] The nine states were Florida, Georgia, Maine, Massachusetts, Minnesota, New Hampshire, North Carolina, South Carolina, and Vermont.

[41] 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 action.

[42] *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).

Alabama's and Indiana's good neighbor obligations for the 2008 ozone NAAQS. Thus, the EPA continues to have an obligation to fully address the good neighbor provision requirements for the 2008 NAAQS with respect to Alabama, stemming from the July 13, 2015 findings notice, and Indiana, due to the June 15, 2016 disapproval of the state's good neighbor SIP. 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 CSAPR Update states that are the subject of this final 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, ''Final Action, Status of 110(a)(2)(D)(i)(I) SIPs for the 2008 Ozone NAAQS,'' in the docket for this action.

TABLE II.C–1—ACTIONS THAT ACTIVATED EPA'S STATUTORY FIP DEADLINES

State	Type of action (**Federal Register** citation, publication date)	Statutory FIP deadline [43]
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, 8/26/2016)	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

An August 12, 2017 statutory deadline has passed for the EPA to act with respect to good neighbor obligations under the 2008 ozone NAAQS for 12 CSAPR Update states. The EPA is subject to a court-ordered deadline to promulgate a final action fully addressing the good neighbor obligations under the 2008 ozone NAAQS for five of these states by no later than December 6, 2018.[44] The statutory deadlines for the EPA to act with respect to good neighbor obligations under the 2008 ozone NAAQS for eight other CSAPR Update states passed between July 15, 2018, and September 26, 2018.

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 will significantly contribute to nonattainment, or interfere 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,[45] 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 (seven 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.

To establish and implement 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 locations, referred to as receptors, that were expected to have problems attaining or maintaining the NAAQS. In step 2, the EPA examined, using a contribution threshold of one percent of the NAAQS, which upwind states contributed to the nonattainment or maintenance receptors identified in step 1. In step 3, the EPA quantified the upwind emissions that significantly contributed to nonattainment or interfered with maintenance and established emission budgets that reflected removal of those emissions. Finally, in step 4, the agency provided for implementation of the budgets through an allowance trading program.

The EPA aligned its analysis of air quality and upwind state contributions in steps 1 and 2, as well as implementation of the trading program in step 4 with relevant attainment dates for the 2008 ozone NAAQS. The EPA's final 2008 Ozone NAAQS SIP Requirements Rule established the attainment deadline of July 20, 2018, for ozone nonattainment areas classified as

[43] 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 days.

[44] Order, *New York* v. *Pruitt,* No. 1:18–cv–00406–JGK (S.D.N.Y. June 12, 2018), ECF No. 34. The five states are Illinois, Michigan, Pennsylvania, Virginia, and West Virginia.

[45] 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.

Moderate.[46] Because the attainment date fell during the 2018 ozone season, the 2017 ozone season was the last full season from which data could be used to determine attainment of the NAAQS by that date. Therefore, consistent with the court's instruction in *North Carolina* to harmonize implementation of emission reductions under the good neighbor provision with downwind attainment dates, 531 F.3d at 912, the EPA established and implemented emissions budgets starting with the 2017 ozone season. 81 FR 74507. The establishment of 2017 as the CSAPR Update's analytic year and compliance timeframe was further supported by an assessment that certain control strategies to mitigate ozone pollution transport were feasible in that timeframe.

As to step 3, in particular, the EPA quantified emissions from upwind states that would significantly contribute to nonattainment or interfere with maintenance by first evaluating various levels of uniform NO_X control stringency, each represented by an estimated marginal cost per ton of NO_X reduced. The EPA then applied a multi-factor test to evaluate cost, available emission 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 emission reductions should be implemented in the future compliance year (*i.e.,* 2017) and to evaluate the potential for over- and under-control of upwind state emissions.

Within the multi-factor test, the EPA identified a ''knee in the curve,'' *i.e.,* a point at which the cost-effectiveness of the emission reductions was maximized, so named for the discernable turning point observable in a multi-factor (*i.e.,* multi-variable) curve. *See* 81 FR 74550. The EPA concluded that this was at the point where emissions budgets reflected a uniform NO_X control stringency represented by an estimated marginal cost of $1,400 per ton of NO_X reduced. In light of this multi-factor test, EPA determined 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 control stringencies evaluated—with respect to marginal cost. That is, the ratio of emission reductions to marginal cost and the ratio of ozone improvements to marginal cost were maximized relative to the other levels of control stringency evaluated. The EPA found that feasible and 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 one 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. These budgets represented emissions remaining in each state after elimination of the amounts of emissions that the EPA identified would significantly contribute to nonattainment or interfere with maintenance of the 2008 ozone NAAQS in downwind states.

To implement the CSAPR Update's emission budgets, 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.[47] CSAPR's trading programs and the EPA's prior emissions trading programs (*e.g.,* CAIR and the NO_X Budget Trading Program) have provided a proven implementation framework for achieving emission 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 one 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 on a longer timeframe than 2017 would be necessary, 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.[48] *See* Table II.D–1 for a list of remaining nonattainment receptors and Table II.D–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.)

[46] 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.

[47] 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 with respect to the 1997 ozone NAAQS.

[48] 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.

TABLE II.D–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.D–2—REMAINING 2017 PROJECTED MAINTENANCE-ONLY RECEPTORS IN THE EASTERN U.S.

Monitor ID	State	County
090010017	Connecticut	Fairfield.
090013007	Connecticut	Fairfield.
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 one percent of the 2008 ozone NAAQS to at least one remaining nonattainment or maintenance receptor in 2017.[49] The EPA did not, at that time, evaluate whether the projected air quality problems would persist and whether upwind states would continue to contribute to these receptors in years beyond 2017. 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 may otherwise have been necessary to evaluate full elimination of each state's significant contribution to nonattainment or interference with maintenance and also ensure that emission reductions already quantified in the rule 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 emission reductions to address interstate ozone transport for the 2008 ozone NAAQS in the 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 emission 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 on the CSAPR Update generally agreed with the EPA that non-EGU emission 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 also could not make an emission reduction-based conclusion that the CSAPR Update would fully resolve states' good neighbor obligations with respect to the 2008 ozone NAAQS because the reductions evaluated and required by the CSAPR Update were limited in scope (both by technology and sector). Specifically, EPA focused the policy analysis for the CSAPR Update on reductions available by the beginning of the 2017 ozone season from EGUs.

Regardless of these limitations, 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 July 20, 2018. Notwithstanding that additional reductions may be required to fully address the states' interstate transport obligations, the EPA concluded that the EGU NO_X emission 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 were 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 22 affected states, the EPA did not determine in the CSAPR Update that the rule 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. Final 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, based on information available when the rule was finalized, that those FIPs would fully address 2008 ozone NAAQS good neighbor obligations for 21 of the 22 CSAPR Update states. As a result, the EPA could not conclude that the CSAPR Update fully satisfied its obligation to issue FIPs, nor had the agency otherwise approved SIPs at that time, to address those states' good neighbor obligations for the 2008 ozone NAAQS. Since the CSAPR Update, the EPA has approved a SIP revision fully resolving the remaining 2008 ozone NAAQS good neighbor obligations for Kentucky.[50] In this notice, the EPA finalizes a determination that, based on additional information and analysis that has subsequently become available, the CSAPR Update fully addresses the remaining 20 affected states' good neighbor obligations for the 2008 ozone NAAQS.

In particular, the EPA is finalizing a determination that 2023 is an appropriate future analytic year considering relevant attainment dates and the time necessary to implement further NO_X controls. This rationale is described within this section, starting with Section III.A, which provides the EPA's analytic approach. Section III.B discusses the agency's selection of 2023 as its future analytic year and Sections III.B.2 provides the EPA's assessment of feasibility (*e.g.,* timing) to implement further regional NO_X control strategies for EGUs (Section III.B.2.a) and non-EGUs (Section III.B.2.b). Further, based on the EPA's analysis of projected air

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

[50] 83 FR 33730 (July 17, 2018).

quality in that year, the EPA has determined that, for the purposes of addressing good neighbor obligations for the 2008 ozone NAAQS, there will be no remaining nonattainment or maintenance receptors in the eastern U.S. in the future analytic year of 2023. The agency's analysis is described in Section III.C. As a result of these determinations, the EPA finds that, with CSAPR Update implementation, these states will no longer contribute significantly to nonattainment in, or interfere with maintenance by, any other state with respect to the 2008 ozone NAAQS. This rationale is described in Section III.D. The agency includes a summary of comments and the EPA's response to those comments at the conclusion of certain sections and subsections therein. The comments summarized in these sections and the EPA's responses are further supplemented by the EPA's Response to Comment document in the docket for this action.

A. Analytic Approach

Through the development and implementation of several previous rulemakings, including most recently the CSAPR Update, the EPA, working in partnership with states, established the following four-step framework to address regional interstate transport of ozone pollution under the Clean Air Act's good neighbor provision.[51] The agency is evaluating its determination regarding CSAPR Update states' remaining good neighbor obligations for the 2008 ozone NAAQS by applying this same approach.[52] The steps are summarized in the following four paragraphs.

Step 1: Identify downwind air quality problems relative to the 2008 ozone NAAQS. The EPA historically (including in the CSAPR Update) identified downwind areas with air quality problems, or receptors, using air quality modeling projections for a future analytic year and, where appropriate, considering monitored ozone data. In the CSAPR Update, the agency relied on modeled and monitored data to identify receptors expected to be in nonattainment with the ozone NAAQS in the future analytic year, and relied on modeled data to identify additional receptors that may have difficulty maintaining the NAAQS in the future analytic year, notwithstanding clean monitored data or projected attainment.

Step 2: Determine which upwind states contribute to these identified downwind air quality problems sufficiently to warrant further analysis to determine whether their emissions violate the good neighbor provision. These states are referred to as ''linked'' states. In the CSAPR Update, the EPA identified such upwind states as those modeled to impact a downwind receptor in the future analytic year 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 will significantly contribute to nonattainment or interfere with maintenance of a standard at a receptor in another state. In all of the EPA's prior rulemakings addressing interstate ozone pollution transport, the agency identified and apportioned emission reduction responsibility among multiple upwind states linked to downwind air quality problems considering multiple factors consistently across the region. Specifically, the agency considered feasible NO_X control strategies and used 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 will significantly contribute to nonattainment or interfere with maintenance in another state in the future analytic year. The agency then established emission budgets reflecting remaining emission levels following the reduction of emissions that significantly contribute to nonattainment or interfere with maintenance of the NAAQS downwind.

Step 4: For upwind states that are found to have emissions that will significantly contribute to nonattainment or interfere with maintenance of the NAAQS downwind, implement the necessary emission reductions within the state. In the CSAPR Update, the EPA implemented the emission budgets for 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. In virtually all respects other than the budgets and the starting year, the program is identical to allowance trading programs used to implement the emission reductions quantified in the original CSAPR, and it builds on the experience of both the EPA and states using emission trading programs to implement other earlier rules.[53]

Because this framework provides a reasonable and logical structuring of the key elements that should be considered in addressing the requirements of the good neighbor provision and because this action is evaluating outstanding obligations that remain following the EPA's application of this framework with respect to the 2008 ozone NAAQS in the CSAPR Update, the agency believes it is reasonable to apply the same framework in this final action.

Within this four-step interstate transport framework, the EPA would only proceed to higher enumerated (*i.e.,* downstream) steps if states meet the criteria applied in lower enumerated (*i.e.,* upstream) steps. For example, the EPA would only proceed to step 4, in which sources in upwind states are subject to enforceable emissions limitations, if downwind air quality problems are identified at step 1, an upwind state is found to be linked to a downwind air quality problem at step 2, and sources in the linked upwind state are identified at step 3 as having emissions that significantly contribute to nonattainment or interfere with maintenance of the NAAQS considering multiple cost, emissions, and air-quality 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

[51] *See* Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone (also known as the NO_X SIP Call), 63 FR 57356 (October 27, 1998); Clean Air Interstate Rule (CAIR) Final Rule, 70 FR 25162 (May 12, 2005); CSAPR Final Rule, 76 FR 48208 (August 8, 2011); CSAPR Update for the 2008 Ozone NAAQS Final Rule, 81 FR 74504 (October 26, 2016).

[52] With respect to the 2015 ozone NAAQS, which is not addressed in this action, 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 plans, states have flexibility to follow the familiar four-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.

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

instruction follows the requirement that 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 relevant context for evaluating the consistency of the EPA's approach to implementing 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 for downwind states apply to upwind states pursuant to the good neighbor provision, but rather to explain why the EPA's approach to interpreting the good neighbor provision is reasonable in light of relevant, analogous provisions found elsewhere in title I. *Cf. EDF* v. *EPA,* 82 F.3d 451, 457 (D.C. Cir. 1996) (per curiam) (describing the phrase ''consistent with'' as ''flexible statutory language'' which does not require ''exact correspondence . . . but only congruity or compatibility,'' thus requiring a court to defer to reasonable agency determinations), *amended by* 92 F.3d 1209 (D.C. Cir. 1996). 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. *See* CAA section 107(d), 42 U.S.C. 7407(d) (noting that an area shall be designated attainment where it ''meets'' the NAAQS and nonattainment where it ''does not meet'' the NAAQS (including certain ''nearby'' areas, as explained below)). If an area measures a violation of the relevant ozone NAAQS, then the area is generally designated nonattainment, regardless of what specific factors have influenced the measured ozone concentrations or whether such levels are due to enforceable emissions limits.[54] In such cases where the an ozone nonattainment area is classified as Moderate or higher, the state is then 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.[55] *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 (unless it is included in the boundaries of a nearby nonattainment area due to its contribution to that area's nonattainment, as discussed below), and sources in that area generally are not subject to any new enforceable control measures under Part D.[56]

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 various 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.[57] If such a determination is made, sources in the nearby area are also subject 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 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 continues 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 contributes to that area's air quality problems and is therefore linked to that area) 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. Under the good neighbor provision, the EPA can determine at either step 1 or 2, as appropriate, that the upwind state will not contribute to air quality problems in downwind areas and, thus, that the upwind state does not significantly contribute to nonattainment or interfere with maintenance of the NAAQS in other states. *See, e.g.,* CSAPR Update, 81 FR 74506 (determining that emissions from 14 states do not significantly contribute to nonattainment or interfere with maintenance of the 2008 ozone NAAQS); CSAPR, 76 FR 48236 (finding that states whose impacts on 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 required to implement any control measures under the good neighbor provision, which is analogous to the fact that under the designation and attainment regime,

[54] Policy tools are available to apply to areas experiencing exceedances of ozone NAAQS that are appreciably impacted by U.S. background ozone. The tools available for each affected location will depend on the specific nature of U.S. background ozone in each area. Some tools would provide relief from a nonattainment designation; others would only provide relief from some of the CAA-prescribed nonattainment area requirements.

[55] Areas classified as Marginal nonattainment areas are required to submit emission 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).

[56] 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.

[57] *See* Attachment 2 to *Area Designations for the 2008 Ozone National Ambient Air Quality Standards.* Memorandum from Robert J. Meyers, Principal Deputy Assistant Administrator, U.S. 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.*

sources located in areas that are designated attainment (because the area is attaining the NAAQS and not contributing to any nearby nonattainment 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); CSAPR Update, 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 use of *current* measured data in the designation analysis. As described in more detail in section III.B, 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 approach to conducting 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. 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 subject to 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 the 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's 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.[58]

The EPA notes that there is a further distinction between the section 107(d) designations provision and the section 110(a)(2)(D)(i) 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 would violate the good neighbor provision. Only if the EPA at step 3 determines that the upwind state's emissions would violate the good neighbor provision will it proceed to step 4 to require emissions in the upwind state to be controlled so as to address the identified violation. This approach to steps 3 and 4 is analogous to the trigger for the application of Part D requirements to sources upon designation of an area to nonattainment. Thus, the EPA reasonably 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 emission reduction opportunities were identified in the District).

Comment: Several comments received on the EPA's proposal addressed the EPA's approach to identifying downwind air quality problems at step 1 of the framework. These comments contend that the agency's analysis relies on projected future emission levels that are not based on enforceable mechanisms that ensure those emission levels will actually occur or remain in place in a future year and thus improve air quality as modeled. The commenters contend that the Act requires that these emission levels be enforceable in order for modeling relying on such assumptions to be used to support any determination under the good neighbor provision.

One commenter states that the EPA's approach is contrary to the fundamental principle behind the statutory obligation that SIPs must ''include enforceable emission limitations'' and ''contain adequate provisions prohibiting'' emissions that unlawfully impact other states, citing CAA sections 110(a)(2)(A) and (D). The commenter contends that the EPA subverts the text and meaning of section 110(a)(2) by declaring that future air quality will attain the NAAQS without ensuring that the emission levels that informed that prediction are enforceable. The commenter further contends that enforceability of control measures is a consistent requirement throughout the CAA, including for redesignation to attainment under section 107(d)(3)(E)(iii) and for attainment SIPs under section 172(c)(6).

In support of this argument, another commenter cites CAA section 110(a)(2)(A), which indicates that SIPs must ''include enforceable emission limitations and other control measures, means, or techniques . . . as well as schedules and timetables for compliance.'' The commenter further cites CAA section 110(a)(2)(C), which indicates that SIPs must ''include a program to provide for the enforcement of the measures described in subparagraph (A), and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program. . . .''

Response: As explained in this section, the EPA does not agree that all assumptions in a model that inform future-year projections must be subject to enforceable commitments before the EPA can rely on the modeling for purposes of identifying downwind air quality problems.

As discussed earlier, within the four-step framework, the EPA interprets the good neighbor provision to require sources in upwind states to implement enforceable emission limitations only if: (1) Downwind air quality problems are identified at step 1, (2) emissions from an upwind state are linked to a

[58] The EPA 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 in their SIPs (or the EPA when promulgating a FIP) prohibit emissions that ''will'' impermissibly impact downwind air quality. This term is reasonably interpreted to mean that the EPA should evaluate anticipated emissions (based on what sources *will* emit) rather than potential emissions (based on what sources *could* emit).

downwind air quality problem at step 2, and (3) sources in the linked upwind state are identified at step 3 as having emissions that significantly contribute to nonattainment and interfere with maintenance of the NAAQS, considering cost- and air-quality-based factors. If all three of these steps are not satisfied, then the state is not required at step 4 to include provisions in its SIP prohibiting any level of reductions because the EPA has determined that emissions from the state will not significantly contribute to nonattainment or interfere with maintenance of the NAAQS downwind and accordingly there are no emissions the state is obligated to ''prohibit'' under the good neighbor provision. Thus, the EPA does not agree that modeling used to evaluate ozone concentrations at step 1 must only consider enforceable emission levels. Rather, as explained in detail earlier, the EPA's approach is consistent with other applicable provisions of title I regarding the designations and planning requirements applicable in nonattainment areas.

The fact that certain statutory provisions require imposition of enforceable measures does not contradict the EPA's interpretation regarding when the good neighbor provision requires such measures. In fact, the requirement at section 172(c)(6), which commenters cite, that attainment plans for designated nonattainment areas include enforceable measures to bring the area into attainment is consistent with the EPA's interpretation of the good neighbor provision, because that requirement only applies once an area has been designated nonattainment. Similarly, in the EPA's four-step framework, if the EPA identifies a downwind air quality problem and determines that an upwind state significantly contributes to nonattainment or interferes with maintenance of the NAAQS in that downwind area, the EPA would also require, at step 4, the imposition of enforceable measures to address the upwind state's impact on the downwind area. Thus, consistent with the terms of the good neighbor provision, the EPA requires states to ''prohibit'' emissions upon a determination that such emissions are having the requisite impact on downwind areas. However, the requirement of section 172(c)(6) is not a predicate for an attainment designation, as would be the case by analogy to commenters' suggestion that enforceable limits are a required predicate for a determination that sources do not violate the good neighbor provision.

The citation to the requirements for the redesignation of areas to attainment under section 107(d)(3) is inapposite. Such requirements only apply in areas that have at one point been designated nonattainment under section 107(d)(1). The commenter has not explained why the requirements for redesignation, which apply at the end of a process for nonattainment areas that is well after initial area designations, should be considered relevant to interpreting initial obligations under the good neighbor provision. For the reasons described earlier, the EPA believes it is more reasonable to liken the process for identifying downwind air quality problems under the good neighbor provision to initial designations, which do not turn on evaluations of whether or not the measured emission levels informing the designation are due to enforceable reductions.

The EPA also does not agree that either section 110(a)(2)(A) or section 110(a)(2)(C) require the state to include measures to make the projected emission limitations enforceable in order to address the good neighbor provision. Section 110(a)(2)(A) states that a SIP should ''include enforceable emission limitations and other control measures, means, or techniques . . . *as may be necessary or appropriate* to meet the applicable requirements'' of the CAA (emphasis added). As described earlier, a finding at step 1 that there is no downwind air quality problem supports a conclusion that a state simply will not contribute significantly or interfere with maintenance of the NAAQS in another state, and thus that the state need not prohibit any particular level of emissions under the good neighbor provision. Accordingly, under section 110(a)(2)(A), no emission limitations would be ''necessary or appropriate'' to meet the good neighbor provision. Section 110(a)(2)(C) similarly indicates that SIPs should provide for the enforcement of measures cited to support the requirements of section 110(a)(2)(A), but it does not independently require the imposition of additional control measures.

For these reasons, the EPA does not agree with the commenters' conclusion that the statute requires the imposition of enforceable emission limitations even where the agency has determined that an upwind state does not significantly contribute to nonattainment or interfere with maintenance of the NAAQS in a downwind state. See section III.C.2 of this notice for further discussion regarding the EPA's air quality analysis used to support this final determination.

B. Selection of a Future Analytic Year

In this action, consistent with its practice in previous rulemakings addressing ozone transport, the EPA focuses its analysis on a future analytic year in light of the forward-looking nature of the good neighbor obligation in section 110(a)(2)(D)(i)(I) and in consideration of prior court decisions. With respect to the statutory language of the good neighbor provision, 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 emission 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 emission reductions would be expected to go into effect. For the 1998 NO_X SIP Call, it used an analytic year of 2007, and for the 2005 CAIR, it used analytic years of 2009 and 2010 for ozone and $PM_{2.5}$, respectively. 63 FR 57450; 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.

Consistent with this approach, a key decision that informs the application of the interstate transport framework is the selection of a future analytic year. Several court decisions guide the factors that the EPA considers in selecting an appropriate future analytic year for this action. First, in *North Carolina,* the D.C. Circuit held that the timeframe for implementation of emission reductions required by the good neighbor provision should be selected by considering the relevant attainment dates of downwind nonattainment areas affected by interstate transport of air pollution. 531 F.3d at 911–12. Moreover, the U.S. Supreme Court and the D.C. Circuit have both held that the EPA may not over-control upwind state emissions relative to the downwind air quality problems to which the upwind emissions contribute. Specifically, the courts found that the agency may not require emission reductions (at steps 3 and 4 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. *See EME Homer City,* 134 S. Ct. at 1600–01; *EME Homer City II,* 795 F.3d at 127. In particular, in *EME Homer City II,* the D.C. Circuit determined that the CSAPR phase 2 ozone-season NO_X budgets for ten states were invalid because the 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.[59] These court decisions therefore support the agency's choice to use a future analytic year in order to help ensure that the EPA does not over- or under-control upwind state emissions at the time that controls will be implemented. Generally, NO_X emissions levels are expected to decline in the future through the combination of the implementation of existing local, state, and federal emission reduction programs (*e.g.,* fleet penetration of mobile source programs through fleet turnover) and changing market conditions for electricity generation technologies and fuels.[60] As a result of expected emission reductions and resulting lower ozone concentrations in the future, the agency is relatively more at risk of over-controlling emissions were it not to identify an appropriate future year in which controls could be feasibly implemented to further reduce emissions and ozone concentrations. Therefore, because further controls cannot be implemented feasibly for several years, as discussed further below, and emissions, upwind contributions, and downwind ozone concentrations will likely be lower at that later point in time 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 steps 1 and 2 of the good neighbor framework) in a future analytic year. In other words, it is appropriate for the EPA's evaluation of air quality to focus on a future analytic year that is aligned with feasible timing for installation of controls in order to ensure that downwind air quality problems exist (at step 1) and that upwind states continue (at step 2) to be linked to downwind air quality problems at a time when any cost-effective emission 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 problems. *Cf. EME Homer City,* 134 S. Ct. at 1600–01; *EME Homer City II,* 795 F.3d at 127.

Thus, 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 for this NAAQS; and (2) the timing to feasibly implement new NO_X control strategies. These factors are discussed in the following two sections. The EPA is finalizing its proposed determination that these factors collectively support the identification of 2023 as the future analytic year for evaluating whether further unfulfilled good neighbor obligations for the 2008 ozone NAAQS will remain after implementation of the CSAPR Update.

Comment: Several commenters challenge the EPA's interpretation of the term ''will'' in the good neighbor provision to permit the identification of downwind air quality problems based on evaluating air quality in a future year. The commenters contend that the EPA's interpretation is inconsistent with the Clean Air Act for various reasons.

One commenter contends that the word ''will'' merely reflects the temporal dimension of interstate transport of pollutants—*i.e.,* the fact that an upwind state ''will'' significantly contribute to nonattainment or interfere with maintenance as soon as its ozone pollutants are transported in significant amounts into a downwind area measuring nonattainment or struggling to maintain the NAAQS. The commenter concedes that the term ''will'' also contemplates impacts in relevant future compliance years but contends it is not limited to the distant future. The commenter asserts that section 110's prohibition against ''emitting'' pollutants that will significantly contribute to downwind nonattainment (or interfere with downwind maintenance) plainly indicates that the phrase ''will contribute'' must be read to include both current and future emissions, citing *North Carolina,* 531 F.3d at 914. The commenter contends that the EPA's interpretation of ''will'' to encompass future air quality, as affirmed by the D.C. Circuit in the CAIR litigation, was reasonable only in light of the agency's complementary consideration of present measured data. The commenter states that the EPA's proposed interpretation would grant the agency unfettered discretion, permitting it to find that ''will'' refers to any future time that the EPA selects, even one only in the distant future. The commenter contends that the interpretation of ''will'' to refer to a future year when ''any emission reductions would be expected to go into effect'' is circular, meaningless, and irrational where the EPA finds that no further emission reductions are required.

Another commenter states that Congress specified that implementation plans must prohibit ''any'' pollution from ''any'' source that will contribute significantly to nonattainment and interfere with maintenance, and this includes pollution that will contibute between now and 2023. The commenter states that the fact that other pollution emitted at some other time allegedly will not contribute significantly to nonattainment and interfere with maintenance does not excuse the EPA's failure to prohibit the pollution that will do so between now and 2023.

A further commenter contends that the use of the word ''emitting'' in section 110(a)(2)(D)(i) includes protection against current emissions from upwind sources that are significantly contributing to downwind areas' inability to attain a NAAQS. The commenter cites CAA section 126(b), which provides that a state ''may petition the Administrator for a finding that any major source or group of stationary sources *emits or would emit* any air pollutant in violation of the prohibition of'' section 110(a)(2)(D)(i) (emphasis added). The commenter states that this clause confirms that current air pollution transport cannot be ignored. Similarly, one commenter asserts that, when interpreting the term ''emit'' in other provisions of the Act, the D.C. Circuit has held that it refers to actual, present emissions, as opposed to mere potential or future emissions, citing *New York* v. *EPA,* 413 F.3d 3, 39–40 (D.C. cir. 2005).

Response: These commenters are incorrect, for five reasons.

First, the commenters misconstrue both the facts and the holding of the D.C. Circuit's decision in *North Carolina.* In that case, the court was reviewing a challenge to the EPA's approach to identifying downwind

[59] The Supreme Court also held that the agency may not over-control upwind state emissions such that the impact from an upwind state to all downwind air quality problems is below the contribution threshold applied at step 2 that ''linked'' the upwind state in the first place, *EME Homer City,* 134 S. Ct. at 1600–01, but CSAPR was not found in *EME Homer City II* to have violated the prohibition on this type of over-control.

[60] 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.*

receptors in CAIR wherein the agency considered only those areas projected to be in nonattainment in a future year to be downwind receptors, but not areas projected to be in attainment that were currently measuring nonattainment. 531 F.3d at 913. The court explained that the EPA had consistently interpreted ''will'' in both the NO_X SIP Call and CAIR to ''indicate sources that presently *and* at some point in the future 'will' contribute to nonattainment,'' and noted that both rules relied on projections of nonattainment in the future year in which the rule would go into effect. *Id.* at 914. Thus, contrary to the commenters' assertions, the EPA did not identify downwind air quality problems in CAIR based on *either* a current measured violation *or* a projected violation of the NAAQS. Rather, in CAIR the EPA determined that a downwind air quality problem was required to be addressed under the good neighbor provision only if *both* the current measured data and the projected future data demonstrated there would be an air quality problem in a downwind area.

The court affirmed the EPA's interpretation, explaining that ''will'' ''can mean either certainty or indicate the future tense'' and held that it is reasonable for the EPA to give effect to both potential meanings of the word. *Id.* Thus, although the court acknowledged that the term ''will'' could refer to the certainty of an upwind state's impact on a downwind state (*i.e.,* based on current measured nonattainment), as one commenter contends it should, the court also clearly acknowledged the ambiguity of this term and indicated this was not the only reasonable interpretation. In light of this ambiguity, the D.C. Circuit affirmed that the EPA's approach, which gives effect to both meanings, is permissible under the Act. Here, as explained in more detail later in section III.C.3, the EPA is identifying downwind nonattainment receptors based on both current measured data and projected future air quality, just as the EPA did in the CSAPR Update, as well as CAIR and the NO_X SIP Call.[61]

Second, the EPA also does not agree that the term ''emitting'' precludes its interpretation of ''will'' in the good neighbor provision. The relevant clause of the CAA section 110(a)(2)(D)(i) requires state plans (or federal plans, where the agency is acting in the state's stead) to ''contain adequate provisions . . . *prohibiting* . . . any source or other type of emissions activity within the State *from emitting* any air pollution in amounts which will'' improperly impact downwind areas under the remaining terms of the provision (emphasis added). Thus, the term ''emitting'' should be read in concert with the prohibition required in this clause to refer to the limitation that should be imposed on sources otherwise found to be in violation of section 110(a)(2)(D)(i)(I); the term ''emitting'' in its statutory context does not clearly define the temporal requirements for determining whether such a violation exists in the first instance. Rather, the good neighbor provision indicates that sources should be ''prohibit[ed] . . . from emitting,'' which is a forward-looking phrase intended to address limitations on a source's future activity. The introduction of the phrase ''which will'' at the end of the clause further serves as a transition from the general obligation to impose a prohibition to the specific circumstances under which the prohibition will apply.

The commenter's reference to the court's interpretation of ''emit'' in *New York* is therefore an inapt citation for purposes of interpreting the good neighbor provision requirements. In that case, the court was evaluating whether the use of the term ''emit'' in certain nonattainment new source review provisions (a program imposing a permitting requirement on the construction of new major sources of air pollutants and major modifications of existing sources) was intended to refer to actual or allowable emissions when determining whether modifications to the source trigger a permitting requirement. 413 F.3d 3, 39–40 (D.C. Cir. 2005). The court noted that the statutory provisions governing new source review use different language to distinguish between actual emissions (''emit'' or ''emitted'') and potential emissions (''potential to emit'' or ''emission limitations''). *Id.* In the case of the good neighbor provision, the phrase ''prohibiting . . . sources . . . from emitting'' certain amounts of pollution is more consistent with the terminology used to indicate potential emissions, and therefore more reasonably refers to the emission limitation that would be imposed under the good neighbor provision *if* the requisite finding of significant contribution or interference with maintenance is made. Thus, the statute's use of the term ''emit'' does not clearly preclude the EPA's interpretation of ''will'' as permitting the analysis of downwind air quality in a future year to evaluate interstate transport. The new source review preconstruction permitting program expressly lays out the predicate trigger for the permitting requirement (and the D.C. Circuit in *New York* was considering whether EPA's interpretation and application of those statutory terms was permissible); the good neighbor provision does not expressly lay out the methodology (including the termporal frame of reference) for determining what constitutes a good neighbor violation (and the D.C. Circuit in *North Carolina* affirmed EPA's construction of the governing statutory provision).

Third, the commenters err in suggesting that the standard for granting a section 126(b) petition is incorporated into the good neighbor provision. While section 126(b) cross-references the prohibition in section 110(a)(2)(D)(i),[62] the cross-reference is unidirectional. There is no indication that Congress intended for the ''emits or would emits'' language from section 126(b) to be conversely incorporated into section 110, and section 110(a)(2)(D)(i) does not contain any reference to section 126(b). In any event, the commenters have not offered any explanation regarding how any relevant interpretation of section 126(b) should inform the EPA's interpretation of section 110 with respect to current emissions data or projections of future air quality.

Fourth, while the EPA agrees that the references to ''any'' in section 110(a)(2)(D)(i) means that any source of emissions of any air pollutant having the requisite impact may be subject to control under that provision, the commenter does not explain how this term imposes an obligation to select a specific analytic year when evaluating whether such emissions are improperly impacting downwind areas and therefore whether such control is necessary or authorized. Rather, as the commenters fail to acknowledge, the EPA is only authorized under the good neighbor provision to require the prohibition of such emissions in ''amounts which will'' improperly impact another state with respect to the NAAQS. The Supreme Court has held that this language means that any emission reductions imposed under the good neighbor provision be no greater than necessary to address downwind

[61] In compliance with a separate holding of the *North Carolina* decision, the EPA further evaluates receptors in areas currently attaining the standard based on projected future air quality in order to ensure that the ''interfere with maintenance'' clause of the good neighbor provision is given independent effect. *See* 531 F.3d at 910–11.

[62] The text of CAA section 126 as codified in the U.S. Code cross-references CAA section 110(a)(2)(D)(ii) instead of CAA section 110(a)(2)(D)(i). The courts have confirmed that this is a scrivener's error and the correct cross-reference is to CAA section 110(a)(2)(D)(i). *See Appalachian Power Co.* v. *EPA,* 249 F.3d 1032, 1040–44 (D.C. Cir. 2001).

nonattainment and maintenance of the NAAQS, *i.e.,* that the EPA avoid unnecessary ''over-control'' of emissions from upwind states. *See EME Homer City,* 134 S. Ct. at 1608. In interpreting that decision, the D.C. Circuit declared EPA's emission reduction requirements for certain states to be invalid under the good neighbor provision where the EPA had information indicating that there will be no downwind air quality problems by the time the emission reductions would have been implemented. *See EME Homer City II,* 795 F.3d at 130. Thus, the EPA does not agree that information indicating a current violation necessarily obligates the EPA to impose additional emission reductions, especially if additional information indicates there will be no downwind air quality issues to address by the time such reductions could be in place. On the contrary, the D.C. Circuit has already spoken to both the temporal flexibilities and the temporal obligations imposed by the good neighbor provision. The court has both affirmed the EPA's interpretation of ''will'' as permitting consideration of projected future air quality and instructed the EPA to consider relevant downwind attainment dates in establishing future compliance timeframes. *North Carolina,* 531 F.3d at 910–11, 913. The EPA has reasonably aligned these two considerations to ensure that emission reductions required from ''any source'' within the anticipated compliance timeframes are in fact necessary to address downwind air quality problems at that time, in order to avoid potential over-control in contradiction of *EME Homer City.*

Fifth and finally, the EPA does not agree that its interpretation of ''will'' to permit consideration of projected future air quality grants the agency unfettered discretion to choose any future analytic year, however distant, to justify its conclusions. While the EPA does contend that the statute permits the consideration of air quality in a future year aligned with anticipated compliance, the EPA concedes that it must both comply with the holding in *North Carolina* to appropriately consider relevant downwind attainment dates and provide a reasonable, non-arbitrary justification for selecting an appropriate future analytic year. The EPA provides such an explanation for the selection of the 2023 analytic year in the following sections of this notice.

1. Attainment Dates for the 2008 Ozone NAAQS

As previously noted, in determining the appropriate future analytic year for purposes of assessing remaining interstate transport obligations for the 2008 ozone NAAQS, the EPA first considers the downwind attainment dates for the 2008 ozone NAAQS. Many areas currently have attainment dates of July 20, 2018 for areas classified as Moderate. However, 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 that date.[63] Given that the 2017 ozone season has now passed, it is not possible to achieve additional emission 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.[64] 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. *See* CAA section 181(a)(1).

Comment: One commenter notes that all of the states burdened by the interstate pollution addressed by the proposed action are currently subject to attainment deadlines in 2015, 2016, or 2018, and it is likely that some states will be determined to have failed to attain and become subject to more stringent requirements and a new deadline of July 20, 2021. The commenter notes that no relevant states are subject to a deadline of 2027, nor will any be subject to a 2027 deadline in the future unless they fail yet again to attain by 2021. The commenter therefore contends that the EPA's decision to consider the 2027 attainment deadline is illegal, unexplained, and arbitrary.

Response: The EPA does not agree that it may not consider any later attainment dates simply because there are no states currently subject to that deadline. As the commenter concedes, there are also currently no areas in the east subject to the 2021 Serious area attainment date, yet the EPA nonetheless believes it is appropriate to consider both future attainment dates in selecting a future analytic year, especially in light of the limitations on additional control strategies available in the near term, as discussed in more detail later. Moreover, the EPA was required to select an analytic year before the Moderate area attainment date had passed in order to provide sufficient time to conduct air quality modeling before issuing a proposal for the state of Kentucky by the court-ordered deadline in June 2018. *See* Order, *Sierra Club* v. *Pruitt,* No. 3:15-cv-04328 (N.D. Cal. May 23, 2017), ECF No. 73. Because the Kentucky action addressed the same problem of regional interstate ozone transport for the 2008 ozone NAAQS at issue in this action, it was necessary to complete the modeling in time for the EPA to issue a proposed action for Kentucky in advance of that deadline. At that time, as the commenter notes, all areas were subject to attainment dates in 2015, 2016, or 2018, and emission reductions intended to assist with attainment by those dates would need to be achieved by the prior year's ozone season. Since all of these dates were effectively in the past (including one date that fell less than two weeks after the date of the proposal of this action), the EPA reasonably looked forward to the next potential attainment dates for purposes of this analysis.

2. Feasibility of Control Strategies To Further Reduce Ozone Season NO_X Emissions

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 EGU and non-EGU NO_X reduction strategies regionally—*i.e.,* across multiple states. This regional analytic approach is consistent with the regional nature of interstate ozone pollution transport as described in section II.A. As proposed, the agency adopted this approach for this final action based on previous interstate ozone transport analyses showing that where eastern downwind ozone problems are identified, multiple upwind states typically are linked to

[63] As discussed in Section II.D, emission reductions that were feasible and cost-effective for the 2017 ozone season were the focus of the CSAPR Update.

[64] 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. *See* CAA section 181(b)(2), 42 U.S.C. 7511(b)(2). Similarly, if any area fails to attain by the Serious area attainment date, the CAA requires that the EPA reclassify the area to Severe.

these problems.[65] Specifically of relevance to this action, as discussed in section II.C, the EPA's prospective air quality assessment of CSAPR Update implementation found that 21 states each continued to contribute greater than or equal to one percent of the 2008 ozone NAAQS (*i.e.,* 0.75 ppb) to identified downwind nonattainment or maintenance receptors in multiple downwind states in 2017. Thus, to reasonably address any remaining ozone transport problems, the EPA must identify and apportion emission reduction responsibility across multiple upwind states. In other words, given the breadth of the ozone transport problem identified in the CSAPR Update and the breadth of the remaining CAA obligations (*i.e.,* for 20 states), it is reasonable for the EPA's analysis to be regional. Where such an analysis is needed for multiple states, the inquiry into the availability and feasibility of control options is considerably more time-consuming than it would be for a single facility or 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. NO_X emissions come from multiple anthropogenic source categories, such as mobile sources, electric utilities, and stationary non-EGU sources (*e.g.,* resource extraction industries and industrial and commercial facilities). 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 emission 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 warrant further assessment of their potential to cost-effectively reduce NO_X relative to EGUs.[66] Accordingly, the EPA's assessment of control feasibility focuses on both EGU and non-EGU sources.

Although mobile source emissions also influence ozone formation, transport, and ambient concentrations, the EPA has historically addressed mobile source emissions through national rulemakings. As a result, 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 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. As discussed in more detail later, emission reductions from stationary sources could likely be implemented more quickly than would result from any attempt to effect additional reductions from mobile sources beyond those already being implemented. Thus, the EPA has focused its analysis of the feasibility of implementing additional emission controls on stationary sources.

a. EGUs

The EPA's analysis in the CSAPR Update is of particular relevance to the agency's assessment of feasible EGU NO_X mitigation strategies in this action because that rule evaluated and implemented all EGU strategies that were cost-effective and feasible to implement quickly. Accordingly, as explained in the proposal for this action, the EPA reasonably focused its current assessment of the feasibility of implementing further EGU NO_X mitigation strategies on control technologies that require more time to implement and that were thus not previously evaluated in the CSAPR Update with respect to the 2008 ozone NAAQS.

In establishing the CSAPR Update EGU ozone season NO_X emissions budgets, the agency quantified the emission 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.[67] These EGU NO_X control strategies were: Optimizing NO_X removal by existing, 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 observes that the resulting CSAPR Update emissions budgets are being appropriately implemented under the CSAPR NO_X Ozone Season Group 2 allowance trading program. 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 fell by 77,512 tons (or 21%) from 2016 to 2017.[68] As a result, total 2017 ozone season NO_X emissions from covered EGUs across the 22 CSAPR Update states were approximately 294,394 tons,[69] well below the sum of states' 2017 emissions budgets established in the CSAPR Update of 316,464 tons.[70] Further, the EPA is not aware of any relevant, significant changes in the EGU fleet since promulgation of the CSAPR Update that would necessitate reevalution of the emission reduction potential from control strategies already implemented in the CSAPR Update. Accordingly, for the purposes of this final determination, the EPA considers optimizing NO_X removal by existing, operational SCR controls, 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 for purposes of addressing the good neighbor provision for the 2008 ozone NAAQS. The EPA does not believe it would be reasonable to base its selection of a future analytic year on the timeframe for implementation of control strategies that the EPA has already evaluated in the CSAPR Update and that are already being implemented appropriately, according to the best data available at this time (*i.e.,* recent ozone season NO_X emissions data with CSAPR Update implementation).

In the CSAPR Update, the EPA also evaluated one EGU NO_X control strategy that was considered feasible to implement within one year but was not cost-effective relative to other near-term control strategies at a marginal cost of $1,400 per ton of NO_X removed: Turning on existing idled selective non-catalytic reduction (SNCR) controls. In the CSAPR Update, the EPA identified

[65] 81 FR 74538.

[66] See Assessment of Non-EGU NO_X Emission Controls, Cost of Controls, and Time for Compliance Final TSD from the CSAPR Update (U.S. EPA, August 2016) in the docket for this action.

[67] The CSAPR Update was signed on September 7, 2016, approximately 8 months before the beginning of the 2017 ozone season on May 1.

[68] *https://ampd.epa.gov/ampd/* (Data current as of October 26, 2018).

[69] *Id.*

[70] Preliminary data for the 2018 ozone season (the second CSAPR Update compliance period), which became available after the proposal for this action and after the close of the comment period, continue to indicate that CSAPR Update emissions budgets are being appropriately implemented under the trading program. Power plant ozone season NO_X emissions across the 22 state CSAPR Update region fell by 83,084 tons (or 22%) from 2016 to 2018. As a result, total 2018 ozone season NO_X emissions from covered EGUs across the 22 CSAPR Update states were approximately 288,825 tons, well below the sum of states' 2018 emissions budgets established in the CSAPR Update of 313,626 tons.

a marginal cost of $3,400 per ton as the level of uniform control stringency that represents turning on and fully operating idled SNCR controls.[71] 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 the context of the short-term control strategies being considered in that rulemaking. In finding that the $1,400 per ton control cost level was appropriate, the EPA determined that, based on the fleet characteristics of SNCR and their operation at the time of the CSAPR Update, the more stringent emissions budget level reflecting $3,400 per ton (representing turning on idled SNCR controls) yielded fewer additional emission 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. As explained in our proposed determination, the EPA continues to believe that the strategy of turning on and fully operating idled SNCR controls was appropriately evaluated in the CSAPR Update with respect to other short-term control strategies for addressing interstate ozone pollution transport for the 2008 ozone NAAQS. Further, the EPA is not aware of any significant changes in the fleet characteristics of existing SNCR and their operation since promulgation of the CSAPR Update and therefore does not find it necessary to reevaluate the cost-effectiveness of operating idled SNCR in the short term. Based on data available at this time, the EPA does not believe it would be reasonable to base its selection of a future analytic year on the timeframe for implementation of a control strategy that the EPA has already determined was not cost-effective relative to other short-term control strategies. Accordingly, in this final action the EPA is not further assessing this control strategy for purposes of identifying an appropriate future analytic year.

The remaining control strategy that the EPA evaluated in the CSAPR Update was the shifting of generation from EGUs with higher NO_X emissions rates to EGUs with lower NO_X emissions rates within the same state as a means of reducing emissions at costs commensurate with and in support of emission control technologies to reduce NO_X emissions. 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 emission control technologies—*i.e.,* combustion and post-combustion controls. Therefore, in 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 control technologies, and secondarily examined the amount of generation shifting that would result at the same time and cost threshold associated with and in support of the particular control technology. Quantifying NO_X reductions from shifting generation anticipated at the same time and cost thresholds relative to the control technologies being considered (*e.g.,* restarting idled SCR controls) helped ensure that the emission reductions associated with the control strategies could be expected to occur in the CSAPR Update's market-based implementation system. In other words, had the agency excluded consideration of generation shifting in calculating emissions budgets in step 3 in the CSAPR Update, generation shifting would have nonetheless occurred as a compliance strategy in step 4. Although potential emission reductions resulting from generation shifting were factored into the final budgets, this compliance strategy did not drive the EPA's identification of the analytic year or cost thresholds analyzed in the CSAPR Update.

Consistent with our explanation at proposal, the EPA does not find it appropriate to solely evaluate the potential for generation shifting (*e.g.,* in isolation from viable combustion or post-combustion control assessments) for purposes of selecting a future analytic year. The EPA continues to believe that generation shifting is not particularly well suited to identifying discrete analytic inputs, given its ability to be phased in on a time- and cost-continuum. Further, given CSAPR Update implementation as well as current and projected natural gas prices that are low relative to historical levels, significant shifting from higher-emitting EGUs to lower-emitting EGUs (relative to historical generation levels) is already occurring and expected to continue to occur by 2023 due to market drivers.[72] Thus, there may only be a limited opportunity, if any, for the EGUs in CSAPR Update states to implement as an interstate transport control measure further emission reductions through generation shifting prior to 2023, beyond that which is already occurring and reasonably expected to occur as a result of other factors. Given 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 strategies other than generation shifting can be implemented.[73]

For these reasons, for purposes of identifying an appropriate future analytic year, the EPA is focusing its assessment of EGUs in this action on control technologies that were deemed to be infeasible to install for the 2017 ozone season rather than reassessing controls previously analyzed for cost-effective emission 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 emissions budgets because regional implementation by 2017 was not considered feasible: (1) Installing new SCR controls; and (2) installing new SNCR controls. The EPA observed that EGU SCR post-combustion controls can achieve up to 90 percent reduction in EGU NO_X emissions. The EPA also observed that SNCR controls can be effective at reducing NO_X emissions and can achieve up to a 25 percent emission reduction from EGUs (so long as sufficient reagent is employed). In 2017, SCR controls were in widespread use across the power sector in the east, whereas SNCR controls are considerably

[71] *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).

[72] See *Electric Monthly Power.* Department of Energy, Energy Information Administration. Table 1.1 Net Generation by Energy Sources. September 2018. Also See *Total Electricity Supply, Disposition, Prices, and Emissions,* Annual Energy Outlook. Department of Energy, Energy Information Administration.

[73] Because the EPA is not in this final action 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—Response to Comment, at 534–50 (EPA–HQ–OAR–2015–0500–0572) (summarizing and responding to comments).

less prevalent. In the 22-state CSAPR Update region, approximately 62 percent of coal-fired EGU capacity is equipped with SCR controls while 12 percent is equipped with SNCR controls.[74]

The EPA notes that differences between these control technologies exist with respect to the potential viability of achieving cost-effective, regional NO_X reductions from EGUs. As just described, SCR controls generally achieve greater EGU NO_X reduction efficiency (up to 90 percent) than SNCR controls (up to 25 percent). Resulting in part from this disparity in NO_X reduction efficiency, the EPA found new SCR controls to be more cost-effective at regionally removing NO_X when considering both control costs and the NO_X reduction potential in developing its cost-per-ton analysis for the CSAPR Update. Specifically, the EPA found that new SCR controls could generally reduce EGU emissions at a marginal cost of $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.[75] In other words, the greater NO_X reduction efficiency for SCR controls translates into greater cost-effectiveness of NO_X removal relative to SNCR controls. Simply put, SCR can achieve significantly more regional NO_X reduction at a lower cost per ton than SNCR. The general NO_X mitigation and cost-effectiveness advantage of SCR is also consistent with observed installation patterns where SCR controls (62 percent of coal-fired capacity) are more prevalent across the CSAPR Update states relative to SNCR (12 percent of coal-fired capacity). Moreover, as discussed in response to a comment later in this section, installation of SNCR still takes significant time as compared to the 2008 ozone NAAQS attainment dates and SNCR installation at an individual source would likely make later installation of an SCR cost-prohibitive and therefore forgo the potential for greater emission reductions that could be achieved at that source from the latter technology in the future. Considering these factors, the EPA believes it is appropriate to give particular weight to the timeframe required for implementation of SCR across the region as compared to SNCR.

For SCR, the total time associated with project development is estimated to be up to 39 months for an individual power plant installing controls on more than one boiler.[76] However, more time is needed when considering installation timing for new SCR controls regionally, for CSAPR Update states. As described in the subsequent paragraphs, the EPA has determined that a minimum of 48 months (4 years) is a reasonable time period to allow to complete all necessary steps of SCR projects at EGUs on a regional scale. This timeframe would allow for regional implementation of these controls (*i.e.,* at multiple power plants with multiple boilers) considering the necessary stages of post-combustion control project planning, shepherding of labor and material supply, installation, coordination of outages, testing, and operation. SNCR installations, while generally having shorter project timeframes (*i.e.,* up to 16 months for an individual power plant installing controls on more than one boiler), share similar implementation steps with and also need to account for the same regional factors as SCR installations.[77] Therefore, the EPA finds that more than 16 months would be needed to complete all necessary steps of SNCR development at EGUs on a regional scale. Despite EPA's prioritization of SCR as compared to SNCR in identifying the timeframe for installing new controls, the EPA notes that installing these post-combustion controls (SCR or SNCR) involve very similar steps and many of the same considerations. The timing of their feasible regional development is therefore described together in the following paragraphs.

Installing new SCR or SNCR controls for EGUs generally involves the following steps: Conducting an engineering review of the facility to determine suitability and project scope; 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.[78] These timeframes are intended to accommodate a plant's need to conduct an engineering assessment of the possible NO_X mitigation technologies necessary to then develop and send a bid request to potential suppliers. Control specifications are variable based on individual plant configuration and operating details (*e.g.,* operating temperatures, location restrictions, and ash loads). Before making potential large capital investments, plants need to complete these careful reviews of their system to inform and develop the control design they request. They then need to solicit bids, review bid submissions, and award a procurement contract—all before construction can begin.

An appropriate regional control implementation timeframe should also accommodate the additional coordination of labor and material supply necessary for any regional NO_X mitigation efforts. For example, the total construction labor for a SCR system associated with a 500-megawatt (MW) EGU is in the range of 330,000 to 350,000 person-hours, with boilermakers accounting for approximately half of this time.[79] In a 2017 industry survey, 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 professional retirements and comparatively low numbers of apprentices joining the workforce.[80] 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.[81] Moreover, recovery efforts from the natural disasters of recent hurricanes (*e.g.,*

[74] National Electric Energy Data System v6 (NEEDS). EPA (September 2018). Available at *https://www.epa.gov/airmarkets/national-electric-energy-data-system-needs-v6.*

[75] EGU NO_X Mitigation Strategies Final Rule TSD.

[76] 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.*

[77] A month-by-month evaluation of SNCR installation is discussed in EPA's ''Engineering and Economic Factors Affecting the Installation of Control Technologies for Mulitpollutant Strategies'' at Exhibit A–6 and in EPA's NO_X Mitigation Strategies TSD. As noted at proposal, the analysis in this exhibit estimates the installation period from contract award as within a 10–13 month timeframe. The exhibit also indicates a 16-month timeframe from start to finish, inclusive of pre-contract award steps of the engineering assessment of technologies and bid request development. The timeframe cited for installation of SNCR at an individual source in this final action is consistent with this more complete timeframe estimated by the analysis in the exhibit.

[78] 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.*

[79] *Id.*

[80] Occupational Outlook Handbook. Bureau of Labor Statistics. Available at *https://www.bls.gov/ooh/construction-and-extraction/boilermakers.htm.*

[81] 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.*

Harvey, Irma, Florence, and Michael) and wildfires in 2017 are expected to further tighten the labor supply market in manufacturing in the near term.[82] The EPA determined that these tight labor market conditions within the relevant manufacturing sectors, combined with regional NO_X mitigation initiatives, would likely lead to some sequencing and staging of labor pool usage in implementing control technologies, rather than simultaneous construction across all efforts. This sector-wide trend supports SCR and SNCR installation timeframes for a regional program that exceed the demonstrated single-facility 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 reported as having a well-above-average supply-side shortage of labor.[83] This, coupled with growth in steel demand estimated at three percent in 2018 suggests that there may be a constricted supply of steel needed for installation of new post-combustion controls.[84] 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 available labor.[85] [86] The tightening markets in relevant skilled labor, materials, and equipment, combined with the large number of installations that could be required under a regional air pollution transport program, necessitates longer installation timetables relative to what has been historically demonstrated at the facility level.

Further, scheduled curtailment, or planned outage, for pollution control installation would be necessary to complete SCR or SNCR projects on a regional scale. Given that peak demand and rule compliance would both fall in the ozone season, sources would likely need to schedule installation 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 be developed to reasonably encompass multiple shoulder seasons to accommodate scheduling of curtailment for control installation purposes and better accommodate the regional nature of the program.

Finally, the time lag observed between the planning phase and in-service date of SCR operations in certain cases also illustrates that site-specific conditions can lead to installation times of four years or longer—even for individual power plants. 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.[87] Similarly, individual SNCR projects can exceed their estimated 16-month construction timeframe. For example, the SNCR installation at the Jeffrey power plant (Kansas) was in the planning phase in 2013 but not in service until 2015.[88] Further, large-scale projects also illustrate that timelines can extend beyond the general estimate for a single power plant when the project is part of a larger, multifaceted air pollution reduction goal. For instance, the Big Bend power plant in Florida completed a multifaceted project that involved adding SCRs to all four units as well as converting furnaces, over-fire air changes, and making windbox modifications. A decade elapsed between the initial planning stages and completion.[89]

In summary, while facility-level SCR and SNCR projects can themselves take up to 39 and 16 months, respectively, a comprehensive and regional emission reduction effort requires more time to accommodate the labor, materials, and outage coordination for these two types of control strategies. Given the extra weight given to SCR controls due to their greater NO_X reduction efficiency and cost-effectiveness as well as the time to regionally develop and implement SCRs as a control strategy for CSAPR Update states, the EPA concludes that 48 months would be a reasonable and expeditious timeframe to coordinate the planning and completion of further regional NO_X mitigation efforts.

Comment: Several commenters contend that the EPA's assessment of emission reductions available from existing EGU NO_X controls in the CSAPR Update is insufficient. These comments suggested that additional reductions are available from existing SCR NO_X controls before 2023 because the EPA's use of a 0.10 lb/mmBtu emission rate in its calculation of emission budgets was not reflective of the total reduction potential from SCR optimization. The commenters provide analysis using the unit-level ozone-season emission rates between 2005–2016 and suggest that the EPA should have relied on each unit's best performing ozone-season emission rate from a given year in that period to determine the emission rate at which each unit's SCR is fully optimized. The commenters suggest that because the optimization of SCRs at a lower rate can be achieved prior to 2023, the EPA should examine air quality in an earlier analytic year.

Response: The EPA does not agree that it is necessary to consider any further emission reductions ostensibly available from the optimization of existing SCRs. As described in the following paragraphs, the agency's assessment of NO_X reduction potential from existing SCR controls used in establishing CSAPR Update emission budgets remains appropriate. Moreover, as discussed later in this notice, the best data available at this time—2017 EGU emission data reflecting CSAPR Update implementation—indicate that in general these controls are optimally operating to mitigate NO_X emissions across the CSAPR Update region. Thus, control optimization for existing SCRs has already been addressed in the CSAPR Update and emission reductions associated with the ''additional'' control technology proposed by commenters are being commensurately realized through implementation of the CSAPR Update's

[82] 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.*

[83] 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.*

[84] 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.*

[85] *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/.*

[86] See RLB Crane Index, January 2018 in the docket for this action.

[87] 2014 EIA Form 860. Schedule 6. Environmental Control Equipment.

[88] 2013 EIA Form 860, Schedule 6, Environmental Control Equipment.

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

allowance trading program. The EPA therefore does not agree that a control strategy that is already being appropriately implemented should guide its selection of a future analytic year.

In the CSAPR Update, the EPA determined that, based on an aggregation of unit-level emission rates, an average fleet-wide emission rate of 0.10 lb/mmBtu would represent the optimized operation of SCR controls that were not already being operated and optimized. 81 FR 74543. In concluding that this rate would be appropriate for calculating emission reduction potential from implementation of this control strategy, the EPA recognized that some units would have optimized rates above that level and some below that level. 81 FR 74543. The EPA explained that it used data from 2009 through 2015 and calculated an average NO_X ozone-season emission rate across the fleet of coal-fired EGUs with SCR for each of those years. It then selected the third-best (*i.e.,* third-lowest) yearly rate for each unit, noting that it did not find it prudent to use the first- and second-best yearly rate because the best-performing data from those years is likely to reflect the utilization of new SCR systems, all of whose components were new in that year (*e.g.,* new layers of catalyst), and may not be representative of an ongoing, achievable NO_X rate once one or more SCR components have begun to degrade with age. *Id.* The third-to-lowest year average was 0.10 lb/mmBtu. In the CSAPR Update, the EPA applied that fleet-wide average to units with SCR that were not already emitting at or below that NO_X emission rate. For units operating at or below that level in 2015 (the starting year from EPA's budget-setting methodology), the EPA continued to utilize that lower rate. The EPA in the CSAPR Update already addressed comments regarding the reasonableness of its approach to calculating an appropriate emission rate and did not, in this action, request additional comment on the EPA's determination finalized in the CSAPR Update that 0.10 lb/mmBtu was a reasonable rate to represent optimized SCR controls.[90] 81 FR 74544. The issue is also currently the subject of litigation before the D.C. Circuit in *Wisconsin* v. *EPA,* No. 16–1406. Accordingly, the EPA does not believe this issue is properly within the scope of this action.

The EPA continues to believe its approach in the CSAPR update was prudent and reasonable for purposes of calculating emission reductions achievable from the optimization of existing SCR controls and is not changing its approach in this action. While commenters suggest alternative emission rates would have been more appropriate, they have not demonstrated that the EPA's approach is unreasonable. In particular, the EPA does not agree with commenters that suggest that the EPA should have used a value derived by relying on a 2005–2016 baseline (as opposed to the 2009–2015 baseline years used by EPA) and selecting the single best year (*i.e.,* the lowest average ozone-season rate for SCR-controlled units in any given year) rather than the third-best year. The EPA continues to find, as it did in the CSAPR Update, that using a baseline starting in 2009 is more appropriate because that year coincided with the onset of annual operation for most SCR controls under the CAIR annual NO_X program. Prior to 2009, these controls operated seasonally, which allowed substantial time during the fall, winter, and spring for routine maintenance and repair of the SCR, as well as replacement of catalyst. This seasonal operation is not representative of current or reasonably anticipated future operation of these units that have been and continue to be subject to annual NO_X requirements, first under CAIR and now under CSAPR. Further, the agency notes that the power sector has undergone significant changes in recent years due to economic factors and technological advances (*e.g.,* natural gas production from horizontal fracking technology advancements). As a result, the agency believes that it is more appropriate to focus its analysis on relatively more recent years of data, rather than to include a significant number of years that preceded the set of current economic and technological conditions affecting and driving outcomes in the sector. In other words, the agency is more confident that recent data are an appropriate basis to reasonably project future economic and technological conditions with respect to operation of EGUs and their NO_X controls. The agency is not confident that older (*i.e.,* pre-2009 data) would be an appropriate basis to reasonably project future economic and technological conditions with respect to operation of EGUs and their NO_X controls. The EPA therefore believes its approach in the CSAPR Update was reasonable and preferable for the 2008 ozone NAAQS compliance assumptions, and retains that approach in this action.

The EPA also believes that its decision to rely on the third-best seasonal emission rate was more appropriate than the commenter's suggestion that the EPA select the emission rate from the best performing year. By selecting the third-best seasonal rate, the EPA avoided selecting times when SCR controls were newly constructed for most units or may have been recently refreshed/replaced with all-new catalyst. Complete catalyst change may have occurred at the onset of major NO_X reduction programs or at a time when the purpose of the catalyst use changed (such as simultaneously optimizing for mercury (Hg) removal under the Mercury and Air Toxic Standards (MATS) program). By selecting the third-best seasonal rate out of the 2009–2015 time period, the agency evaluated repeatable, low-NO_X control operation consistent with ongoing operation and maintenance of SCR controls.

Comment: A commenter asserts that the EPA should consider operation of existing SNCR controls for purposes of selecting a future analytic year, rather than considering cost-effectiveness to eliminate utilization of some potentially feasible controls. The commenter contends that the EPA's use of cost-effectiveness as a bright line for determining what measures are appropriate for fully meeting the good neighbor SIP obligations for upwind states is both erroneous and, as applied here, arbitrary and capricious. The commenter states that, even if the CSAPR Update could be read to conclude that operation of SNCR was not cost-effective at that time, this conclusion was limited to the purposes of the partial solution in that rule. The commenter claims that the CSAPR Update did not deem operation of SNCR to never be cost-effective, particularly in circumstances where the EPA has found no other less-expensive way to reduce emissions. The commenter concludes that, if EPA is using cost to eliminate potentially available solutions, it must reevaluate these costs, not merely rest on cost data from the CSAPR Update that are now several years old.

Response: The EPA does not agree that the timeframe for operating existing SNCR should influence its selection of a future analytic year. As discussed earlier, the EPA's assessment in the CSAPR Update indicated that the $3,400 per ton NO_X control stringency (representing turning on idled SNCR) was not cost-effective relative to other short-term control strategies considered in that rulemaking. This conclusion was based on the fact that EGUs with idled SNCR in the CSAPR Update analysis

[90] 83 FR 31937 (indicating that EPA is not reconsidering or reopening any analyses conducted or determinations made in the CSAPR Update).

were relatively few and relatively small, such that few NO_X reductions were incrementally achievable from operation of idled SNCR compared to other near-term control strategies available, while the difference in cost per ton compared to the other strategies was relatively large. Accordingly, the EPA found that the level of NO_X control stringency reflecting operation of idled SNCR did not maximize NO_X reduction potential and air quality improvement relative to cost. Although the commenters suggest that the EPA should reevaluate the cost-effectiveness of operating idled SNCR, the commenters have not provided any data to the agency that would indicate the agency's analysis would significantly change. Rather, the EPA's conclusion in the CSAPR Update is further supported by reported 2017 data which show that there were 55 coal units operating in the CSAPR Update region with SNCR installed with a weighted average ozone-season emission rate of 0.14 lb/mmBtu, indicating that existing SNCR-controlled units are already widely operating and would likely provide little opportunity for additional reductions.[91]

The EPA notes that the agency's analysis in the CSAPR Update was specific to the conditions evaluated therein. Thus, the EPA's conclusion that the feasibility of implementing SNCR should not inform the potential compliance timeframe and the identification of the future analytic year would not have precluded the EPA from considering whether the operation of SNCR would be cost-effective relative to the installation of the post-combustion controls discussed earlier in this section. Had the EPA, at step 1 of the four-step framework, identified continued downwind air quality problems in the future analytic year, the EPA could have considered at step 3 whether it would be cost-effective to require upwind states linked at step 2 to make emission reductions consistent with operation of existing SNCR relative to other longer-term control strategies like the implementation of new post-combustion controls. However, because EPA has already concluded that operation of existing SNCR is not cost-effective in the near term, the EPA does not agree that it would be reasonable for EPA to select an earlier analytic year that would only be consistent with the timeframe for implementing that particular compliance strategy.

Comment: Several commenters contend that the EPA's implementation of emission reductions via an allowance trading program is not sufficient to guarantee that existing SCRs will continue to run in the future (especially in light of low allowance prices). The commenters therefore contend that further reductions are available from existing EGU controls. The commenters suggest that EPA needs to ensure daily operation of SCR controls and that the seasonal nature of the trading program does not do so.

Response: The EPA begins by pointing out that the commenter appears to be attempting to reopen a determination made in the CSAPR Update regarding how best to implement the emission reductions required by that rule. The question of whether an allowance trading program is sufficient to ensure emission reductions, relative to other forms of emission limitations, was raised by commenters and addressed in the CSAPR Update.[92] The EPA did not, in this action, request additional comment on the appropriateness of an allowance trading program to ensure the CSAPR Update emission reductions would be achieved,[93] and it is therefore not re-opening the issue in this action. Moreover, even if this issue were within the scope of this action, the commenters have not explained how this concern should influence the EPA's selection of the future analytic year used in this action. Accordingly, the relative effectiveness of the CSAPR Update allowance trading program to ensure emission reductions commensurate with optimizing SCR, as compared to daily limits, is outside the scope of this action.

Nonetheless, the EPA notes that current data refute commenters' assertion that allowance trading has been insufficient to achieve the emission reductions associated with the operation and optimization of existing SCRs. The best currently available data indicate that sources in in CSAPR Update states are indeed operating SCRs in order to comply with the CSAPR Update allowance trading program. Data from 2017, the first year of ozone-season data that would be influenced by the CSAPR Update compliance requirements, are consistent with the EPA's assumption that the allowance trading program would incentivize SCR operation on a fleet-wide level. The average emission rate for the 83 SCR-controlled units in the CSAPR Update region that were not previously emitting with a NO_X rate at or below 0.10 lb/mmBtu in 2016 and are still operating in 2017 dropped by 45% from 0.22 lb/mmBtu to 0.12 lb/mmBtu between 2016 and 2017—the first ozone season of CSAPR Update implementation.[94] Not only is the program effective at encouraging these particular units to achieve a better performance rate, it also encourages the wider universe of SCR-controlled units to keep operating their controls. In 2017, 261 of 274 EGUs with SCR in the U.S. had ozone-season emission rates below 0.20 lb/mmBtu (194 of 202 in CSAPR Update states), indicating that they were likely operating their post-combustion controls throughout most of the ozone season. The 274 units were operating at an average emission rate of approximately 0.088 lb/mmBtu. Of the 13 units with 2017 emission rates above 0.20 lb/mmBtu, five are located in states outside of the CSAPR Update region, five have preliminary 2018 ozone season NO_X emission rates below 0.20 lb/mmBtu, and one has retired (Killen unit 2 in Ohio).[95] Consequently, the EPA finds that on average, SCR-controlled units appear to be operating their SCRs throughout the season, and that the petitioner's assertion regarding the likelihood of not operating controls is therefore not supported by the most recently available data. The EPA has not identified a basis for reevaluating emission reductions available from optimizing SCRs and it therefore does not believe it would be reasonable in light of this data to select an earlier analytic year on the basis of this control strategy.

Notwithstanding the EPA's finding that SCRs are currently operating consistent with optimizing NO_X reduction potential, the EPA notes that SCR operation is not the sole metric with which to gauge success of a cap-and-trade program. Rather, the success of the program is ultimately indicated

[91] Preliminary data for the 2018 ozone season, which became available after the proposal for this action and after the close of the comment period, continue to support this conclusion by showing that there were 48 coal units operating in the CSAPR Update region with SNCR installed with a weighted average ozone-season emission rate of 0.148 lb/mmBtu.

[92] CSAPR Update—Response to Comment (EPA–HQ–OAR–2015–0500–0572).

[93] 83 FR 31937 (indicating that EPA is not reconsidering or reopening any analyses conducted or determinations made in the CSAPR Update).

[94] Preliminary data for the 2018 ozone season, which became available after the proposal for this action and after the close of the comment period, continue to support this conclusion. The average emission rate for the 73 SCR-controlled units in the CSAPR Update region that were not previously emitting with a NO_X rate at or below 0.10 lb/mmBtu in 2016 and are still operating in 2018 dropped by 40% from 0.201 lb/mmBtu to 0.121 lb/mmBtu between 2016 and 2018—the second ozone season of CSAPR Update implementation. Additionally, preliminary 2018 data indicate that the 192 coal units operating in the CSAPR Update region with SCR installed had a weighted average ozone-season NO_X emission rate of 0.086 lb/mmBtu.

[95] *Source:* AMPD (*ampd.epa.gov*), EPA, 2018.

not by the employment of any particular control strategy, but rather by regionwide and state-level emission reductions. The CSAPR Update has contributed to a 21 percent reduction in regionwide NO_X emissions in its first year, below the cumulative level of the budgets, and all states operated well below their assurance levels.[96] If some SCRs are not performing at lower rates, but commensurate reductions are achieved elsewhere in the state, this demonstrates one of the benefits of a market-based trading program: It helps participants identify and make the least-cost reductions. The EPA does not agree that such a result, even accepting the commenter's analysis for the sake of argument, demonstrates that the allowance trading program is ineffective at achieving the intended emission reductions simply because the covered sources chose an alternative pathway to comply with the program's requirements.

The EPA has also not identified a need to supplement the allowance trading program established in the CSAPR Update with additional emission limits in order to promote the daily operation of controls. The EPA examined the hourly NO_X emissions data reported to the EPA and did not observe a significant number of instances of units selectively turning down or turning off their emission control equipment during hours with high generation. SCR-controlled units generally operated with lower emission rates during high generation hours, suggesting SCRs generally were in better operating condition—not worse condition, let alone idling—during those days/hours. In other words, the EPA compared NO_X rates for EGUs from hours with high energy demand, compared them with seasonal average NO_X rates, and found very little difference. Thus, the data do not support the notion that units are reducing SCR operation on high demand days and that consequently a narrower compliance timeframe is needed to incentivize them to run on a daily basis. An examination of average daily NO_X emission rates for SCR-controlled units in the CSAPR Update region shows that 2017 emission rates were significantly lower than 2016 and 2015. The seasonal decline in emission rate was also observed on a daily basis in the CSAPR Update region: Out of 153 days in the ozone season in 2017, all 153 days had lower average emissions rates among SCR-controlled sources than the same day in 2016.[97] Moreover, the auxiliary power used for control operation is small—typically less than one percent of the generation at the facility—and it is therefore unlikely that sources would cease operation of controls for such a limited energy savings. Instead, the data indicate that increases in total emissions on days with high generation are generally the result of additional units that do not normally operate coming online to satisfy increased energy demand and units that do regularly operate increasing hourly utilization, rather than reduced functioning of control equipment. Thus, the EPA does not agree that there are additional limitations that should be implemented to achieve emission reductions from the optimization of existing SCRs.

Comment: One commenter suggests that the EPA can achieve additional emission reductions in the short term by reducing budgets to account for the accumulation of banked allowances. The commenter contends that this would support higher allowance prices under the CSAPR NO_X Ozone Season Group 2 program, thereby incentivizing continued SCR operation and further cost-effective reductions in NO_X emissions.

Response: The EPA first notes that, to the extent the commenter is challenging the EPA's decision in the CSAPR Update permit the continued use of certain banked allowances, the agency already addressed comments regarding this issue in that rulemaking, 81 FR 74557, and did not, in this action, request additional comment on its determination with regard to this issue as finalized in the CSAPR Update.[98] The issue is also currently the subject of litigation before the D.C. Circuit in *Wisconsin* v. *EPA.* Accordingly, the EPA does not believe concerns regarding the bank of allowances that were carried over in the CSAPR Update are properly within the scope of this action. To the extent the commenter suggests that the EPA eliminate the current bank of allowances to achieve further NO_X emission reductions in the future, the EPA does not believe that the mere presence of a bank of allowances indicates that such additional emission reductions are actually achievable in practice. Current program design elements, specifically the assurance provisions, are already in place to incentivize the control operation referred to by the commenter and ensure emission reductions. Moreover, the most recently observed historical data suggest these controls are widely operating in the compliance period and that their operation is not undermined by the existence of the bank as suggested by the commenter.

First, the CSAPR Update includes assurance provisions that help ensure that EGUs in each covered state collectively limit their emissions. These provisions include an assurance level for each state that serves as a statewide emissions limit that cannot be exceeded without penalty. This assurance level is the sum of the state emission budget plus a variability limit equal to 21 percent of the state's ozone-season budget. This means that collective EGU emissions in each state cannot exceed 121 percent of the state budget level without incurring penalties. The assurance levels are designed to help ensure that emissions are reduced in each covered state of a region-wide trading program while acknowledging and accommodating the inherent variability in electricity generation and NO_X emissions due to year-to-year changes in power sector market conditions. These assurance levels help ensure that emission reductions, including those associated with the optimization of existing controls on which the CSAPR Update budgets were based, continue to be implemented. Therefore, even with fleet turnover and a growing allowance bank, EPA anticipates that the assurance limit will maintain downward pressure on state-level emissions.

Second, the commenter misconstrues the emissions impact of an allowance bank and does not provide further evidence that would be needed to show that real-world emission reductions are available. A bank of allowances, first and foremost, represents emission reductions and not an emissions liability. Specifically, an allowance bank represents allowable emissions that have not been emitted into the atmosphere, converted into ozone, or transported downwind to impact the ability of downwind areas to attain or maintain the NAAQS. The commenter essentially asserts that an allowance bank will necessarily undermine the operation of NO_X controls. However, as described previously, the best currently available data (*i.e.,* recent EGU emissions data with CSAPR Update implementation) indicate that existing controls are being operated consistent with optimizing for NO_X mitigation. As such, the agency finds that, at this time, the accumulation of the allowance bank primarily represents emission reductions, and is not creating the incentive for controls to be idled. Because the emission reductions sought

[96] *Source:* AMPD (*ampd.epa.gov*), EPA, 2018.

[97] *Source:* AMPD (*ampd.epa.gov*), EPA, 2018.

[98] 83 FR 31937 (indicating that EPA is not reconsidering or reopening any analyses conducted or determinations made in the CSAPR Update).

by the commenter (via operation of existing SCRs) are in fact already being implemented across the region, the EPA has no reason to believe that additional emission reductions could be achieved by either eliminating the banked allowances or adjusting the budgets in some manner commensurate with the current level of banked allowances. As such, the emission reduction potential asserted by commenters is hypothetical and the EPA has no reason to believe at this time that the adjustments to the bank would lead to significant real-world NO_X reductions.

Comment: The EPA received several comments on the proposed determination regarding its assessment of new EGU NO_X control strategies, suggesting that new NO_X emission mitigation technologies are available prior to 2023 and that the EPA's reliance on the feasibility of regional installation of SCRs for selection of a future analytic year is arbitrary and capricious. The commenter further questions the EPA's estimate for installation of SCRs and suggests they can be installed at a faster pace, noting that the EPA allowed for just 30 months under the initial CSAPR promulgated in 2011. They assert that the EPA has not adequately demonstrated that the market for labor and materials, while observed to be strained, is more strained than previous environments. The EPA notes that other commenters agreed with the EPA's timeline for implementation of new mitigation technologies and asserted that that it would be infeasible for EGUs to install new SCRs or SNCRs in less than four years. The commenters observe that in many cases it may take longer due to planning and the outage window required for implementation of such controls. They suggest that the EPA should consider a later analytic year because not doing so puts the EPA at risk of over-controlling as some plants that could not install controls by 2023 would install them at a later date when those reductions are no longer needed.

Response: For the reasons discussed earlier in this notice, the EPA believes that conducting a regional analysis ensures that the Agency can fully evaluate remaining obligations pursuant to the good neighbor provision with respect to the 2008 ozone NAAQS. As the EPA has routinely found throughout nearly 20 years of interstate transport rulemakings, the ozone transport problem is regional in nature, in that downwind states' problems attaining and maintaining the ozone NAAQS result from the contribution of pollution from multiple upwind states, with multiple upwind states routinely contributing to multiple downwind states' air quality problems in varying amounts. With respect to the 2008 ozone NAAQS, the EPA determined in the CSAPR Update rulemaking that, collectively, 22 upwind states contributed at or above the 1 percent threshold to downwind air quality problems at one or more of 19 different receptor locations in the eastern United States. Individual upwind states contributed to between 1 and 8 downwind nonattainment or maintenance receptors and, in a number of cases, upwind states also contained at least one receptor indicating a downwind air quality problem to which other states contributed. Given the multi-faceted nature of ozone transport, the Supreme Court has acknowledged that the EPA is faced with the burden to determine ''how to differentiate among otherwise like contributions of multiple upwind states.'' *EME Homer City,* 134 S. Ct. at 1607. As the Supreme Court acknowledged, the statute is silent as to which metric the EPA should use to decide the apportionment of the shared obligation to address a downwind air quality problem among multiple upwind states—what the Court referred to as the ''thorny causation problem.'' *Id.* at 1603–04.

Accordingly, because ozone air quality problems (and in particular interstate transport) are regional in nature, the EPA has developed—and the Supreme Court has endorsed—a regional approach for quantifying individual states' emission reduction obligation. In particular, the EPA has developed a two-pronged metric (constituting steps 2 and 3 of the four-step transport framework) to identify the amounts of an upwind state's emissions that ''contribute significantly to nonattainment'' or ''interfere with maintenance'' of the ozone NAAQS in a downwind state to which it is linked. The EPA identifies those emissions that *both:* (1) Contribute 1 percent or more of the NAAQS to an identified downwind air quality problem (*i.e.,* the identification of linkage at CSAPR framework step 2); *and* (2) can be eliminated through implementation of cost-effective control strategies, applied uniformly to all states linked to an air quality problem (*i.e.,* the quantification of emission reductions at CSAPR framework step 3). When evaluating at step 3 whether a control strategy is cost-effective for this purpose, the EPA considers the incremental cost per ton of emissions reduced, the magnitude of emissions that can be reduced using a particular control strategy, and the downwind air quality benefits of implementing such emission reductions. 81 FR at 74519. The Supreme Court found this approach, as applied in the original CSAPR rulemaking, to be ''an efficient and equitable solution to the allocation problem the Good Neighbor Provision requires the Agency to address.'' *Id.* at 1607. The Court held that this approach is: ''[e]fficient because EPA can achieve the levels of attainment, *i.e.,* of emission reductions, the proportional approach [urged by respondants in *EME Homer City*] aims to achieve, but at a much lower overall cost. Equitable because, by imposing uniform cost thresholds on regulated States, EPA's rule subjects to stricter regulation those States that have done relatively less in the past to control their pollution. Upwind States that have not yet implemented pollution controls of the same stringency as their neighbors will be stopped from free riding on their neighbors' efforts to reduce pollution. They will have to bring down their emissions by installing devices of the kind in which neighboring States have already invested.'' *Id.*

Given the regional nature of the ozone pollution problem and the requirement that the EPA determine the remainder of its good neighbor FIP obligation with respect to the 2008 ozone NAAQS for 21 states in the CSAPR Update region, the EPA reasonably applied the regional framework endorsed by the Supreme Court as an ''efficient and equitable'' approach to resolving the remaining good neighbor obligations interstate transport problem. *Id.* at 1607. Accordingly, the EPA evaluated the contributions of all upwind states that are linked to a given downwind air quality problem, rather than quantifying the significant contributions of single states or sectors in a vacuum. Similarly, the EPA evaluated potential control strategies to address that contribution on a regional, rather than facility- or state-specific, basis. Such an approach also ensures that each state's contributions to downwind air quality problems are quantified relative to the contribution of the other contributing states.

The commenters are also incorrect to assert that the agency's conclusion that 48 months should be provided for the implementation of new SCR is in conflict with its position in the original CSAPR rulemaking. In the original CSAPR, the EPA established NO_X emission budgets in CSAPR based on a cost threshold of $500 per ton, which was not anticipated to drive any new SCR installation in either compliance phase. *See* Table VII.C.2–1, 76 FR 48279 and discussion at 76 FR 48302. As such, this control strategy was not central to CSAPR Update implementation.

Notwithstanding that SCR post-combustion controls were omitted from the EPA's CSAPR emissions budgets at the time, to the extent labor and supply markets were a consideration for installation timing requirements for scrubbers in CSAPR in 2011, those variables have changed over the last seven years. For instance, the EPA noted a sharp drop in boilermaker person-hours worked between 2008 and 2010, suggesting that the market at that time had substantial underutilized capacity whereas today's industry surveys identify labor shortages.[99] The EPA also disagrees with the commenter's assertion that these observations regarding crane and steel markets are not reasonable and thus should not influence the EPA's analysis. While not the sole reason for the EPA's conclusion that a 48-month timeframe would be necessary for region-wide control installation, the EPA believes the market for labor and materials is a relevant weight-of-evidence consideration in light of reports from companies that supply the tower cranes that there is a shortage of both equipment and available labor. The crane index and quarterly construction costs reports are metrics regularly used to evaluate construction activity by construction consultants and provide a sense of equipment demand. Moreover, the commenter provides no evidence to refute the EPA's finding that these equipment markets are facing periods of higher demand.

Thus, while the EPA does not agree that it is reasonable to consider a timeframe longer than four years for the expeditious, region-wide implementation of SCR controls, neither does the EPA agree that it would be reasonable to assume any shorter timeframe under the circumstances.

Comment: Some commenters assert that the EPA could identify an earlier analytic year based on the installation of new SNCRs because the controls can be implemented more quickly than SCRs.

Response: As explained above, the EPA does not agree that that the regional installation of SNCRs should drive EPA's selection of an appropriate future analytic year, primarily because SCR controls are more effective at reducing NO_X emissions and because SCR controls are more regionally cost-effective at mitigating NO_X. Specifically, the EPA estimates the amount of reductions available by SCR installation at uncontrolled sources is nearly triple that available from SNCR installation.[100] This difference is significant because the agency is tasked with issuing FIPs that fully resolve good neighbor obligations and therefore the agency finds it reasonable to focus its analysis on the timeframe for installing controls that would be best suited to achieve that goal in terms of NO_X mitigation, downwind air quality improvement, and cost—*i.e.,* SCR controls. Further, as described in the subsequent paragraphs, the EPA finds that the regionally implementing NO_X reductions from SNCR would still take a significant amount of time and would significantly hamper the ability of these EGUs to obtain further emission reductions from installation of SCRs in the future.

First, the EPA noted above that the estimated timing to install SNCR for multiple boilers at one power plant is approximately 16 months—and can take even longer in practice. Accounting for the regional factors that must be considered (described previously), it would take more than 16 months for this control strategy to be regionally implemented. Starting with promulgation of this action in December of 2018, the agency believes it would take well into 2020 for these controls to be feasibly implemented, regionally. As a result, it is very unlikely that these controls could affect ozone season NO_X attainment demonstrations made in July 2021 for areas designated serious for the 2008 ozone NAAQS.

Finally, the agency notes the potential for inefficiency in effectively controlling NO_X emissions in the long term by prioritizing SNCR controls now to the detriment of future NO_X mitigation potential from SCR controls. Installing an SNCR at a unit in the near term and then upgrading or retrofitting the unit to an SCR a few years down the road would effectively increase the cost per ton of that eventual SCR installation as compared to installing the SCR in the first place. The main difference between the two systems is the temperature window at which the reaction takes place. With an SNCR, that window is 900–1050 degrees Celsius, whereas it drops to a range of 160 to 350 degrees Celsius for an SCR. These differentials in optimal temperatures influence the location and modifications necessary for each retrofit technology and therefore complicate any transition from SNCR to SCR. SNCR can be described as including a silo or tank (for reagent), a conveyance system for the reagent, and a properly placed injection lance in the furnace. In terms of volume occupied, over 90 percent of the system exists outside the flue gas path. The SCR system, on the other hand, requires a catalytic reactor and is placed downstream of the economizer. An SCR occupies a significant space as the catalytic reactor resides in a dedicated multi-story structure elevated above ground elevation. Over 90 percent of an SCR's volume exists within the flue and duct work.

The two systems are unique and distinct from one another in their approach to reducing NO_X and the equipment cannot be shared or dual-purposed due to the size differences, conversion rates, and reagent material flows based on the application (namely, the location within the flue gas stream). Consequently, almost none of the capital cost incurred for an SNCR system can be credited towards installation of an SCR system. This would result—in most cases—in a higher overall cost to get to the same level of emission reductions if a source first installed an SNCR and then upgraded to an SCR as opposed to the initial installation of an SCR. Such a retrofit would also likely increase the amount of work, and therefore time, to complete the SCR installation.

Thus, selecting an analytic year and imposing emission reductions focused on installation of SNCR alone at an earlier date (if this could even occur on an earlier timeframe regionwide) would potentially obviate a source's ability to cost-effectively install SCR, a more effective NO_X control, at a later date. The EPA's obligation in this action was to fully address states' good neighbor obligation for the 2008 ozone NAAQS. Therefore, it was reasonable for the EPA to select a future analytic year that would allow for advanced control installation which would deliver significant reductions, if they were determined to be necessary. Choosing an earlier analytic year based on the installation of a SNCR alone would potentially be counterproductive to EPA's objective to address states' full obligations and severely limit sources' ability to obtain more significant emission reductions from SCR in the future to address other control obligations.

b. Non-EGU Control Technologies

The EPA is also evaluating the feasibility of implementing NO_X control

[99] Labor Availability for the Installation of Air Pollution Control Systems at Coal-Fired Power Plants. Andover Technology Partners. October 18, 2011. Available at *http://www.andovertechnology.com/images/boilermaker%20labor%20availability%20final_jes_%2010%2018%202011.pdf.*

[100] Based on 2017 ozone-season NO_X data. Applying SCR reduction potential of 90 percent (up to a 0.07 lb/mmBtu floor) as opposed to 25 percent reduction for SNCR to 2017 emission levels for uncontrolled coal sources emitting at 0.15 lb/mmBtu or greater.

technologies for non-EGUs stationary sources as part of its identification of an appropriate future analytic year. While the EPA did not 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. In the CSAPR Update, 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 pollution controls on 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 emission reductions available from each source when compared to the number of EGUs and emission 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 emission reductions available from non-EGUs by the 2017 ozone season, the EPA acknowledged that it may be appropriate to evaluate potential non-EGU emission reductions achievable on a timeframe after the 2017 ozone season to assess whether upwind states continued to have outstanding good neighbor obligations for the 2008 ozone NAAQS. 81 FR 74522. In particular, the EPA's preliminary assessment in the CSAPR Update indicated that there may be emission reductions achievable from non-EGUs at marginal costs lower than the costs of remaining NO_X control strategies available for EGUs. In evaluating potential non-EGU emission 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 NO_X Emissions Control Technologies on Industrial Sources, Institute of Clean Air Companies,* December 2006 (all sources except cement kilns and reciprocating internal combustion engines (RICE));[101]
- *Cement Kilns Technical Support Document for the NO_X FIP*, U.S. EPA, January 2001;[102] and
- *Availability and Limitations of NO_X 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—prepared for the Interstate Natural Gas Association of America (INGAA Foundation).[103]

In assessing an appropriate future analytic year for this action, the EPA has looked to the information compiled in the Final Non-EGU TSD for the CSAPR Update to evaluate what timeframe might be appropriate for installing sector- or region-wide controls on non-EGU sources.

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 emission source categories. Final Non-EGU TSD at 19. For four of the technology categories (SNCR, SCR, low-NO_X burners (LNB), and mid-kiln firing), the EPA preliminarily estimated that such controls for non-EGUs could be installed in approximately one year or less in some unit-specific cases. Installation time estimates presented in the Final Non-EGU TSD considered a timeline that begins with control technology bid evaluation (bids from vendors) and ends with the startup of the control technology. *See id.* at 20. For the other two technology categories (biosolid injection technology (BSI) and OXY-firing), as well as one emission 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, including additional time likely necessary for permitting or installation of monitoring equipment. *See id.* at 19–21. These preliminary installation estimates also do not account for factors such as multi-boiler installations at a particular source and pre-vendor bid engineering studies.[104]

In particular, the preliminary estimates of installation times of approximately a year or less 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. Thus, the preliminary estimates do not consider 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. 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 for individual sources in the Final Non-EGU TSD. As discussed earlier with respect to EGUs, regional,

[101] Institute of Clean Air Companies. Typical Installation Timelines for NO_X 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.*

[102] U.S. EPA. Cement Kilns Technical Support Document for the NO_X FIP. January 2001. Available at *https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0500-0094.*

[103] INGAA Foundation. Availability and Limitations of NO_X 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.*

[104] In particular, this document presents different installation time estimates for SCRs for EGUs and non-EGUs. However, these installation times are not necessarily inconsistent, because 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, whereas the non-EGU SCR installation time estimates are based on single-unit installation and do not factor in pre-vendor bid evaluation. Consideration of these additional factors might extend the time estimate for installation of SCRs for non-EGUs.

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. The EPA currently has insufficient information on vendor capacity and limited experience with suppliers of control technologies and major engineering firms, which results in additional uncertainty in the overall installation time estimates for non-EGU sectors.

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

In summary, there is significant uncertainty regarding the implementation timeframes for various NO_X control technologies for non-EGUs. While the EPA has developed preliminary estimates for some potential control technologies, these estimates only account for the time between bid evaluation and startup but do not account for additional considerations such as pre-bid evaluation studies, permitting, and installation of monitoring equipment. Moreover, these preliminary estimates do not account for the impacts of sector- and region-wide compliance, which may be complex considering the diversity of non-EGU sources as well as the greater number and smaller size of the individual sources. The EPA did not receive any comments on its proposal that would contradict the importance of these considerations. Accordingly, in light of these considerations, the EPA believes that it is reasonable to assume for purposes of this action that an expeditious timeframe for installing sector- or region-wide controls on non-EGU sources may be four years or more.

Comment: One commenter suggests that the EPA's assessment of feasibility of control strategies for non-EGU sources rests on a need for further information gathering, when the agency has had ample time to do this work already, citing *U.S. Sugar Corp.* v. *EPA,* 830 F.3d 579, 644 (D.C. cir. 2016) (''The Agency was obligated to collect the data it needed, and Congress gave it the authority to do so.''). The commenter asserts that the EPA cited this same basis for deferring a full remedy in the CSAPR Update and that the EPA has been invoking an alleged need to gather more information on these sources for more than a decade, citing the original CSAPR rulemaking and CAIR. The commenter states that it is unlawful and arbitrary for the EPA to rely on a need for information that it has failed to collect or analyze despite its own longstanding recognition that the information is needed, citing *Sierra Club* v. *Johnson,* 444 F. Supp. 2d 46, 53 (D.D.C. 2006) (explaining that statutory deadlines in the Clean Air Act indicate that Congress intended agencies to prioritize timeliness over perfection).

Another commenter notes that the EPA indicated in separate litigation that it intended to take steps to improve its data on non-EGU controls by November 2017, citing Opposition and Cross-Motion for Summary Judgment, *Sierra Club* v. *Pruitt,* No. 3:15–cv–04328 (N.D. Cal. Dec. 15, 2016) ECF No. 63., but that it has never completed these steps. The commenter asserts that the determination is therefore based on speculation. The commenter continues that the EPA does not explain why the information that was previously found to be insufficient is now sufficient for purposes of this action, nor does the EPA explain why it still has not quantified or analyzed the potential for cost-effective emission reductions from non-EGU sources. Thus, the commenter asserts that the EPA ignores its own framework for determining the availability and cost-effectiveness of non-EGU controls. The commenter claims that this is a change in position from the CSAPR Update where the EPA stated that a final determination of whether the emission reductions from that rule would be sufficient to address the good neighbor obligation would depend upon an evaluation of non-EGU sources.

Response: The commenter is incorrect in asserting that the EPA's basis for its conclusion in this action regarding the implementation timeframe for control strategies for non-EGU sources rests on the assumption that more information gathering is necessary. While the EPA has discussed the uncertainties associated with determining appropriate implementation timeframes for a number of control measures and technologies that could be applied to a large number and variety of non-EGU sources, as discussed above the EPA has evaluated the information known to the agency regarding various control measures and technologies and the factors affecting the installation of various control technologies. Considering the information known to the agency, as outlined in the Final Non-EGU TSD, the EPA has reasonably concluded that expeditious implementation of additional controls for non-EGU sources may be four years or more. The commenter is thus incorrect to suggest that the EPA has further deferred its evaluation of non-EGU sources. This is the same information that the EPA relied upon to determine that significant and meaningful non-EGU emission reductions could not feasibly be implemented by the 2017 ozone season in the CSAPR Update. 81 FR 74542. The commenter has not provided information that would contradict the EPA's conclusion that it is appropriate to assume, based on the information known to the agency, that four years or more should be provided for the installation of controls for non-EGU sources.

This approach is not a change in policy. In the CSAPR Update, the EPA only stated that it could not conclude, at that time, whether additional reductions from NO_X sources (including non-EGUs) would be necessary to fully resolve these obligations. In the CSAPR Update, the EPA did indicate that it anticipated the need to evaluate non-EGUs to evaluate the full scope of upwind states' good neighbor obligations, and the agency has done so here in so far as evaluating control feasibility. Specifically, in selecting the appropriate future analytic year in which to evaluate air quality, contributions, and NO_X reduction potential, as necessary, the EPA considered the implementation timeframes for controls at EGUs as well as non-EGUs. As discussed in more detail later, the EPA's analysis showed that there would be no remaining air quality problems in 2023 in the eastern U.S., and thus the EPA has concluded that no such additional reductions beyond those on-the-books or on-the-way controls are necessary, whether from non-EGUs or otherwise, to bring downwind areas into attainment and maintenance of the 2008 ozone NAAQS. Because the air quality modeling results for 2023 show that air quality problems in the eastern U.S. would be resolved by 2023, the EPA has not further evaluated the cost-effectiveness of the control options considered for the feasibility analysis. This approach is consistent with the EPA's four-step framework and does not rely on the relative cost-effectiveness of controls for non-EGU sources.

The commenter's reliance on *U.S. Sugar* and *Sierra Club* is therefore inapposite. In *U.S. Sugar,* the court was reviewing the EPA's decision not to regulate certain sources under a different provision of the CAA based on a lack of information. 830 F.3d at 642–43. The court, however, found that the agency's duty to regulate these sources was nondiscretionary and that the statute provided the agency with explicit authority to gather information from the affected sources for this purpose. *Id.* at 644. Here, the EPA is not deferring a nondiscretionary duty to issue a regulation addressing controls at non-EGU sources, but has evaluated the potential NO_X control measures and technologies at non-EGU sources using all information known to the agency, as described in the Final Non-EGU TSD, in order to inform its further analysis of upwind state obligations under the good neighbor provision. In *Sierra Club,* the court laid out the standard for determining the time needed to promulgate regulations under the CAA after the EPA fails to perform the mandatory duties within the statutorily prescribed timeframe. 444 F. Supp. 2d at 52. As the commenters note, the court stated, among other things, that courts will generally not provide additional time to promulgate a regulation ''simply to improve the quality or soundness of the regulations to be enacted.'' *Id.* at 53. However, the court in that case addressed a mandatory deadline set by the statute to promulgate a plan; it was not evaluating the EPA's interpretation of a statutory provision like the good neighbor provision that does not set an express deadline for implementation of emission reductions.

Notably, the court in *Sierra Club* did find that the statutory deadlines in the Clean Air Act indicate that Congress intended agencies to prioritize timeliness over perfection. 444 F. Supp. 2d at 53. Thus, to the extent another commenter chides the EPA for acting based on the information before the agency, even if it has not completed all steps to improve its data for non-EGU sources, the *Sierra Club* decision supports the agency's approach. Moreover, because the EPA did not need to evaluate either the cost-effectiveness or NO_X reduction potential of either EGU or non-EGU sources, the commenter's concern with whether the EPA has completed steps to improve its data on these issues is irrelevant. Nonetheless, the EPA notes that the particular efforts outlined in the court filing referred to by the commenter were taken in support of the EPA's request in a mandatory duty suit that the court permit the agency several years to develop a rulemaking to address the good neighbor obligations with respect to the 2008 ozone NAAQS for Kentucky and 20 other states. In that filing, the EPA outlined steps that the agency believed would be necessary to promulgate a rulemaking *if* the EPA's analysis demonstrated that additional emission reductions would be required from sources in upwind states, including what the EPA viewed as necessary analysis regarding non-EGU sources. The EPA acknowledged in that same declaration that one possible result of the EPA's analysis could be a determination that downwind air quality problems would be resolved, in which case a cost-effectiveness analysis would be unnecessary. *See* Opposition and Cross-Motion for Summary Judgment, Exhibit 1 (Decl. of Janet G. McCabe) para. 98, *Sierra Club* v. *Pruitt,* No. 3:15–cv–04328–JD (N.D. Cal. Dec. 15, 2016), ECF No. 63. As the EPA could not know the results of any future air quality modeling before it was performed, the EPA's proposed timeline assumed that such an analysis might be required. *Id.* para. 170. Ultimately, the court disagreed with the EPA's proposed timeline and provided only one year from its order—until June 30, 2018—for promulgation of a rulemaking addressing Kentucky's good neighbor obligation, which was insufficient time to complete all of the steps outlined in the EPA's declaration, thereby requiring the EPA to prioritize certain steps and eliminate others, including the additional efforts intended to improve data regarding the feasibility and cost-effectiveness of controls. Nonetheless, because the first step of the EPA's analysis demonstrated that there would be no remaining air quality problems in 2023 in the eastern U.S., it turned out to be unnecessary for the EPA to finalize the efforts to improve its data regarding the cost-effectiveness of controls before finalizing this action. Thus, the representations that the EPA made to the court regarding the steps necessary to take this action no longer apply under the present circumstances.

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 NO_X 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 emission 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 date of promulgation of the rule that would establish emission reduction requirements if necessary and thereby provide notice to potentially regulated entities that actions will be required for compliance. The EPA, therefore, considered the timeframe in which this rulemaking would be finalized. As discussed previously, the EPA is subject to several statutory and court-ordered deadlines to issue FIPs to address any outstanding requirements under the good neighbor provision for the 2008 ozone NAAQS for several states. The agency is issuing this final action in light of those obligations. This action will be signed no later than December 6, 2018, consistent with a court order to take action addressing the FIP obligation for five states.[105] Considering the EPA's conclusion that 48 months is a reasonable, and potentially expeditious,

[105] Order, *New York* v. *Pruitt,* No. 1:18–cv–00406–JGK (S.D.N.Y. June 12, 2018), ECF No. 34. The five states are Illinois, Michigan, Pennsylvania, Virginia, and West Virginia.

timeframe for implementation of substantial regional control strategies considered herein, emission reductions from these control strategies would not be 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 would expect 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 feasibly implemented for a full ozone season until 2023.

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), for the reasons discussed above the EPA does not believe it is reasonable to expect that additional regional emissions control requirements could be developed and implemented by the Serious area attainment date. Rather, the most expeditious timeframe in which additional regional control strategies could be implemented at both EGUs and non-EGUs is 48 months after promulgation of a final rule requiring appropriate emission 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 any potentially needed emission 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 emission 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 regionwide 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,* the EPA believes that 2023 is the most appropriate year for it to assess downwind air quality and to evaluate any remaining requirements under the good neighbor provision for the 2008 ozone NAAQS with regard to all states covered in this action.

Comment: Several commenters contend that the EPA's selection of a 2023 analytic year is inappropriate because it does not address downwind states' obligations to attain the 2008 Ozone NAAQS by the July 20, 2021 attainment date for nonattainment areas classified as Serious. The commenters generally cite *North Carolina* for the proposition that EPA must esatablish interstate transport compliance deadlines under the good neighbor provision that are identical to deadlines for downwind states to achieve attainment with the NAAQS. The commenters note that, in that decision, the D.C. Circuit rejected portions of CAIR on the grounds that it did not require upwind contributors to eliminate their significant contributions in time for downwind areas to meet their impending attainment deadlines. The commenters state that the attainment date for areas classified as Moderate nonattainment for the 2008 ozone NAAQS passed on July 20, 2018, and the next attainment dates for the 2008 ozone NAAQS will be Serious area attainment date. Because July 20, 2021 falls during the 2021 ozone season, the 2020 ozone season will be the last full ozone season from which data can be used to demonstrate attainment of the NAAQS by the July 2021 attainment date. The commenters contend that *North Carolina* compels the EPA to identify upwind reductions and implementation programs to achieve these reductions, to the extent possible, during or before the 2020 ozone season.

One commenter further notes that CAA sections 110(a)(2)(D) and 182 require the EPA to implement the good neighbor provision ''consistent with'' applicable attainment deadlines, and notes that the D.C. Circuit held in *North Carolina* that this requirement is unambiguous. The commenter states that the attainment deadlines in section 182 are fixed dates with which the EPA must comply, citing *Sierra Club* v. *Johnson,* 294 F.3d 155, 161 (D.C. cir. 2002) (''[Section] 181(a)(1)[ ] as written sets a deadline without an exception.''), and *Train* v. *Natural Resources Defense Council,* 421 U.S. 60, 64–65 (1975) (Congress ''required'' attainment of air quality standards ''within a specified period of time''). The commenter further states that the EPA is bound by the requirement to eliminate significant contributions ''as expeditiously as practicable'' but further notes that the use of the words ''but not later than'' the dates listed in section 182 established the attainment deadlines as an express limit on the EPA's discretion. The commenter therefore contends that the EPA's claim of authority to fully implement the good neighbor provision ''as expeditiously as practicable'' and later than the Serious attainment dates is an exercise in rewriting the statute.

Commenters also contend that the EPA's consideration of feasibility cannot justify delaying action or analysis until 2023. One commenter contends that the D.C. Circuit's decision in *North Carolina* rejected compliance deadlines in CAIR that were based on ''feasibility restraints such as the difficulty of securing project financing and the limited amount of specialized boilermaker labor to install controls'' but were not ''consistent with . . . compliance deadlines for downwind states.'' 531 F.3d at 911–12. The commenter asserts that the Clean Air Act's attainment deadlines ''leave[ ] no room for claims of technological or economic infeasibility,'' citing *Union Elec. Co.* v. *EPA,* 427 U.S. 246, 258 (1976) (deadlines are ''intended to foreclose the claims of emission sources that it would be economically or technologically infeasible for them to achieve emission limitations sufficient to protect the public health within the specified time''); *id.* at 259 (Congress ''determined that existing sources of pollutants either should meet the standard of the law or be closed down'') (quoting S. Rep. No. 91–1196, pp. 2–3 (1970)).

Response: The EPA does not agree that either the text of the statute or the court's holding in *North Carolina* dictates that there can only be one appropriate future analytic year and that this year must be identical to an attainment deadline or forecloses consideration of the feasibility of implementing emission reductions in determining the appropriate future analytic year.

First, as to the statute, the good neighbor provision does not set forth any timeframe for the analysis of downwind air quality or the implementation of upwind emission reductions. On its face, the good neighbor provision is therefore ambiguous as to when the upwind emission reductions it calls for must be in place. The EPA acknowledges that the good neighbor provision does indicate that the prohibition of upwind state emissions must be ''consistent with the provisions of [title I],'' and that the D.C. Circuit held in its *North Carolina* decision that the other provisions with which the implementation of the good neighbor provision must be consistent include the attainment dates in part D of title I of the Act. However, the good neighbor provision does not specify what it means to be ''consistent with'' the other provisions of the Act, and courts have routinely held that this phrase is ambiguous *See, e.g., EDF,* 82 F.3d at 457 (holding the requirement that implemention of transportation control measures be ''consistent with'' the applicable implementation plan under section 176 of the CAA is ''flexible statutory language'' which does not require ''exact correspondence . . . but only congruity or compatibility,'' thus requiring a court to defer to reasonable agency determinations); *Natural Resources Defense Council* v. *Daley,* 209 F.3d 747, 754 (D.C. cir. 2000) (finding that statute requiring fishing quotas be ''consistent with'' a fishery management plan was ambiguous); *NL Indus.* v. *Kaplan,* 792 F.2d 896, 898–99 (9th Cir. 1986) (statutory phrase ''consistent with the national contingency plan'' in 42 U.S.C. 9607(a)(2)(B) ''does not necessitate strict compliance with [national contingency plan's] provisions''). Moreover, while CAA section 181 identifies timeframes for attaining ozone standards in downwind states, it does not specify deadlines for good neighbor emission reductions.[106] Therefore, Congress has left a gap for EPA to fill. *See Chevron* v. *NRDC,* 467 U.S. 837, 843 (1984). In light of this ambiguity, the good neighbor provision cannot be read to require implementation of upwind emission reductions on a specific timeframe, and a compliance timeframe imposed pursuant to a good neighbor plan should be considered reasonable so long as the EPA has demonstrated that it is chosen in consideration of and is not inconsistent with downwind attainment dates and other relevant attainment planning requirements in title I.

Moreover, the statute does not impose inflexible deadlines for attainment. The general planning requirements that apply to nonattainment areas under subpart 1 of part D provide that the Administrator may extend the default five-year attainment date by up to 10 years ''considering the severity of nonattainment and the availability and feasibility of pollution control measures.'' CAA section 172(a)(2)(A). In the case of the ozone NAAQS, this provision is overridden by the more specific attainment date provisions of subpart 2. The general timeframes provided for attainment in ozone nonattainment areas in the section 181(a)(1) table may be (and often are) modified pursuant to other provisions in section 182, considering factors such as measured ozone concentrations and the feasibility of implementing additional emission reductions. For example, the six-year timeframe for attainment of the 2008 ozone NAAQS in Moderate areas (the July 2018 attainment date) could be extended under certain circumstances to 2020, pursuant to section 181(a)(5). And pursuant to section 181(b)(2), when downwind areas are unable to implement sufficient reductions via feasible control technologies by one attainment date, those areas will be reclassified, or ''bumped up'' in classification, and given a new attainment date with additional time to attain. With ''bump-ups'' like this, the date for an area to attain the 2008 ozone NAAQS could be extended to 2021, 2027, and 2032, and each of these deadlines could be subject to further extensions of up to two years pursuant to section 181(a)(5). Part D further defines what control strategies states must implement by sources in nonattainment areas by each of the applicable attainment dates, incorporating considerations of technological feasibility at each stage. *See, e.g.,* CAA section 172(c)(1), (2) (requiring implementation of *reasonably available* control measures and *reasonable* further progress in designated nonattainment areas); section 182(b)(1)(A), (c)(2)(B) (setting explicit reasonable further progress targets for ozone precursors, and providing an exception when the SIP includes ''all measures that can *feasibly* be implemented in the area, in light of *technological achievability*'' (emphasis added)).

Thus, while the statute indicates that downwind areas should attain as expeditiously as practicable, but no later than the attainment dates specified in sections 172(a)(2) and 181(a)(1), implementation provisions for nonattainment planning lay out myriad exceptions to those deadlines, including for circumstances when attainment is simply infeasible. *See Whitman* v. *Am. Trucking Ass'ns, Inc.,* 531 U.S. 457, 493–94 (2001) (Breyer, J., concurring) (considerations of costs and technological feasibility may affect deadlines established for attainment by the EPA). Thus, the EPA's approach to evaluating upwind emission reductions based on technological feasibility is consistent with the requirements imposed on downwind nonattainment areas required to implement certain ''reasonable'' controls within the targeted timeframe. By contrast, the commenters' premise that all upwind emission reductions must occur before the earliest downwind attainment date, without regard to feasibility, is inconsistent with the framework of section part D as it applies to downwind states.

The ambiguity in the good neighbor provision regarding the relationship of upwind state emission reductions to attainment dates is further heightened with respect to downwind areas that the EPA anticipates are likely to be in attainment in a future year, some of which are already currently attaining the standard (or even designated attainment)[107] but which may have problems maintaining the standard in the future (*i.e.,* maintenance receptors). In the EPA's 2017 air quality modeling performed for the CSAPR Update, the EPA identified six nonattainment receptors and thirteen maintenance receptors. 81 FR 74533. The maintenance receptors were areas that the EPA expected were likely to be in attainment based either on the modeling projections or current monitored data, but which EPA expected may have problems maintaining attainment of the standard under certain circumstances. While many of the maintenance receptors are in areas currently designated nonattainment, the EPA's analysis suggests that these areas will be able to demonstrate (and in many cases have in fact demonstrated)[108] attainment of the NAAQS by the attainment date or otherwise receive a clean data determination that relieves the state of further planning obligations. While the good neighbor provision requires states to prohibit emissions that will ''interfere with maintenance'' of the NAAQS in these areas, there is no deadline for maintenance of the standard comparable to an attainment date for downwind areas that are in nonattainment of the standard. The commenters present no argument as to why upwind obligations for states linked to downwind maintenance areas

[106] It is worth noting that the statutory text of CAA section 181(a) does not itself establish the attainment dates for the 2008 ozone NAAQS. Rather, the EPA undertakes rulemakings to establish the appropriate deadlines after a new or revised ozone NAAQS is promulgated. *See, e.g.,* 2008 Ozone NAAQS SIP Requirements Rule, 80 FR 12264, 12268 (Mar. 6, 2015); 40 CFR 51.1103.

[107] For example, in the CSAPR Update, two maintenance receptors (in Allegan County, Michigan, and Jefferson County, Kentucky) were located in areas designated attainment for the 2008 ozone NAAQS. 40 CFR 81.318 (Kentucky), 81.323 (Michigan).

[108] *See, e.g.,* 80 FR 30941 (June 1, 2015) (determination of attainment of Baltimore, MD (Harford receptor)); 81 FR 26697 (May 4, 2016) (determination of attainment by the attainment date of Cincinnati-Hamilton OH–KY–IN (Hamilton receptor)); 82 FR 50814 (November 2, 2017) (determination of attainment by attainment date of Philadelphia PA–NJ–MD–DE (Philadelphia receptor)).

must be pegged to future analytic years identical to attainment dates which may not themselves be relevant to maintenance receptors.

The EPA further disagrees that the D.C. Circuit's *North Carolina* decision requires the EPA to only use the next relevant attainment date in selecting its future analytic year. The *North Carolina* decision faulted the EPA for not giving *any* consideration to upcoming attainment dates in downwind states when setting compliance deadlines for upwind emission reductions in CAIR: There, the EPA had evaluated *only* the feasibility of implementing upwind controls. 531 F.3d at 911–12. But the court did not hold that the CAA requires that compliance deadlines for good neighbor emission reductions be *identical* to *any* attainment date, let alone the next upcoming one. Nor did the court opine that the EPA would never be justified in setting compliance dates that fall after the next upcoming downwind attainment date (but, as with the future analytic year selected in this action, well before the next date after that one) or that are based, in part, on the feasibility of implementing upwind emission reductions. Indeed, in remanding the rule, the D.C. Circuit acknowledged that upwind compliance dates may, in some circumstances, come *after* attainment dates. *Id.* at 930 (where the attainment date relevant to the discussion was 2010, instructing EPA to ''decide what date, whether 2015 or earlier, is as expeditious as practicable for states to eliminate their significant contributions to downwind nonattainment''). Accordingly, the EPA's consideration of anticipated compliance timeframes for implementation of NO_X control strategies in selecting a future analytic year is not inconsistent with *North Carolina.*

The commenter's citations to *Sierra Club* and *Train* also do not contradict the EPA's interpretation. At issue in *Sierra Club* was whether the EPA could extend the deadline for attainment without reclassifying the area as a ''Severe'' nonattainment area and suspend other planning requirements based on the conclusion that continued nonattainment would be caused by emissions transported from other states. 294 F.3d at 159. Thus, although the court indicated that the attainment dates are ''without exception,'' it specifically stated that this was with respect to ''setbacks owing to ozone transport.'' *Id.* at 161. The court did not contradict the conclusion that states are only required to implement measures that are ''reasonably available'' in downwind areas, deferring to the EPA's interpretation of section 172(c) as not requiring measures that ''would not advance the attainment date, would cause substantial widespread and long-term adverse impacts, or would be economically or technologically infeasible.'' *Id.* at 162–63, quoting 66 FR 608. *Sierra Club* therefore *supports* EPA's position that it is appropriate to consider the feasibility of implementing control strategies when evaluating appropriate compliance timeframes under the good neighbor provision. And although the Supreme Court in *Train* stated that the Act requires states to attain the air quality standards ''within a specified period of time,'' the court pointed this out in a background discussion describing the evolution of the CAA from a prior period when the statute included no attainment dates. 421 U.S. at 65. Moreover, the decision was issued in 1975, before the 1990 amendments added the complicated set of provisions governing the timing concerns and control obligations imposed on states with ozone nonattainment areas. Thus, this decision cannot be relied upon to read out the flexibilities subsequently provided in the Act.[109] (And, of course, in any event it does not address requirements such as the good neighbor provision, which contains no express deadlines or other timeframes.)

CAA section 110(a)(2)(D)(i) (the good neighbor provision) and part D (governing nonattainment requirements), when read together, do not unambiguously require good neighbor emission reductions by a particular deadline. And in *North Carolina* the court simply found that EPA must make an effort to ''harmonize'' its upwind good neighbor reductions with downwind attainment dates. 531 F.3d at 911–12. The EPA has reasonably harmonized these provisions to require good neighbor emission reductions as expeditiously as practicable to benefit downwind areas, taking into account their attainment dates as well as how expeditiously upwind controls could feasibly be implemented. Thus, where the EPA was able to identify substantial upwind emission reductions available by the upcoming attainment date, as in the CSAPR Update, the EPA implemented those reductions. However, where additional controls could not be feasibly implemented by the next immediate attainment date, the EPA has instead reasonably determined it was appropriate to analyze air quality in the future year that represents the most expeditious timeframe for implementation of such controls after that date, but before the following attainment date. The EPA reasonably reads the good neighbor provision and the gaps left in the statutory scheme by Congress to allocate responsibility between the upwind and downwind states in a manner that aligns with the *overall structure* of CAA Title I. *See, e.g.,* 81 FR at 74515–16, 74535–36. Notably, the consequence of reading the statute as the commenters suggest would be profound: Emission reductions would be required even if such reductions could be achieved only by the use of manifestly infeasible upwind control measures, an obligation not imposed on downwind nonattainment areas due to the availability of extensions and reclassifications, described earlier, which provide more time for such areas to implement reductions to attain the relevant NAAQS. *Cf.* S. Rep. No. 95–127, at 42 (1977) (the good neighbor provision is intended to ''mak[e] a source *at least as* responsible for polluting another State as it would be for polluting its own State''—not more responsible) (emphasis added). Nothing in the CAA or judicial precedents requires this result.

Comment: One commenter suggests that EPA cannot rely on the need to avoid over-control to justify the choice of the 2023 analytic year. The commenter states that, in *EME Homer City,* the Supreme Court made clear that, while EPA should strive to avoid over-control, ''the Agency also has a statutory obligation to avoid 'under-control.''' 134 S. Ct. at 1609. The commenter suggests that, should over-control become an issue at some future time, such as in 2023, the EPA can address that issue when it arises.

Response: The EPA disagrees with the commenter's assertion that the EPA has inappropriately weighted concerns about over-control of upwind state emissions. The Supreme Court and the D.C. Circuit have both held that EPA may not require emission reductions that are greater than necessary to achieve attainment and maintenance of the NAAQS in downwind areas. *See EME Homer City,* 134 S. Ct. at 1608; *EME Homer City II,* 795 F.3d at 127. While the Supreme Court indicated that ''EPA must have leeway'' to balance the possibilities of under-control and over-control and that ''some amount of over-

[109] Commenters also cite *Union Electric* for the proposition that economic and technological feasibility may not be considered, but the Court was also reviewing an earlier version of the Clean Air Act that has since been amended to add the specific provisions for ozone nonattainment areas discussed in this section which allow for consideration of economic and technological feasibility. 427 U.S. at 249–50.

control . . . would not be surprising,'' the Court did not indicate that the EPA should ignore the risk of over-control. 134 S. Ct. at 1609. Rather, the Court held, ''If EPA requires an upwind State to reduce emissions by more than the amount necessary to achieve attainment in every downwind State to which it is linked, the Agency will have overstepped its authority, under the Good Neighbor Provision.'' *Id.* at 1608. On remand in *EME Homer City II,* the D.C. Circuit gave that holding further meaning when it determined that the CSAPR phase 2 ozone season NO_X budgets for 10 states were invalid because EPA's modeling showed that the downwind air quality problems to which these states were linked when EPA projected air quality to 2012 would be entirely resolved by 2014, when the phase 2 budgets were scheduled to be implemented. 795 F.3d at 129–30. Thus, the Court did not hold that over-control was a secondary consideration or an issue that could be deferred to some indefinite future course correction, but rather that it was a primary constraint on the EPA's authority.

Under the current circumstances, the EPA is determining that substantial additional emission reductions cannot be achieved until 2023 because the implementation of additional control strategies not already considered and implemented in the CSAPR Update would take at least four years to accomplish. Thus, in order to ensure that the emission reductions that might be achieved from the implementation of such controls would not be more than necessary to address downwind air quality problems, the EPA reasonably evaluated air quality in the future year when implementation of such controls could reasonably and feasibly be expected to occur. Had the EPA instead evaluated air quality in an earlier year (*e.g.,* the 2021 Serious area attainment date), even though emission reductions from these control strategies could not be implemented for several more years, the EPA could not have ensured that the emission reductions would still be necessary by the time of implementation. Here, where the EPA has information indicating that such emission reductions would likely *not* be necessary to address downwind air quality problems by the time they could feasibly and expeditiously be implemented, the D.C. Circuit's holding in *EME Homer City II* suggests that the EPA may not have the authority under the good neighbor provision to require such additional emission reductions. In any event, the court's holding suggests that it is prudent for the EPA to exercise its discretion taking into consideration, among other factors, the prohibition against over-control as one of multiple scientific, policy, and legal considerations informing the selection of a future analytic year for projection of air quality at step 1 of the four-step framework. Thus, it is reasonable for the EPA to harmonize this consideration with the EPA's reasonable anticipation of how long it would take to accomplish substantial additional emission reductions.

Comment: One commenter contends that *North Carolina* required that the EPA model nonattainment and maintenance in the earliest compliance year that would align with the next attainment deadline, which is effectively the 2020 ozone season for the July 2021 Moderate area attainment date. Under the four-step framework, the commenter asserts that the EPA must first identify whether any downwind receptors are expected to have problems attaining or maintaining the 2008 ozone NAAQS in 2020 and then identify the upwind states that are contributing to those downwind problems. The commenter then contends that EPA should evaluate whether those unlawful contributions could be reduced through compliance with state budgets established using the next most cost-effective NO_X control technology that EPA has not yet relied upon to establish a good neighbor provision rule, in this case, starting up and operating idled SNCR controls.

Another commenter states that the Ozone Transport Commission (OTC) has already conducted modeling for 2020, which shows that a number of receptor sites will exceed the 2008 ozone standard in 2020. In light of this modeling, the commenter asserts that it would be arbitrary for the EPA to dismiss the likelihood of continued attainment and maintenance difficulties through and in 2020 or to fail to conduct comprehensive modeling for the years before 2023.

Response: As discussed earlier, the EPA does not agree that it is obligated to review air quality only in a year associated with the next attainment date, particularly under the present circumstances where its analysis of potential control strategies shows that new control strategies cannot be feasibly implemented within that timeframe. Further, the EPA does not believe it would be reasonable to implement the next most costly control technology simply to achieve any amount of additional reductions in the near term. As discussed in section III.B.2 earlier, the EPA has already determined in the CSAPR Update that the operation of idled SNCR is not a cost-effective control strategy as compared to other available short term control strategies because the operation of such controls would result in small emission reductions and small downwind air quality improvements relative to the cost and relative to the much more significant emission reductions and ozone improvements the EPA determined were available from less-costly control strategies.[110] Thus, it is incorrect to refer to the operation of SNCR as the ''next most cost-effective'' control strategy because the EPA concluded the control strategy was simply *not* cost-effective relative to other near-term control strategies.

The EPA notes that it would have been difficult under the circumstances to conduct air quality modeling for *both* the 2020 attainment date suggested by the commenters *and* the 2023 compliance timeframe associated with the additional control strategies discussed earlier. Air quality modeling is a resource- and time-consuming process, as described in more detail in Section III.C and in the technical support documents in the record. Air quality modeling for a future year requires more than three months to develop detailed emission projection inventories for each emissions sector for the future year (with many of the inventories themselves derived from running other models) and to pre-process these emissions data for input to the air quality model. Once the inputs are prepared, a month or more is required to run the air quality model and post-process the outputs in order to produce results, followed by additional analysis to interpret the results. Producing contribution data, if necessary, also requires additional time to run a different, more complex modeling tool (*i.e.,* modeling with source apportionment) and to interpret the results. All told, preparing for, completing, and interpreting air quality modeling data for a future year generally takes on the order of 6 months. Thus, modeling more than one future year would have required significant additional time beyond that available to

[110] For instance, based on 2017 heat input, SNCR coal-fired operation reflected a small portion (8 percent) of the total coal-fired fleet operation. Not only is it a small inventory of units, but the additional reductions from these sources would be small as the SNCR fleet was already averaging a nationwide ozone-season emission rate of 0.16 lb/mmBtu and most SNCR-controlled units were emitting at levels consistent with control operation. Less than 1 percent of the 2017 coal-fleet heat input had a SNCR and was operating at emission rates (greater than 0.3 lb/mmBtu) that would suggest additional reductions would be available from better SNCR operation.

the agency in light of the court-ordered deadline to propose an action *fully* addressing the good neighbor obligation for the 2008 ozone NAAQS for several states by June 30, 2018, and to take final action by December 6, 2018.[111] In light of the resource and time constraints, the EPA determined that it was appropriate to select a single future analytic year that was most likely to permit the agency to fulfill its obligation to determine whether any good neighbor requirements remain unfulfilled for the 2008 ozone NAAQS. Accordingly, the EPA reasonably chose to only model air quality in 2023 in order to target the control strategies that were most likely to impact downwind air quality. *Cf. Sierra Club* v. *Johnson,* 444 F. Supp. 2d 46, 53 (D.D.C. 2006) (explaining that statutory deadlines in the Clean Air Act indicate that Congress intended agencies to prioritize timeliness over perfection).

If the EPA had analyzed air quality in 2020 instead of 2023, in order to strictly adhere to the attainment dates under the Act, as the commenters suggest, and identified downwind air quality problems in that year, the agency would not have been able to identify any cost-effective emission reductions that could be implemented in that year. As explained earlier, the EPA has already addressed control strategies that could be implemented in the short term and that were considered to be cost-effective. If the EPA issued a rule that focused instead only on the limited amount of emission reductions potentially achievable from additional control strategies feasible to implement by 2020—*i.e.,* from the optimization of SNCR—the EPA is not aware of any information that would change its analysis of the cost-effectiveness of those controls, and accordingly believes that those controls would be unlikely to be implemented. Under these circumstances, any downwind air quality problems projected in 2020 would remain.

The EPA believes that a more substantial amount of emission reductions is likely achievable from the implementation of new controls (SCR and SNCR) at EGUs or from the implementation of various control strategies at non-EGUs, but its analysis shows that such control strategies could not be feasibly implemented by the 2020 attainment date (or, indeed, for several years thereafter). Thus, if the EPA had relied on modeling for 2020 to identify downwind air quality issues, as the commenter urges, the EPA could not ensure that implementation of the emission reductions achievable with these control strategies several years later would be justified by continued downwind air quality problems (a concern justified by the results of the 2023 modeling cited in this action). NO_X emissions levels are expected to decline in the future through the combination of the implementation of existing local, state, and federal emission reduction programs and changing market conditions for generation technologies and fuels.[112] Therefore, were the EPA to evaluate downwind ozone concentrations and upwind state linkages in a future year that precedes the date when actual compliance is anticipated (*i.e.,* the timeframe within which additional control strategies can feasibly be implemented), the EPA could not ensure that the emission reductions will be ''necessary to achieve attainment'' in any downwind area by the time they were implemented. *EME Homer City,* 134 S. Ct. at 1608. While the Supreme Court indicated that the EPA was entitled to ''leeway,'' *id.* at 1609, the EPA does not believe it would have been consistent with the *EME Homer City* decisions to impose substantially *greater* emission reductions several years after the modeling year used to identify downwind air quality problems without ensuring that such reductions would be necessary by the time that they can reasonably be anticipated to be implemented, *i.e.,* without ensuring that they would not over-control relative to downwind air quality. Such an approach would only replicate the circumstances the D.C. Circuit found impermissible in CSAPR in *EME Homer City II.*

Thus, if the EPA were to rely on only air quality modeling for 2020, the EPA would be faced with a choice between the possibility of under-control if it promulgated a rule focusing only on the cost-effective emission reductions achievable by the 2020 ozone season, and the potential for a significant amount of over-control if it promulgated a rule requiring substantial emission reductions to be implemented several years after any downwind ozone problems projected in 2020. Given the limited availability of potential emission reductions by the 2020 attainment date, the EPA instead has reasonably chosen to model downwind air quality in a year associated with a compliance timeframe consistent with the NO_X control strategies anticipated to result in more meaningful improvements in downwind areas.

While the EPA is aware of the modeling conducted by the OTC for 2020, the EPA does not believe that this information demonstrates that the EPA's decision to model 2023 was unreasonable. As already noted, the EPA has already implemented all cost-effective control strategies that could be implemented in the near term under the CSAPR Update, and does not believe additional cost-effective control strategies can be implemented by the 2020 ozone season, even if the modeling did appropriately identify downwind air quality problems in that year. Moreover, despite asserting that the OTC used ''EPA-approved methods'' for the modeling, the commenter did not provide sufficient information regarding the inputs and methodology for the modeling such that the EPA could rely on the OTC modeling for purposes of this action. For the same reasons described more fully below in section III.C.4 with regard to the OTC's 2023 projections, the EPA also cannot conclude that the projections are reliable for all of the areas identified as having apparent projected air quality problems in 2020. Without reliable projected design values, the EPA cannot appropriately determine whether emission reductions implemented in that year (even assuming, contrary to EPA's conclusions in this action, that any additional control strategies that could be implemented in that year would be both feasible and cost-effective) would under- or over-control upwind state emissions.

It is worth noting that the EPA was not aware at the time that it selected the 2023 modeling year that the results would show no remaining air quality problems in the East. The EPA certainly anticipated that ozone concentrations would improve over time relative to the 2017 modeling conducted for the CSAPR Update. However, the EPA had previously conducted modeling for 2023, released in Janaury 2017 and discussed further in section III.C, that showed at least one potential maintenance receptor in Tarrant County, Texas. *See* Notice of Data

[111] Order, *New York* v. *Pruitt,* No. 1:18–cv–00406–JGK (S.D.N.Y. June 12, 2018), ECF No. 34 (setting deadline for EPA to address FIP obligation for Illinois, Michigan, Pennsylvania, Virginia, and West Virginia). The EPA's time to conduct the modeling was additionally constrained by the court-ordered deadline to take *final* action addressing the good neighbor obligation for Kentucky by June 30, 2018. *See* Order, *Sierra Club* v. *Pruitt,* No. 3:15–cv–04328 (N.D. Cal. May 23, 2017), ECF No. 73. Because the Kentucky action addressed the same problem of regional interstate ozone transport for the 2008 ozone NAAQS, it was necessary to complete the modeling in time for the EPA to issue a proposed action for Kentucky in advance of that deadline.

[112] Annual Energy Outlook 2018. *Electricity Supply, Disposition, Prices, and Emissions.* Reference Case. Department of Energy, Energy Information Administration.

Availability, 82 FR 1733, 1737.[113] The EPA accepted comments on this modeling and made adjustments to the emission inventories and other modeling inputs before running the model for 2023 again for purposes of this action after determining that 2023 would also be an appropriate year to evaluate for purposes of the remaining good neighbor obligations for the 2008 ozone NAAQS. It was only upon completing this additional modeling run that the EPA could conclude that, for the purposes of these good neighbor obligations, it projected no further air quality problems in 2023.

Comment: One commenter contends that the EPA's approach to determining that 2023 is the appropriate analytic year is a reversal of past agency interpretation regarding the four-step CSAPR framework. The commenter states that the CSAPR Update, though only a partial remedy under the good neighbor provision, acknowledged the 2018 attainment deadline for Moderate nonattainment areas. The commenter asserts that here, in contrast, the EPA has begun by assessing the feasibility of installing an arbitrarily narrow set of new controls without regard to the next attainment date. The commenter contends that this approach turns the CSAPR framework on its head, unreasonably changing agency interpretation without explanation and in violation of the Act.

The commenter notes that control feasibility has played a role in the past regional ozone rules, but contends that it cannot override the obligation to prohibit pollution that prevents attainment and maintenance of the standards, nor can it displace the attainment deadlines. The commenter further asserts that when the EPA has considered feasibility in analyzing ozone-related good neighbor obligations since the *North Carolina* decision, it has not done so in the context of selecting an analytic year, but in apportioning the necessary emission reductions. The commenter explains that, in the original CSAPR, feasibility of installing SO_2 controls did contribute to selecting two future analytic years, but contends that the rule linked both analytic years to attainment deadlines, including analysis of the next upcoming attainment year.

Response: In the CSAPR Update, the EPA focused its analysis on the upcoming attainment date and the limited control strategies that could be implemented within that timeframe with the explicit understanding that such a limited analysis was unlikely to provide a sufficient basis to determine that the good neighbor obligation was fully addressed for all states for the 2008 ozone NAAQS. Here, the EPA is obligated to conduct an analysis that fully addresses the good neighbor provision and thus has selected a future analytic year to coincide with the timeframe in which emission reductions most likely to address that obligation could be implemented, rather than selecting a year in which few emission reductions could be implemented. Selection of an analytic year associated with anticipated future compliance is entirely consistent with the EPA's four-step framework as applied in prior rulemakings. *See, e.g.,* NO_X SIP Call, 63 FR 57450 (using the anticipated 2007 compliance year for its analysis); CAIR, 70 FR 25241 (using the years 2009 and 2010, the anticipated compliance years for the ozone and $PM_{2.5}$ NAAQS, respectively); CSAPR, 76 FR 48211 (using the 2012 compliance year); CSAPR Update, 81 FR 74537 (using the 2017 compliance year).

The commenter is also incorrect to suggest that the EPA's approach is inconsistent with the original CSAPR rulemaking, which addressed good neighbor obligations for the 1997 ozone NAAQS. While it is true that the EPA considered attainment dates in its CSAPR analysis, the commenter fails to acknowledge that the EPA considered the entire suite of attainment dates for the relevant NAAQS, including the ''maximum'' future attainment dates that CSAPR's later compliance phase was intended to address. 76 FR 48277–78. Thus, in establishing two phases of compliance in 2012 and 2014, the EPA considered attainment dates for the ozone NAAQS between 2007 and 2024, and for the $PM_{2.5}$ NAAQS, the EPA considered attainment dates ranging from 2010 to 2019. *Id.* Moreover, as the commenter acknowledges, the EPA established two compliance phases in CSAPR based on the feasibility of implementing certain control strategies. *Id.* at 48278. In the earlier phase, the EPA anticipated that the covered EGUs would undertake more easily implemented control strategies that could be implemented in the short term, including optimization of existing controls, installation of relatively simple NO_X controls, and generation shifting, *see id.* at 48279, the same control strategies already considered and implemented for the 2008 ozone NAAQS in the CSAPR Update. The EPA determined that a later compliance phase was justified based on the need for more time to feasibly implement other controls strategies. *Id.* at 48278 (''Given the time needed to design and construct scrubbers at a large number of facilities, EPA believes the 2014 compliance date is as expeditious as practicable for the full quantity of SO_2 reductions necessary to fully address the significant contribution to nonattainment and interference with maintenance.''). The EPA's approach to the 2008 ozone NAAQS has been consistent with ths earlier approach, except that the EPA has evaluated these two categories of control strategies in two separate actions (*i.e.,* the CSAPR Update and this action) rather than in a single rulemaking specifically to ensure that the first phase of reductions could be implemented as soon as possible.

To the extent that the commenters suggest that the EPA chose an earlier analytic year in prior rulemakings, the EPA notes that it has not done so in all rulemakings. In the NO_X SIP Call, the EPA evaluated air quality in 2007, nine years after the rule was promulgated. 63 FR 57377 (October 27, 1998). In CAIR, which was promulgated in 2005, the EPA evaluated air quality in 2009 and 2010, for the ozone and $PM_{2.5}$ NAAQS, respectively. 70 FR 25241 (May 12, 2005). Thus, the EPA's approach in this action is not inconsistent with these prior actions. Although the EPA evaluated relatively more near-term air quality in CSAPR and CSAPR Update, the EPA expected that certain cost-effective control strategies could be implemented in the near term in those actions. Here, the EPA has already analyzed and implemented those cost-effective control strategies that could be implemented quickly to address the 2008 ozone NAAQS through the CSAPR Update. Accordingly, any further emission reductions that may be required to address the 2008 ozone NAAQS would necessarily be implemented through control strategies that cannot be implemented in the near term and require a longer period for implementation.

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 final determination with a focus on the base year and future base case emission inventories. The June 2018 Air

[113] Although the modeling was conducted to evaluate air quality relative to the more stringent 2015 ozone NAAQS, the data show that the maximum design value for the Tarrant County, Texas monitor was also expected to exceed the 2008 ozone NAAQS.

Quality Modeling Technical Support Document (AQM TSD) in the docket for this action contains more detailed information on the air quality modeling for 2023 used to support the final determination.[114]

In addition to the proposal, 83 FR 31915 (July 10, 2018), the EPA provided an additional opportunity to comment on the air quality modeling platform and air quality modeling results that are used in this 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 emission inventories and the air quality modeling to project 2023 ozone concentrations and ozone contributions. While the EPA issued this NODA to provide information to assist state interstate transport planning for the 2015 ozone NAAQS (which is set at 70 ppb), the modeling approaches and future year projection methods were also applicable to the 2008 ozone NAAQS (set at 75 ppb). 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 the air quality modeling analysis used for proposal. As discussed below and in the Response to Comments (RTC) in the docket for this action, we have considered additional comments on emission inventories and air quality modeling submitted in response to the proposal for this action for this final determination. However, the EPA did not find that any of these comments raised concerns with the modeling discussed at proposal such that additional air quality modeling was merited. Accordingly, the emission inventories and modeling discussed in the following sections is the same information discussed in the EPA's proposed action.

1. 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 action, 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 modeling results for 2023 presented here were originally released to the public with an accompanying memorandum on October 27, 2017.[115]

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 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.[116] 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 rule, the EPA used the Comprehensive Air Quality Model with Extensions (CAMx) version 6.40[117] 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 final 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 emission inventories and the methods for identifying nonattainment and maintenance receptors along with a list of the receptors in the U.S. that EPA projected would have nonattainment and maintenance air quality problems in 2023 (in the business-as-usual scenario).

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.[118]

[114] And available online at *https://www.epa.gov/airmarkets/proposed-csapr-close-out.*

[115] 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.*

[116] U.S. Environmental Protection Agency, 2014. Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, $PM_{2.5}$, 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.*

[117] 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/.*

[118] 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.

2. Emission Inventories

The EPA developed emission 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 emission 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 emission inventories for air quality modeling, the EPA processed the emission 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 emission inventories and on datasets used during the emissions modeling process for this final rule is provided in the October 2017 Technical Support Document ''Additional Updates to Emission Inventories for the Version 6.3, 2011 Emissions Modeling Platform for the Year 2023'' (Emissions Modeling TSD).[119]

As noted earlier, the emission inventories, methodologies, and data used for the air quality modeling discussed in this final rule are the same as the inventories discussed at proposal as no new modeling was performed following the proposal. The inventories incorporate comments received on the January 2017 NODA along with improved data and methods that became available after the NODA modeling was completed. The inventories are documented in the Emissions Modeling TSD. The January 2017 NODA itself was developed after taking into account the several iterations of comments on the data and methods used in the 2011 emissions modeling platform.[120]

As noted above, the EPA uses emissions data from the year 2011 in its base year air quality modeling. The 2011 NO_X and SO_2 EGU emissions are based primarily on reported data from continuous emissions monitoring systems (CEMS). Other EGU pollutants in the 2011 emission inventories are estimated using emissions factors and annual heat input data reported to the EPA. For EGUs without CEMS, the EPA used data submitted to the National Emissions Inventory (NEI) by the states. The 2011 inventories also 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 Emissions Modeling TSD.

In developing the 2023 emission inventory, the EPA did not incorporate any new interstate transport emission reductions beyond the CSAPR Update, but the 2023 projected emission inventory does reflect expected changes in activity and emission reductions from on-the-books actions, including planned emission control installations and promulgated federal measures that affect anthropogenic emissions. The emission inventories for air quality modeling include some emissions categories that are held constant between the base and future years, such as biogenic emissions and emissions from agricultural, wild, and prescribed fires.[121] The emission 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 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 emission 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 a 2011 to 2023 interval. For Mexico, onroad mobile source inventory data were based on 2011 and 2023 runs 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.

As noted in the October memo, the EPA projected EGU emissions for the 2023 emission inventory based on an approach that combines the latest reported operational data with known and anticipated fleet and pollution controls changes. The EPA begins with the most recent reported ozone season data available at the time of the EPA's analysis—in this case, 2016 SO_2 and NO_X data from units reporting under the Acid Rain and CSAPR programs under 40 CFR part 75. The EPA then updated the 2016 reported emissions with unit-specific adjustments to account for upcoming announced retirements, post-combustion control retrofits, coal-to-gas conversions, combustion controls upgrades, new units, and on-the-books reductions such as CSAPR Update compliance, state rules, and Best Available Retrofit Technology (BART) requirements under the regional haze program of the CAA.[122] The EPA implemented reductions associated with the CSAPR Update in its emission projection, because the 2016 reported data did not reflect the implementation of this rule, by assuming each SCR-controlled unit in the CSAPR Update region not already emitting at or below 0.10 lb/mmBtu would do so beginning in 2017. For emissions from EGUs not reporting under 40 CFR part 75, the EPA largely relied on unadjusted 2011 NEI data for its 2023 assumptions.[123] We note that the EPA's approach to projecting 2023 EGU emissions is consistent with the approach the EPA used in the CSAPR Update to project the future EGU emissions baseline from which to estimate reduction potential. 81 FR 74543.[124] Additional details about the EPA's future year EGU emissions projections are provided in the Emissions Modeling TSD.

Non-EGU point source emissions in the 2011 inventory are generally based on the 2011 NEI version 2.[125] However,

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

[120] The initial modeling platform based on the 2011 National Emissions Inventory (NEI) was first released for public comment in November 2013 through a NODA (78 FR 70935). In developing the CSAPR Update, the EPA subsequently updated the base year 2011 emission inventory as well as future year inventories for that rulemaking and took comment on those updates. Notice of Data Availability, 79 FR 2437 (January 2014); CSAPR Update proposal, 80 FR 46271 (August 2015); CSAPR Update final, 81 FR 74527 (September 2016). 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.*

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

[122] The EPA uses the U.S. EIA Form 860 as a source for upcoming controls, retirements, and new units.

[123] Available at *https://www.epa.gov/air-emissions-modeling/2011-version-63-platform.*

[124] 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.*

[125] 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.*

the NEI emission 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 are available in the Emissions Modeling TSD. The TSD also describes the EPA's methodology for developing the non-EGU emissions for the 2023 emission inventory. Projection factors and percent reductions used to estimate 2023 emissions in this final rule reflect comments received through the January 2017 NODA, along with emission reductions due to national and local rules, control programs, plant closures, consent decrees, and settlements. The Emissions Modeling TSD contains details on the factors used and on their respective impacts on the emission inventories.

As noted in the proposal, the EPA updated its methodology for estimating point and nonpoint 2023 emissions from the oil and gas sector after the release of the January 2017 NODA. The projection factors used in the updated 2023 oil and gas emission 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 emission inventories for other sectors, can be found in the Emissions Modeling TSD.

The EPA developed the onroad mobile source emissions for both the 2011 and 2023 inventories 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 activity data appropriate to each inventory year. MOVES2014a reflects projected changes to fuel usage and onroad mobile control programs finalized as of March 2014, which include emission reductions expected to occur into the future. Therefore, for the 2011 inventory, those rules that were in effect in 2011 are reflected at a level that corresponds to the extent to which each rule had penetrated the fleet and fuel supply by that year, and similarly for the 2023 inventory. Local control programs such as the California Low Emission Vehicle (LEV) III program, also implemented in states other than California that have adopted California's program pursuant to CAA section 177, are included in the onroad mobile source emissions. Activity data for onroad mobile sources, such as the expected 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 emission 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, which will achieve additional reductions through 2023, are incorporated in the 2023 projected emissions for C3 marine sources. For this modeling, the larger C3 marine sources are treated with plume rise, 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 emission 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 in emissions from 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 Emissions Modeling TSD.

The emissions for stationary nonpoint sources in the 2011 emission inventory are generally derived from the 2011 NEI version 2. For more information on nonpoint source emissions in the 2011 emission inventory, see the Emissions Modeling TSD and the 2011NEIv2 TSD. 2023 emissions for stationary nonpoint sources were projected using a variety of factors, including AEO 2017 projections for 2023 and state projection factors using EIA data from 2011–2015. The 2023 emission inventory in the EPA's proposal and this final rule also incorporate information from states about projected control measures or changes in nonpoint source emissions provided in comments to the January 2017 NODA. These changes were limited and are discussed in the Emissions Modeling TSD.

Comment: While some commenters agreed with the reasonableness of the EPA's projections, others contend that the EPA's EGU emission projections are unreasonable for a variety of reasons. These commenters assert that actual 2023 emissions may be higher than modeled due to low CSAPR Update allowance prices or natural gas price uncertainty. They suggest that the 0.10 lb/mmBtu average used by EPA for SCR-controlled units covered by the CSAPR Update is not reasonable because some units may operate at higher levels in the future, and they also suggest that EPA should have incorporated impacts of the proposed repeal of the Clean Power Plan and the proposed Affordable Clean Energy (ACE) rule into its emissions projections.

Response: The EPA disagrees with the suggestion that its 2023 EGU emission projections and the underlying methodology to generate those projections are unreasonable. As with all projections, there is inherent uncertainty, but with respect to EGU NO_X emissions, the EPA's 2023 projections likely reflect a more conservative (*i.e.,* higher) NO_X emissions estimate than comparable alternative methods for projecting future EGU emissions. As explained above, the EPA's 2023 EGU emissions projections used reported 2016 data, adjusting that data based only on currently known changes in the power sector and a change in emission rate to reflect implementation of the CSAPR Update after 2017. As such, the EPA's approach does not account for changes that would be estimated to occur due to economic and other environmental policy factors. Trends in historic emissions data and emission projections using a variety of methods and models suggest that inclusion of these factors would likely further reduce future NO_X emission projections. To illustrate the potential for additional NO_X reductions when considering further factors, we note that nationwide 2023 EGU NO_X emission projections using various modeling approaches estimate lower NO_X emission futures than the methodology EPA applied here. The EPA's EGU emissions projection methodology estimates that 2023 NO_X emissions will be 20% below 2016 levels whereas EIA estimates that 2023 NO_X emissions will be 21% to 32% below 2016 levels and EPA's Integrated Planning Model estimates that 2023 NO_X emissions will be 28% below 2016 levels.[126] [127]

The EPA neither intends nor expects to be able to predict future emissions from each of thousands of EGUs.[128] And it does not expect each of these SCR-controlled units to emit at the fleet-wide technology-specific average emission rate that it uses in its EGU emissions projections. Some of the units will over-perform and some of the units will under-perform in comparison to this average rate, but the average rate nevertheless reflects both a reasonable compliance pathway in response to the CSAPR Update and a reasonable fleet average for that compliance pathway. Predicting each unit's individual emission rate is an exercise in increased uncertainty, and the use of an average technology-specific fleet emission rate for each unit reduces that uncertainty. Moreover, in a trading program with state-specific caps, sources are permitted the flexibility to emit in a variety of ways provided the state and regional caps are met. The compliance success is not gauged on unit-level operation and emissions, but rather state and regional operation and emission levels. (The same holds true for gauging the reasonableness and accuracy of projections for such programs.) This compliance mechanism promotes more cost-effective attainment of the emissions and air quality goals. Therefore, it is plausible—and entirely consistent with EPA projections—that sources in each state would find an alternative compliance pathway that achieves commensurate emission reductions in equally relevant parts of the upwind airshed.

The EPA's EGU assumptions for 2023 reflected ozone-season emission levels that were approximately 10 percent lower than the CSAPR Update budgets. 2017 ozone-season data reflected emissions that were already 7 percent below the CSAPR Update budgets, reflecting a 21 percent drop from the prior year, a pace of reduction that would, if continued, put actual emissions well below 2023 assumptions. Preliminary 2018 data suggest continuing reductions, and indicate that the CSAPR Update region is already in 2018 emitting at or near the EPA-assumed 2023 emission level. In other words, the emission levels that commenters suggest are unreasonable for 2023 may well already have been achieved or nearly achieved in 2018—five years ahead of the analytic year. In order for emissions in 2023 to be at the levels commenters prefer that the EPA model (*e.g.,* only emission levels that can be ensured via enforceable limits), a decade-long decline in ozone-season emissions would have to not only cease but reverse. Moreover, this would have to occur during a time period where significantly more high-emitting coal generation capacity has announced plans to retire and significantly more zero- or lower-emitting generation capacity is expected to come online. In particular, since the EPA in 2017 made EGU projections for 2023 (in which the EPA only assumed retirements that had already been planned and announced at the time it made the projections), many additional high emitting coal units have announced their plans to retire by 2023. 5.9 gigawatts (GW) of coal capacity retirements were announced and planned for 2019–2022 based on the June 2017 EIA 860m Form, but that same form a year later (June 2018 EIA Form 860m) shows 10.2 GW of coal retirements for that same period, reflecting a near doubling of coal retirement announcements occurring over a one-year period. For instance, Conesville Units 4, 5, and 6 in Ohio have announced their retirement prior to 2023. The EPA in its 2017 projections had assumed these units would be operating and collectively emitting 1,502 tons of NO_X in the 2023 ozone season. These additional retirements announced subsequent to the EPA's analysis further bolster the conclusion that the EPA's emission estimates are conservative (*i.e.,* that they may overpredict 2023 emissions). The magnitude of coal retirements like this, announced after the EPA's analysis, but scheduled to occur prior to 2023, suggests the emissions trend will continue downward. Moreover, the commenters' assertion that an assumed increase would be a more reasonable projection is not supported by compelling analysis or economic modeling: It contradicts the recent historical data, the most recent announcements on retirements and newly built capacity, and the widely used power sector models' outlook for 2023. The EPA believes, supported by the most recent reported data, that its 2023 EGU projections are reasonable and conservative. To the extent that actual 2023 emissions may differ from these projections, they are more likely to be even lower than the assumptions used in the EPA's modeling.

The utility and the reasonableness of the EPA's EGU projections hinge on state-level and regional-level EGU emission projections, not projections for individual units or groups of units within a state. Nonetheless, the EPA notes that the assumed average emission rate for units with SCR optimization potential was quite consistent with the observed compliance measures. That is, the most recent historical data reported by unit operation, discussed in more detail in section III.B.2, bears out EPA assumptions in the CSAPR Update that these units would lower their emission rates in response to that rule, as they did in fact lower their emission rate 45 percent in the first year of the program.

The EPA also disagrees with the assertion that that low allowance prices necessarily mean that emissions will be higher than the EPA's EGU projections. In a scenario where all other elements of the power sector and allowance market are held constant, the commenters observation would likely be realized. However, it is the EPA's experience with trading programs that those other variables do not remain constant over time. In most cases, lower allowance prices reflect the market's expectation that future emissions will be lower than anticipated, rather than higher, as other market forces continue to drive down emissions, thus decreasing demand for allowances authorizing those emissions. The commenters' claim is therefore not consistent with observed historical emission patterns over successive years of an allowance trading program's implementation. For example, regional emissions under the Acid Rain Program and CSAPR have consistently been below the sum of emission budgets, despite relatively low allowance prices.[129] The commenters' claim is also not consistent with forward-looking emissions projections in power sector models. There are a variety of policy and market forces at work beyond CSAPR Update allowance prices that are

[126] EIA 2018 Annual Energy Outlook, Reference Case and High Oil and Gas Resource and Technology side case. Table 8 ''Electricity Supply, Disposition, Prices, and Emissions,'' available at *https://www.eia.gov/outlooks/aeo/.*

[127] IPM Version 6—Initial Run, available at *https://www.epa.gov/airmarkets/clean-air-markets-power-sector-modeling.*

[128] EPA–HQ–OAR–2018–0225–0042 at 98; EPA–HQ–OAR–2009–0491–4512 (RTC at 4).

[129] *See* 2016 Program Progress—Cross-State Air Pollution Rule and Acid Rain Program available at *https://www3.epa.gov/airmarkets/progress/reports/index.html.*

anticipated to continue to drive generation shifting from higher-emitting to lower-emitting sources. These include changes such as: Sustained, lower natural gas prices that make lower-emitting natural gas combined cycle units more economic to build and dispatch; state energy policy and technology advancements which have made renewable energy (*e.g.,* solar and wind) more competitive compared to higher-emitting fossil-fuel fired generation; and the aging of the coal fleet which is leading many companies to conclude that a significant number of higher-emitting plants are reaching the end of their useful economic life. The EPA's experience implementing prior allowance trading programs shows that emissions from covered sources generally trend downwards (regardless of allowance price) as time extends further from the initial compliance year. Both the Acid Rain Program and CSAPR SO_2 allowance banks grew in 2017 from their 2016 levels, indicating that sources are collectively adding to the bank by emitting below state budgets rather than drawing down the bank because of the availability of low-cost allowances. This supports the EPA's belief that the assumptions underlying its projection of 2023 ozone-season NO_X levels for EGUs are reasonable and appropriate.

To the extent that commenters assert that the EPA cannot in its projections perfectly predict future natural gas prices, the EPA agrees. Projections are inherently uncertain, and the EPA believes it has made reasonable and conservative estimates regarding the role of natural gas prices in generation shifting and lower future emission reductions. The EPA's EGU projection method for this action started with existing data and only assumed generation shifting in instances where retirements were scheduled to occur and newly built capacity was scheduled to come online. In other words, the generation shifting assumed for 2023 reflects concrete, planned actions. The agency's applied projection method would suggest that the EPA's 2023 projections are conservative and that more, not less, generation shifting is likely to occur as we remain in a low natural gas price environment that is complemented by debottlenecking of Marcellus region natural gas production through significant new pipeline and pipeline capacity expansion in the 2017–2023 timeframe.

With regard to comments stating that the EPA should factor the proposed ACE rule into its 2023 outlook, the EPA notes it has not done so as the ACE rule is not final. Moreover, it has not factored the Clean Power Plan into its projections given the stay of that rule issued by the Supreme Court. Both of these assumptions are reasonable and consistent with EPA analytic precedents and OMB Circular A–4 guidance (requiring that regulatory baselines should reflect the future effect of current government programs and policies).[130] [131]

Comment: For mobile source and non-EGU emissions, commenters suggest that emissions projections for these sectors could be unreliable due to the EPA's planned rulemaking actions including the proposed repeal of regulations with respect to so-called ''glider'' vehicles, engines, and kits, 82 FR 53442 (Nov. 16, 2017) (proposing to repeal the Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2); the proposed Safer Affordable Fuel Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks, 83 FR 42986 (Aug. 24, 2018) (proposing to repeal the Corporate Average Fuel Economy (CAFE) standards); and the proposed withdrawal of Control Techniques Guidelines (CTG) for the Oil and Natural Gas Industry, 83 FR 10478 (Mar. 9, 2018).

Response: The EPA disagrees that its 2023 projections are unreliable because of potential changes to other regulations. The EPA first notes any potential regulatory changes to the ''glider'' regulations, the SAFE vehicle rules, and the oil and gas CTG have not been finalized. In general, the mobile source and non-EGU emission inventories do not reflect rulemakings finalized in calendar year 2016 or later, nor do they reflect any rules proposed but not yet finalized since 2016, as only finalized rules are reflected in modeling inventories. The EPA's normal practice is to only include changes in emissions from final regulatory actions in its modeling because, until such rules are finalized, any potential changes in NO_X or VOC emissions are speculative.

In addition, even if emissions were to change as a result of any such final rules, commenters have not indicated how and whether these additional emissions would affect downwind ozone concentrations. The model year 2017–2025 GHG regulations for cars and light trucks were projected to yield small but measurable criteria and toxic emission reductions from vehicles.[132] Because the vehicles affected by the 2017–2025 GHG standards would still need to meet applicable criteria pollutant emissions standards (*e.g.,* the Tier 3 emissions standards; 79 FR 23414), the regulatory impact analysis that accompanied the proposed revision to the GHG standards estimated a very limited impact on criteria and toxic pollutant emissions (increases in upstream emissions and decreases in tailpipe emissions). Moreover, the proposed SAFE Vehicles Rule specifically notes that none of the regulatory alternatives considered ''would noticeably impact net emissions of smog-forming or other 'criteria' or toxic air pollutants.'' 83 FR 42996. As to glider kits in particular, we note that the ''no action assurance'' provided by then-Administrator Pruitt via memorandum of July 6, 2018, was subsequently rescinded via a memorandum signed by Acting Administrator Wheeler on July 26, 2018, and that the EPA has not taken any further final action that would change any requirements for glider vehicles, glider engines, or glider kits.

Finally, with regard to the proposed withdrawal of the oil and gas CTG, we also note that impacts of the CTGs were not included in the modeled inventories, so their withdrawal would not change the results of the modeling.

3. 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 Update with regard to the good neighbor requirements for the 2008 ozone NAAQS. For consistency's sake, the analysis and discussion underlying and presented in this action adheres to that analytical approach.

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,* 531

[130] Regulatory Impact Analysis for the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program. EPA. Table ES–8. August 2018. Available at *https://www.epa.gov/sites/production/files/2018-08/documents/utilities_ria_proposed_ace_2018-08.pdf.*

[131] Regulatory Impact Analysis for the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission. Table ES–8. Available at *https://www.epa.gov/sites/production/files/2018-08/documents/utilities_ria_proposed_ace_2018-08.pdf.*

[132] *See* Table 4.3–19 in EPA Regulatory Impact Analysis for EPA's Final Rulemaking for 2017–2025 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards (EPA–420–R–12–016, August 2012).

F.3d at 910–11, the EPA has 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 *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 defines the projected maximum future design value as 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 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. The EPA therefore assessed the magnitude of the maximum projected design value for 2023 at each receptor in relation to the 2008 ozone NAAQS. Where that value exceeded the NAAQS, the EPA determined 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.*[133] 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.

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. *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 disqualify potential maintenance receptors based on current clean monitored data 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. *See 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.

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, *i.e.,* the ''relative response factor'' or relative (percent) change in model predictions for each location, are used to adjust monitored ambient ozone design values to generate future year projected design values. 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. In addition, the EPA uses the projection of the maximum base period design value to provide a projection of future year air quality during meteorological conditions more favorable for ozone formation than on average. Because the base year for this analysis is 2011, the EPA is using the base period 2009–2013 ambient ozone design value data to project 2023 average and maximum 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 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.[134] As noted previously, nonattainment receptors are those sites that both have projected average design values greater than the 2008 ozone NAAQS and are also

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

[134] 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.'' The agency's use of 76.0 ppb (or 0.076 parts per million) to identify violations of the 2008 Ozone NAAQS in this action is consistent the 2008 ozone NAAQS regulation. 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).''

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 the proposal, the agency examined ambient data for the 2014–2016 period, which form the basis for the most recent available, certified measured design values at the time of proposal. Certified measured design value data for 2015–2017 are now available and have been included in the analysis of projected receptor. The 2015–2017 design values can be found in a spreadsheet file in the docket for this rule. Considering the 2015–2017 measured design values does not change the determination regarding nonattainment and maintenance receptors in 2023 for the 2008 NAAQS.

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,[135] 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 percent of the land use in the grid cell is water).[136] 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.

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. The tables present the projected design values under both the 3x3 approach and the alternative approach. 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.[137] The design values for all monitoring sites in the contiguous U.S. are provided in the docket. According to the EPA's modeling, there are no remaining nonattainment or maintenance receptors in the eastern U.S. in 2023 regardless of which approach to projecting design values is used.

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

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

[135] 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.*

[136] 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.

[137] 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.

Comment: The EPA received several comments regarding its projection of 2023 ozone design values. The commenters suggest that certain monitoring sites in the New York City area will continue to have nonattainment and/or maintenance problems for the 2008 NAAQS in 2023, a claim which is contrary to the results of the EPA's modeling which shows that nonattainment and maintenance problems will be resolved in all areas outside of California by 2023. The assertion by the commenters is based on their examination of measured design values for 2017 and modeling-based projected design values for 2017 and 2023. First, some commenters compared the projected design values for 2017 based on modeling by the OTC using the Community Multi-scale Air Quality Model (CMAQ) to the 2017 design values projected by the EPA using the CAMx model. Those commenters point out that the 2017 CMAQ-based design values are higher than the EPA CAMx design values by up to 9.2 ppb at certain sites in the Northeast. Commenters also point to data showing that the greatest difference between the OTC CMAQ and EPA CAMx 2017 design values is at coastal monitoring sites, such as the Susan Wagner site in New York and the Westport site in Connecticut. Second, commenters compared the 2017 OTC CMAQ and EPA CAMx design values to the corresponding 2017 measured design values and contend that the CMAQ-based 2017 design values compare favorably to the measured data and that the CAMx-based design values under-predict the measured data. One commenter identified eight sites in Connecticut that are currently measuring nonattainment based on 2015–2017 design values which the EPA's CAMx modeling predicts will be in attainment in 2017. Third, commenters point to OTC CMAQ-based design values for 2023 which indicate that there will be two monitoring sites in Connecticut with design values that exceed the 2008 NAAQS in that year. Fourth, the commenters note that the design values based on OTC CAMx modeling for 2023 are comparable in magnitude to the corresponding 2023 design values based on EPA's 2023 CAMx modeling. Commenters use this information to contend that the CAMx model provides a forecast that is too optimistic and that the EPA should rely upon the higher projected design values for 2023 from the OTC CMAQ modeling.

Some of the commenters point out that the EPA's 2023 modeling projects a maximum design value of 75.9 ppb at Westport site and contend that, before the EPA can conclude that areas will attain by 2023 with only the narrowest of margins (*i.e.,* 0.1 ppb), the EPA must conduct its own analysis of the emission response differences between CMAQ and CAMx. Similarly, some commenters said that the EPA must address the demonstrated tendency of its methodology to under-predict real-world ozone levels in many downwind locations and that the EPA's modeling is not sufficiently conservative to give confidence that attainment is assured even as late as 2023.

Response: The EPA does not agree that the modeling provided by commenters should affect the EPA's reliance on its own 2023 modeling. First, the commenters focused on projected *average* design values and completely ignore the EPA's projected *maximum* design values when comparing modeled to measured design values for 2017.[138] The projected maximum design values are intended to represent future ozone concentrations when meteorological conditions are more conducive to ozone formation than on average. Analysis of meteorological conditions for the summers of 2015, 2016, and 2017 indicate that meteorology was more conducive than average for ozone formation during these summers in the Northeast.[139] Comparing both the 2017 modeled average design values and maximum projected design values from the EPA's modeling to the 2017 measured design values indicates that the projected maximum design values are, in most cases, closer in magnitude to the 2017 measured design values than the 2017 model-projected average design values, particularly for the Susan Wagner and Westport sites cited by commenters. Specifically, the 2017 measured design value and the EPA's modeled maximum design value at the Susan Wagner site are 76 ppb and 77.8 ppb, respectively. At the Westport site the 2017 measured design value and the EPA's modeled maximum design value are 83 ppb and 79.5 ppb, respectively. At the site in Philadelphia County, Pennsylvania the modeled 2017 maximum design value was 1.1 ppb lower than the corresponding measured value (78 ppb), and at the site in Harford County, Maryland, the modeled value was higher, not lower, than the measured 2017 design value (75 ppb). As part of our response to the commenters' concerns about the EPA's modeling we also compared the 2017 measured design values to the EPA's projected 2017 maximum design values for 81 sites in the Northeast that had both a 2009 to 2013 base period measured maximum design value exceeding the 2008 NAAQS and valid 2017 measured design values. As a result of this analysis we found that the 2017 projected maximum design values are only 0.5 ppb higher than the corresponding 2017 measured design values, on average across these 81 sites, and the median difference is −0.9 ppb. Thus, while the EPA recognizes that there are uncertainties in the modeling, the results for sites in the Northeast do not, on balance, show a notable bias in the EPA's design value projections. It is not unreasonable that there may be some differences in terms of over- and under-estimates between the modeling-based projections for a future year and the measured data in part because the meteorology of the future year cannot be known in advance. For instance, the degree of ozone conducive meteorology in a particular region can vary from year to year such that some years are more conducive then others. Since it is not possible to forecast meteorology for analytic years in the future, the EPA chose to model meteorological conditions from a historical time-period when meteorology was generally conducive for ozone formation, as recommended in the EPA's modeling guidance.

For 2023, the modeling results show that the EPA and OTC CAMx-based 2023 average design value projections are consistent on an individual site basis for all sites in the Northeast.[140] Both the EPA and OTC CAMx modeling indicate that there will be no sites with design values that exceed the 2008 NAAQS by 2023.

Moreover, the OTC CMAQ 2023 design values are, in fact, fairly consistent with both the OTC and EPA CAMx-based 2023 projections at nearly all sites. As an example, the average and median differences between the OTC CMAQ and EPA CAMx 2023 design values for sites in the Northeast are 0.15 ppb and 0.70 ppb, respectively. However, while the EPA and OTC CAMx modeling both indicate that all sites in the Northeast will be clean for the 2008 NAAQS by 2023, the OTC CMAQ modeling projects that two sites will have average design values above the 2008 NAAQS by 2023. The two sites projected to exceed the 2008 NAAQS in

[138] Note that the analysis of modeled ozone design values described in this response are based on the ''3x3'' method to be consistent with the modeling data submitted by the commenter.

[139] See the Appendix in to the Considerations for Identifying Maintenance Receptors Memo (signed on October 19, 2018).

[140] The OTC did not provide data on projected future year maximum design values based on their modeling.

2023 with OTC CMAQ modeling are the Westport and the Susan Wagner site. The CMAQ projected design values for these two sites are not only inconsistent with the CAMx modeling, but they are also inconsistent with the CMAQ modeling for other nearby sites in Connecticut, New York, and New Jersey. For example, based on the OTC CMAQ modeling, ozone at the Susan Wagner site is projected to decline by only 5 percent between 2011 and 2023, whereas at a site in nearby Bayonne, New Jersey, ozone is projected to decline by 13 percent over this same time period. Similarly, ozone at the Westport site is projected to decline by only 3 percent between 2011 and 2023 with CMAQ, but at other sites along the Connecticut coastline (*i.e.,* sites in Greenwich, Stratford, and Madison), ozone is projected to decline by 10 to 19 percent. In addition, the OTC CMAQ results for these two sites (*i.e.,* Westport and Susan Wagner) are inconsistent with ozone reductions predicted by CMAQ at other sites in the New York City area which range from 11 to 18 percent. In contrast, the EPA's 2023 modeling shows that ozone is projected to decline by 13 percent at the Westport site which is an amount far greater than the 3 percent predicted by OTC's CMAQ modeling. The EPA's predicted ozone reductions at Westport, however, are consistent with the predicted reductions at other coastal sites in Greenwich, Madison, and Stratford, all of which are in the range of 13 to 18 percent. Similarly, ozone at the Susan Wagner site is projected to decline by 12 percent between 2011 and 2023 based on the EPA's CAMx modeling which is consistent with the 15 percent reduction predicted at the nearby site in Bayonne, New Jersey. Thus, the change in ozone from 2011 to 2023 predicted by the EPA's CAMx modeling is much more spatially consistent within the New York City area than OTC's CMAQ modeling which predicts spatially anomalous results at two sites (*i.e.,* Westport and Susan Wagner).

While it is possible ozone levels in 2023 at the Westport and/or Susan Wagner sites may be higher than at other sites in the New York City area, the commenter fails to provide any explanation regarding the large difference in the CMAQ-based model response to emission reductions compared to the response at nearby sites and to other sites in the New York City area. Based on the complicated photochemistry in this area, it is possible that ozone monitoring sites closest to the large NO_X emissions in New York City may be less responsive to NO_X controls compared to sites further downwind. Due to non-linear chemistry, sites very close to the city may experience increases in ozone or less reduction than other nearby sites on some days in response to local emission reductions in NO_X. Thus, we might expect that monitoring sites in Connecticut that are closer to New York City would show less reduction in ozone than sites in Connecticut that are further downwind. However, as noted above, in the OTC CMAQ modeling, the closest downwind Connecticut site (Greenwich) has a 10-percent modeled ozone reduction, while the Westport site, which is slightly farther downwind, has only a 3-percent modeled ozone reduction. The commenter did not provide any information to explain why the OTC CMAQ modeling results for the Westport and Susan Wagner monitoring sites are dissimilar to other nearby sites or why the commenters believe that the OTC CMAQ modeling provides a more representative ozone projection for these two sites compared to the EPA and OTC CAMx-based modeling.

Information in the OTC air quality modeling technical support document (OTC TSD) provides some insight into why their CMAQ and CAMx modeling shows a dramatic difference in model response in New York City and coastal Connecticut.[141] First, the OTC's comparison of CMAQ and CAMx 2011 base year model predictions to the corresponding measured data indicate that the CAMx 2011 predictions have lower error and higher correlation with measured data (*i.e.,* better model performance) than the CMAQ 2011 predictions for the 8 monitoring sites in Connecticut and New York that are included in Table 6–6 of the OTC TSD. Second, examining the 2011 modeled data for the top-10 days used to calculate the site-specific RRF indicates that the CMAQ 2011 predictions are not representative of ozone concentrations at the location of high ozone coastal sites in New York City and coastal Connecticut for which data are provided in the OTC TSD. For example, Figures 6–81 through 6–90 in the OTC TSD provide time series plots of measured and CMAQ and CAMx-modeled ozone data for the days used to calculate the RRF at each of 5 monitoring sites in the Northeast (2 sites in coastal Connecticut, 2 sites in New York City, and 1 site in Maryland). These figures show several types of data including (1) the 2011 measured and corresponding model-predicted hourly ozone concentrations at the monitoring site and (2) the highest 2011 and 2017 modeled 8-hour daily maximum ozone concentrations in the 3 x 3 array of grid cells including and surrounding the monitoring site.[142] The latter set of data are used in the calculation of the RRF which, in turn, is used to project the future year design value at each site. It is expected that the highest modeled ozone values based on the 3 x 3 approach for calculating RRFs will be equal to or greater than the modeled value in the grid cell containing the monitor. However, as evident from the figures in the OTC TSD, the 2011 and 2017 ozone concentrations used for projecting design values based on OTC's CMAQ modeling overstate the modeled values at the coastal monitoring sites by a notably larger amount than the corresponding 2011 predictions from OTC's CAMx modeling. The clearest example of this is at the Queens College site in New York City where the CMAQ-based 2011 and 2017 data for the ten days used for the RRF calculation appear to be 50 to 60 ppb above the highest hourly measured concentrations at the location of the monitoring site. In contrast, the CAMx data used for the RRF calculation appear to be within 20 ppb of the highest hourly measured data on all ten days at this site. Overall, the OTC CAMx 2011 ozone concentrations used to calculate the RRF align closely with the model predictions and measured data at the monitoring sites for which data are provided in the OTC TSD. Thus, the CAMx-based projections are more likely to be representative than OTC's CMAQ modeling of the expected ozone response to emissions reductions at the location of the monitoring site.

Typically, the highest modeled concentrations near coastal monitoring sites are found in adjacent over-water grid cells. Ozone can be higher over water than over land because mixing of the air is more limited over water and titration (*i.e.,* removal) by chemical reaction of ozone with fresh NO emissions is less prevalent. Thus, it is possible that the apparent anomalous 2017 design values at the Westport and Susan Wagner sites derived from OTC's CMAQ modeling may be the result of using predicted ozone values in the RRF calculations that are not representative of concentrations at the monitoring site. This hypothesis is supported by the

[141] Ozone Transport Commission/Mid-Atlantic Northeastern Visibility Union 2011 Based Modeling Platform Support Document, October 18, 2018. This document can be found in the docket for this action.

[142] In Figures 6–81 through 6–90 of the OTC TSD the highest modeled ozone concentration in the 3 x 3 array of grid cells is referred to as the ''9-Grid 8HMX'' value.

OTC's own analysis in which the OTC applied an approach that limits the use of over-water ozone predictions in the calculation of projected design values (*i.e.,* Land Water Mask or LWMASK). When the OTC applied the LWMASK approach, the projected 2017 design values at the Westport and Susan Wagner sites were lowered significantly. Specifically, the 2017 OTC CMAQ design value at Westport drops from 83 ppb to 76 ppb and from 78 ppb to 72 ppb at Susan Wagner by limiting the amount of over water grid cells used in the projections. Thus, the concerns with the OTC's application of CMAQ for 2017, as described above, call into question the validity of their CMAQ modeling for other future years.

Regarding the comment that the EPA's modeling predicts attainment in 2017 at eight monitors in Connecticut that are currently measuring nonattainment, it is entirely reasonable to project that these sites will be in attainment by 2023 as a result of the roughly 19 percent reduction in aggregate ozone season NO_X emissions that is expected to occur between 2017 and 2023 for the states covered by the CSAPR Update. Despite large regional and local NO_X emission reductions, ozone has remained stubbornly high at sites in Connecticut. Larger ozone reductions are expected at these sites in the future as NO_X emissions continue to go down, and the local ozone chemistry becomes more responsive to NO_X reductions. That is, because of the high NO_X emissions in the New York City area and the non-linear chemistry associated with ozone formation, the benefits of NO_X emission reductions may not have been fully realized to date at downwind sites in Connecticut. More notable reductions in ozone at these sites are expected as NO_X emissions decline further, in response to existing control programs and other factors influencing emissions. Large, short-term reduction in ozone is not unprecedented at historically high-ozone sites in other parts of the Northeast Corridor. Specifically, the measured design values at the Edgewood monitoring site in Harford County, Maryland, which is downwind of the Baltimore/Washington, DC urban area, declined by nearly 20 percent between 2012 and 2014 and have been below the level of the 2008 NAAQS since 2014, as shown by the data in Table III.C–3, below. Thus, the EPA disagrees that the monitored and OTC CMAQ modeling data cited by the commenter indicate that the EPA modeling projections for 2023 are not reliable.

TABLE III.C–3—DESIGN VALUES (PPB) AT EDGEWOOD SITE IN HARFORD COUNTY, MD, 2007 THROUGH 2017

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Design Value	94	91	87	89	92	93	85	75	71	73	75

As the commenters have suggested, the EPA did perform an analysis comparing model response of ozone to emissions between CMAQ and CAMx and found that both models give very similar responses when both models are run with similar inputs (*e.g.,* emissions, meteorology, and boundary concentrations) and similar technical constructs (*e.g.,* vertical layer structure and vertical mixing method).[143] The results of that study are further supported by a more recent comparison by the EPA of projected CAMx and CMAQ ozone design values using the EPA's version 6.2 of the 2011 emissions platform [144] with 2025 as the future year.[145] [146] For the two sites in the New York City area that are the focus of the comments (*i.e.,* Westport and Susan Wagner), the EPA's analysis shows that both models predict a comparable reduction at each of these sites. Specifically, at the Westport site the 2009 to 2013 base period ozone design values were projected to decline by 9 percent with CMAQ and by 11 percent with CAMx. This difference in model response equates to only a 1.8 ppb difference in projected 2025 design values at this site, which is far less than the 9.2 ppb difference between CMAQ and CAMx seen in the OTC's analysis of 2023 modeling results. Similarly, at the Susan Wagner site the base period ozone design value was projected to decline by 11.2 percent with CMAQ and 11.7 percent with CAMx in EPA's modeling. The difference in model response at the Susan Wagner site equates to only a 0.4 ppb difference in the projected 2025 design, which is far less than the 5.8 ppb difference between CMAQ and CAMx in OTC's 2023 analysis.[147] Furthermore, a study sponsored by the Texas Commission on Environmental Quality also found that CAMx and CMAQ provide a comparable response to the same amount of NO_X and VOC emission reductions.[148] In summary, based on the EPA's analysis of its own data and the data available from commenters, we disagree with the commenter's contention that the EPA's CAMx-based modeling does not provide a credible projection of 2023 ozone design values.

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 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 the 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.[149] The EPA notes that, while the air quality modeling did identify potential remaining problem receptors in California in 2023, none of the EPA's prior analysis nor its current contribution modeling have linked any of the CSAPR Update states in the eastern U.S., whose good neighbor obligations for the 2008 ozone NAAQS

[143] Baker, K., S. Phillips, and B. Timin. ''Operational Evaluation and Model Response Comparison of CAMx and CMAQ for Ozone and $PM_{2.5}$'', 7th Annual Community Modeling & Analysis System Conference, October 2008.

[144] See the Technical Support Document (TSD): Preparation of Emissions Inventories for the Version 6.2, 2011 Emissions Modeling Platform, EPA, August 2015.

[145] A description of the CAMx modeling can be found in the Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone, EPA–452/R–15–007, September 2015.

[146] A description of the EPA CMAQ modeling can be found in the docket.

[147] An Excel file containing the differences in projected design values between EPA's CMAQ and CAMx modeling for sates along the Northeast Corridor from Washington, DC to Connecticut can be found in the docket for this final action.

[148] Final Report: Three-Dimensional Performance Comparison of CAMx and CMAQ Using the 2013 DISCOVER–AQ Field Study Data Base. Prepared by Ramboll under contract to the Texas Commission on Environmental Quality, August 2015.

[149] 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.*

are the subject of this action, 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 the EPA's 2017 modeling conducted for the CSAPR Update.

D. Final Determination

Consistent with the proposed action, the EPA has determined that, with CSAPR Update implementation, 20 eastern states' good neighbor obligations for the 2008 ozone NAAQS are fully addressed.[150] The states covered by this action are listed in table III.D–1. The EPA's determination is based on findings that: (1) 2023 is a reasonable future analytic year for evaluating ozone transport problems with respect to the 2008 ozone NAAQS; and (2) for the purposes of interstate ozone transport, air quality modeling projections for 2023 indicate that no further air quality problems will remain in the east in 2023.

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 of implementing 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 finds: (1) 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 emission reductions.

Furthermore, as described in section III.C, the EPA finds: (2) That its analysis of ozone concentrations in 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 two findings lead to EPA's final 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 final determination, the EPA finds that the promulgation of the CSAPR Update fully satisfies the requirements of the good neighbor provision for the 2008 ozone NAAQS for these states, and therefore also satisfies the agency's obligation pursuant to CAA section 110(c) for these states. Accordingly, the EPA has 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 FINAL 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 final determination, this action also finalizes 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 finalizes findings that the agency's previous approvals of CSAPR Update SIPs for Alabama (82 FR 46674) and Indiana (signed November 27, 2018; publication in the **Federal Register** forthcoming)[151] fully satisfy those states' good neighbor obligations for the 2008 ozone NAAQS. Thus, Alabama and Indiana have no obligation to submit any additional SIP revisions addressing these good neighbor obligations.

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 subject to Executive Order 13771 because this final 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 finalized in this action have no impact on monitoring, recordkeeping, and reporting requirements for affected

[150] The EPA has also already separately finalized an approval of Kentucky's SIP submittal demonstrating that the CSAPR Update is a full remedy for Kentucky's good neighbor obligation for the 2008 ozone NAAQS. 83 FR 33730 (July 17, 2018).

[151] In this action, the EPA proposed to find that Alabama's previously approved CSAPR Update SIP would now fully satisfy its good neighbor obligation for the 2008 ozone NAAQS. Subsequent to the proposal, the EPA finalized its approval of Indiana's CSAPR Update SIP. As discussed earlier, the EPA found that Indiana's SIP approval only partially satisfied its good neighbor obligation for the 2008 ozone NAAQS for the same reasons that the EPA found that Alabama's SIP approval only partially satisfied that state's good neighbor obligation. Although the EPA did not propose in this action to find that Indiana's SIP would now fully satisfy its good neighbor obligation, the EPA did propose to find that the state's CSAPR Update FIP would fully satisfy its obligation. Because Indiana's approved SIP is commensurate with its prior CSAPR Update FIP such that Indiana is therefore now situated identically to Alabama, the EPA believes it is a logical outgrowth of the proposal to finalize a finding that Indiana's approved CSAPR Update SIP also now fully satisfies its good neighbor obligation for the 2008 ozone NAAQS.

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). Additionally, the EPA provided an overview of its proposed determination during a National Tribal Air Association—EPA Air Policy Update meeting on Thursday July 26, 2018.

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.

Comment: One commenter contends that the EPA has inappropriately failed to identify and assess the health risks to children from its decision to authorize continued interstate ozone pollution that contributes to violations of the 2008 and 2015 ozone air quality standards in downwind states. The commenter states that the EPA has consistently recognized that children are disproportionately vulnerable to the environmental health risks of ozone and asserts that by authorizing continued pollution that will harm children, the EPA has failed to ensure that its policies, programs, activities, and standards address these risks. The commenter claims that this rule is subject to section 2–202 of the Executive Order, which provides that ''covered regulatory action'' means ''any substantive action in a rulemaking'' that is ''likely to result in a rule that may'' (1) ''adversely affect in a material way . . . the environment, public health or safety, or State, local, or tribal governments or communities'' and (2) ''concern an environmental health risk or safety risk that an agency has reason to believe may disproportionately affect children.'' The commenter asserts that ozone pollution above the air quality standards the EPA has adopted indisputably is a health risk that disproportionately affects children.

Response: According to section 2–202, a rulemaking is a ''covered regulatory action'' and thus subject to the Executive Order if the action is economically significant under Executive Order 12866 *and* involves an environmental health risk or safety risk that the agency has reason to believe may disproportionately affect children. This rulemaking does not qualify under either criterion. First, although this action is considered a significant regulatory action under Executive Order 12866, the EPA has *not* determined that the rule is economically significant under that Order, and the commenter has not explained whether or why it should be considered economically significant. To the extent that the commenter cites the standard for economic significance wherein an action ''would adversely affect in a material way . . . the environment, public health or safety, or State, local, or tribal governments or communities,'' the commenter has not explained how this action, which concludes that air quality problems will be resolved and therefore does not either impose or repeal any regulatory requirements, would have an adverse effect.

Second, the health-based standard at issue in this action has already been set in a prior rulemaking to promulgate the 2008 ozone NAAQS, wherein the EPA did consider the effects of the standard under the Executive Order. 73 FR 16436, 16506–07. Therefore, this action does not concern an environmental health or safety risk because the EPA is simply evaluating how to implement an existing health standard. Moreover, under the good neighbor provision, the EPA's authority to prohibit emissions from sources in upwind states is constrained by the obligation to demonstrate that such reductions are necessary to address a downwind nonattainment or maintenance problem relative to a NAAQS. *See EME Homer City,* 134 S. Ct. at 1608. If the EPA's analysis determines that there are no such downwind air quality problems in the future, then the EPA cannot demonstrate that further emission reductions are necessary from an upwind state and the EPA lacks the authority to prohibit any further emissions. *See id.; EME Homer City II,* 795 F.3d at 130. Under such circumstances, there is no health or safety risk which may disproportionality affect children.

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

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). Because this action simply updates the existing CSAPR Update FIPs to establish that no further federal regulatory requirements are necessary and does not establish a new environmental health or safety standard, the EPA believes that no further review of this action under Executive Order 12898 is necessary.

Comment: One commenter asserts that the EPA has failed either to identify or to address the disproportionately high and adverse impact on minority communities of continued interstate ozone pollution that contributes to violations of both the 2008 and 2015 health-based standards for ozone and harms human health, in violation of the Executive Order. The commenter notes that the EPA's modeling conducted for the CSAPR Update showed that interstate ozone pollution contributes significantly to downwind states' failure to attain and maintain the 2008 ozone standard and identified the downwind nonattainment and maintenance areas that receive this pollution. However, the commenter contends that the EPA conceded the CSAPR Update would achieve only very small reductions in the pollution and that the EPA expected air quality problems in downwind areas to persist. Data for the 2017 ozone season confirms the EPA's projection that these areas would continue to suffer poor air quality in violation of the 2008 standard. The commenter asserts that the agency's claim that all Eastern states will be in compliance with the 2008 ozone standard in 2023 does not negate the serious harms that will result from unhealthy ozone levels this year, next year, and in future years. The commenter states that the populations in downwind areas that continue to experience violations are disproportionately members of minority racial and ethnic groups, and that the EPA's decision will expose communities who live near polluting sources, who are also disproportionally members of racial and ethnic minorities, to continued high levels of pollution. The commenter further asserts that people most exposed to power plant pollution are the least likely to be able to afford the health care costs imposed by exposure to pollution and are otherwise socially disadvantaged.

The commenter concludes that the agency's attempt to justify its failure to identify and address disproportionately high and adverse impacts on minority populations is contrary to the Executive Order and arbitrary. The commenter explains that Executive Order 12898 applies to all ''effects of [EPA's] programs, policies, and activities,'' which includes effects of the EPA's administration of the Clean Air Act's good neighbor provision and the decision not to address ongoing air pollution that contributes to violations of health-based air quality standards. The commenter contends that there is no basis to conclude that the Executive Order creates any exception for EPA programs, policies, or activities that effectively authorize, rather than curtail pollution, concluding that decisions that result in greater pollution are most likely to have disproportionately high and adverse impacts on minority populations.

Response: The health-based standard at issue in this action was set in a prior rulemaking to promulgate the 2008 ozone NAAQS, wherein the EPA did consider the effects of ozone on different populations, including those identified by the commenter. 73 FR 16436, 16507. As discussed earlier, the EPA also considered these effects in promulgating the emission reduction obligations intended to address downwind nonattainment and maintenance concerns with respect to this standard in the CSAPR Update. However, under the good neighbor provision, the EPA's authority to prohibit emission reductions from sources in upwind states is constrained by the obligation to demonstrate that such reductions are necessary to address a downwind nonattainment or maintenance problem relative to a NAAQS. *See EME Homer City,* 134 S. Ct. at 1608. If the EPA's analysis demonstrates that there are no such downwind air quality problems in the future, then the EPA cannot demonstrate that further emission reductions are necessary from an upwind state and the EPA therefore lacks the authority to prohibit any further emissions. *See id.; EME Homer City II,* 795 F.3d at 130. Under such circumstances, further review under Executive Order 12898 is not warranted.

L. Congressional Review Act

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

M. Determinations Under CAA 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 the 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 finds that this action 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). This action addresses emissions impacts and sources located in 20 States, which are located in multiple EPA Regions and federal circuits. The final action is also based on a common core of factual findings and analyses concerning the transport of pollutants between the different states. Furthermore, the 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.

For these reasons, the Administrator determines that this final action 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 this final action must be filed in the Court of Appeals for the District of Columbia Circuit within 60 days from the date this 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 has determined 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.

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: December 6, 2018.

Andrew R. Wheeler,

Acting Administrator.

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

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

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

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

§§ 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).

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